

**Proposed upgrade of the existing manganese ore railway line between De Aar and the Port of Ngqura – Amendment to Loops: Burgervillweg, Linde, Verby, Knutsford, Tafelberg and Rosmead**

**November 2012**

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## DRAFT AMENDMENT REPORT

### PROPOSED UPGRADE OF THE EXISTING MANGANESE ORE RAILWAY LINE BETWEEN DE AAR AND THE PORT OF NGQURA – AMENDMENT TO LOOPS: BURGERVILLWEG, LINDE, VERBY, KNUTSFORD, TAFELBERG AND ROSMEAD

#### Prepared for Transnet SOC Limited

DEA Reference no. 12/12/20/1241

ERM Reference no. 0172056

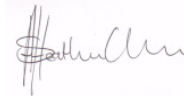
October 2012

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For and on behalf of  
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Signed:



Position: Partner in Charge

Date: November 2012

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Transnet SOC (State-owned Company) Limited (herein referred to as Transnet) is proposing to expand the existing manganese ore railway line from Hotazel in the Northern Cape to the Port of Ngqura in the Eastern Cape. The growing demand for manganese ore has resulted in the need to expand the capacity of the export corridor to 16 Million tons per annum (Mtpa).

In 2009, Environmental Resource Management Southern Africa (Pty) Ltd (herein referred to as ERM) undertook an Environmental Impact Assessment (EIA) process in terms of EIA Regulations (2006) under the National Environmental Management Act (No 107 of 1998) (NEMA) for the upgrading of various sections of the existing ~1 100 km long manganese railway line. The EIA application included, *inter alia*, the extension of existing rail loops or construction of new rail loops, upgrading of existing maintenance and rail yards and construction of new access roads and level crossings. The project received Environmental Authorisation from the National Department of Environmental Affairs and Tourism (now referred to as the National Department of Environmental Affairs (DEA) in November 2009 (Reference no. 12/12/20/1241). The activities authorised enabled the expansion of the capacity of the railway line from 5.5 to 12 Mtpa. Since the receipt of the authorisation, and following a review of the long term manganese ore export requirements, the scope of the expansion has changed. Based on this scope change, an amendment process is required for proposed changes to rail loop extensions that were already authorised in 2009, this affects two loops in the Northern Cape and four in the Eastern Cape.

The proposed expansion of the manganese ore railway line also includes the extension of several existing rail loops in the Northern and Eastern Cape as well as the installation of new rail loops in the Northern Cape. These proposed activities were not previously assessed and environmental authorisation through a basic assessment process is required. In addition, a new compilation yard is being proposed in the Northern Cape near Hotazel. This proposed compilation yard, referred to as the Mamathwane Compilation Yard requires environmental authorisation through a Scoping/EIA process. These processes including the public participation activities are being undertaken concurrently with this amendment process.

Please note: An existing authorisation is valid for the area between Kimberley and De Aar and the upgrading of this section may start in 2013.

## **1.1**

### **PURPOSE OF THIS REPORT**

The purpose of this report is to present the proposed amendment to the existing Environmental Authorisation (Reference number 12/12/20/1241) for

six rail loops within the De Aar to Port of Ngqura railway section in terms of the EIA Regulations (2010) and Section 39 of NEMA.

The report will include an assessment of the potential impacts associated with the expansion of these loops, and a summary of the stakeholder engagement process pertaining to the amendment. It should be noted that, these specific loops will not be extended beyond the direct area of influence<sup>(1)</sup> which was assessed in the EIA completed in 2009.

## 1.2 *PROJECT APPLICANT*

Transnet is a wholly state owned company in South Africa, which strives to enable competitiveness, growth and development of the South African economy by delivering reliable freight transport and handling services that satisfy customer demand. Transnet's mandate is to assist in lowering the cost of doing business in South Africa, enabling economic growth and ensuring security of supply through providing appropriate port, rail and pipeline infrastructure in a cost-effective and efficient manner, within acceptable benchmarks (Transnet Sustainability Report, 2012).

Transnet, operating as an integrated freight transport company, contains five divisions as follows:

- Transnet Freight Rail (TFR),
- Transnet Rail Engineering (TRE),
- Transnet National Ports Authority (TNPA),
- Transnet Port Terminals (TPT), and
- Transnet Pipelines (TPL).

The above divisions focus on the operational aspects of Transnet's business and the above is supplemented by specialist units including: Transnet Property; Transnet Foundation and Transnet Capital Projects.

## 1.3 *PROJECT BACKGROUND AND RATIONALE*

In South Africa the main concentration of manganese mines producing predominantly higher grade ores is in the Kalahari Manganese basin, around Hotazel in the Northern Cape. It is anticipated that the manganese industry will experience strong export demand in the coming years. Given the quality of the manganese ore reserves, South Africa is in a position to benefit from the projected growth in the manganese industry if constraints on the current transport logistics are addressed.

(1)The area of influence thus takes into account:

- The physical extent of the proposed project activities; and
- The nature of the affected resource, the source of impact and the manner in which the resultant impact is likely to be propagated beyond the physical extent of the project activities.

In 2008 Transnet, in association with the manganese ore mining industry identified the need to increase the capacity of the export corridor to beyond the current capacity of 5.5 Mtpa. An environmental authorisation process was undertaken in this regard and the project authorised to proceed with construction in 2009. The project proposal on which this authorisation was issued was based on achieving an export capacity of 12 Mtpa. Subsequently Transnet, in conjunction with the manganese mining industry, has identified an export requirement of more than 12 Mtpa for long term growth. This growth will be primarily driven by increasing global steel manufacturing and a changing steel product mix to produce a greater percentage of higher grade steels, which in turn use higher grades of manganese ore. In addition, global supply of lower grade manganese ore by marginal producers, who are high on the cost curve, cannot profitably sustain the exports of their low grade ore putting the South African manganese mining sector in a unique position provided transportation options remain cost effective. Based on the increased demand of manganese ore the mining industry has indicated the need for an increased export capacity of 16 Mtpa. As such, changes to the original development proposal necessitate additional environmental authorisation processes including this amendment process.



Figure 1.1 Locality map: De Aar to Port Elizabeth



## 1.4 ASSUMPTIONS AND LIMITATIONS

In compiling this application for amendment, the following assumptions and limitations are applicable:

- Information sourced from secondary sources (previous investigations undertaken in the region) was correct.
- The report was prepared based on the most up to date project description provided.
- All information received from the applicant and associated consultant team is accurate.
- The project description contained in the report is consistent with the engineering design.
- The motivation for the proposed project, provided by the applicant, is accurate.

## 1.5 DETAILS OF AMENDMENT PROJECT TEAM

ERM is a global environmental consulting firm employing over 4,000 specialists in over 140 offices across 40 countries. ERM Southern Africa in turn is one of the largest environmental consulting firms in the region, with extensive experience in South Africa and abroad. A list of the project team is provided in **Table 1.1** below, together with the associated qualifications and experience:

**Table 1.1 Expertise of EAPs**

Stuart Heather Clark	Partner in Charge	<ul style="list-style-type: none"> <li>• BSc Civil Engineering – Univ. of Cape Town (1992)</li> <li>• MPhil. Environ Science – Univ. of Cape Town (1996).</li> </ul> <p>EAPSA Certified</p>	<p>Stuart Heather-Clark is a Partner in the Impact Assessment and Planning Team within ERM Southern Africa based in Cape Town, South Africa.</p> <p>Mr Heather-Clark's has over 17 years of experience in industrial, oil &amp; gas and infrastructure related ESIA and Strategic Environmental Assessments (SEA) throughout Africa. His experience has afforded him a sound understanding of the sustainability issues facing development in Africa. He has been involved in a number of internationally funded projects in Cameroon, Ethiopia, Zambia, Tanzania, Angola, Botswana, Namibia, Uganda and Mozambique. All of these projects involved interaction with lenders, developers, local stakeholders, including NGO's, government officials and local communities. Mr Heather-Clark has an in-depth understanding of the Equator Principles and IFC performance Standards.</p>
Tania Swanepoel	Project Manager	<ul style="list-style-type: none"> <li>• BSc Hons (Engineering &amp; Environmental Geology), University of Pretoria, 2000.</li> <li>• BSc Hons</li> </ul>	<p>Tania Swanepoel is a Principal Consultant in the Impact Assessment and Planning team based in Cape Town, South Africa.</p> <p>Tania has over 13 years of broad based environmental experience. Her experience includes environmental impact assessments, management plans, public</p>

		(Geology and Geohydrology), University of the Western Cape, 1997.	participation, environmental site investigations, pollution risk assessments, remedial system monitoring, geotechnical investigations, groundwater monitoring and rural water supply & sanitation studies.
		<ul style="list-style-type: none"> <li>BSc (Geology, Mathematics), University of the Western Cape, 1996.</li> </ul>	
		Registered Natural Scientist (Pr Sci Nat).	
Mel Pillay	Project Consultant	<ul style="list-style-type: none"> <li>B Soc. Sci (Hons): Geography and Environmental Management, University of Natal, 2004.</li> </ul>	<p>Mel Pillay is a Senior Consultant in the Impact Assessment and Planning team based in Cape Town, South Africa.</p> <p>Mel has over 5 years of broad based environmental experience. His experience includes environmental impact assessments, management plans, public participation and environmental control services.</p>

## 1.6 STRUCTURE OF THIS REPORT

The structure of this report is as follows:

**Table 1.2 Structure of Amendment Report**

Chapters	Contents
Chapter 1 Introduction	Outlines the purpose of the report, introduces the EIA process and proposed Project and provides an outline of the report structure.
Chapter 2 Administrative Framework	Describes the legislative, policy and administrative requirements applicable to the Project.
Chapter 3 EIA Approach and Methodology	Outlines the approach to the study and the EIA methodology used to assess the significance of impacts.
Chapter 4 Project Description	Includes a detailed description of the previously approved and the new amended project description.
Chapter 5 Environmental and Social Baseline	Describes the receiving environment including the biophysical and socio-economic aspects.
Chapter 6 Stakeholder Engagement	Summarises the stakeholder engagement process undertaken for the Project to date.
Chapter 7 Impact Assessment and Mitigation	Describes and assesses the potential impacts of the proposed project with respect to the amendments to the approved extensions to the existing loops and outlines any additional mitigation measures to reduce negative impacts and enhance benefits.

<b>Chapters</b>	<b>Contents</b>
Chapter 8 Project Environmental Specification (PES)	Describes the mitigation and management of those aspects of the project that are not included in Transnet's Construction EMP and Standard Environmental Specification documents.
Chapter 9 Conclusions and Recommendations	Outlines the conclusions of the EIA process recommendations going forward.
Chapter 10 References	Contains a list of references used in compiling the report.

This Chapter outlines the legislative, policy and administrative requirements relevant to this amendment process. Although this Chapter briefly outlines the relevant legal framework applicable to the project in its entirety, the detailed legislative requirements for the current amendment application are limited to the National Environmental Management Act (No. 107 of 1998) (NEMA).

## 2.1

### LEGISLATIVE FRAMEWORK

In 2009 the project was subject to legislative requirements at a national, provincial and local level when the export capacity of the rail line was proposed to be increased to 12 Mtpa. A full Scoping and EIA process was completed in terms of the EIA Regulations (2006). Relevant legislation that was applicable to that project description included, *inter alia*, the following and aspects of some of these are discussed below:

- NEMA as amended;
- NEMA EIA Regulations, 2006 (Government Notice No. R385, R386 and R387) (note that the EIA process was completed prior to promulgation of 2010 EIA Regulations);
- National Environmental Management: Biodiversity Act (No. 10 of 2004)
- Conservation of Agricultural Resources Act (No. 43 of 1983);
- National Forest Act (No. 84 of 1998);
- National Water Act (No. 36 of 1998);
- Northern Cape Nature and Environmental Conservation Ordinance;
- Atmospheric Pollution Prevention Act (No. 45 of 1965);
- National Environment Management: Air Quality Act (No. 39 of 2004);
- National Heritage Resources Act (No. 25 of 1999);
- Environment Conservation Act (No. 73 of 1989); and
- Mineral and Petroleum Resources Development Act (No. 28 of 2002).

The proposed amendments to the approved project description will be applicable to the NEMA and the EIA Regulations (2010) and thus an amendment application will need to be submitted to the competent authority (i.e. DEA). The listed<sup>(1)</sup> activities published under Government Notice R385, R386 and R387 that were approved during the previous EIA process and that relate to this amendment process, in terms of EIA Regulations (2006), are summarised below.

(1) Listed activities are activities that may result in detrimental impacts to the receiving environment. Prior to undertaking a listed activity, an environmental authorisation is required.

**Table 2.1** *Previously approved listed activities (EIA Regulations, 2006)*

<b>Relevant Notice</b>	<b>Activity Numbers (in terms of the Relevant Government Notice)</b>	<b>Description of Listed Activity</b>
GN R387, 21 April 2006	Activity 1 (s) Please note that this was the primary listed activity that was triggered to undertake a Scoping and EIA process.	(s) Rail transportation, excluding railway lines and sidings in industrial areas and underground railway lines in mines, but including - <ul style="list-style-type: none"> <li>• Railway lines;</li> <li>• Stations; or</li> <li>• Shunting yards.</li> </ul>
GN R386, 21 April 2006	Activity 1(m)	(m) Any purpose in the one in ten year flood line of a river or stream, or within 32 metres from the bank of a river or stream where the flood line is unknown, excluding purposes associated with existing residential use, but including - <ul style="list-style-type: none"> <li>• Canals;</li> <li>• Channels;</li> <li>• Bridges;</li> <li>• Dams; And</li> <li>• Weirs.</li> </ul>
GN R386, 21 April 2006	Activity 4	The dredging, excavation, infilling, removal or moving of soil, sand or rock exceeding 5 cubic metres from a river, tidal lagoon, tidal river, lake, in-stream dam, floodplain or wetland.
GN R386, 21 April 2006	Activity 7	The aboveground storage of a dangerous good, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic metres but less than 1000 cubic metres at any one location or site.
GN R386, 21 April 2006	Activity 12	The transformation or removal of indigenous vegetation of 3 hectares or more or of any size where the transformation or removal would occur within a critically endangered or an endangered ecosystem listed in terms of section 52 of the National Environmental Management: Biodiversity Act, 2004 (No. 10 of 2004).
GN R386, 21 April 2006	Activity 15	The construction of a road that is wider than 4 m or that has a reserve greater than 6 m, excluding roads that fall within the ambit of another listed activity or which are access roads that are less than 30 m.

**2.1.1** *National Environmental Management Act (Act No. 107 of 1998)*

Section 24 (b) of NEMA gives effect to the South African Constitution, which states that all South African citizens have a right to an environment that is not harmful to their health or well being.

Key principles of NEMA related to the amendment process and public participation specifically are described in Part 2 of the Act and include the following:

- Development must be socially, environmentally and economically sustainable;
- Environmental management must be integrated;
- Decisions concerning the environment must take into account the needs, interests and values of all Interested and Affected Parties (I&APs);
- Community well-being and empowerment must be promoted through environmental education and awareness, and the sharing of knowledge and experience; and
- Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with law, etc.

The planning and implementation of the project has therefore taken these principles into account at all stages.

#### 2.1.2 *NEMA EIA Regulations, 2010 (Government Notice No R543)*

Chapter 4 (Part 1) of the EIA Regulations (2010) outlines the process for amendments of an Environmental Authorisation. Section 39 confirms that the holder of an Environmental Authorisation may apply to the competent authority for an amendment of the authorisation, on the following conditions:

- There is material change in the circumstances which existed at the time of the Environmental Authorisation;
- A change on ownership in the property and transfer of rights and obligations; and
- A condition contained in the authorisation must be amended, added, substituted, corrected, removed or updated.

Upon submission of the amendment application and associated documents, the competent authorities will first determine if the suggested amendments are considered *substantive* or *non-substantive*. According to Section 39 (3), if the application is defined as a *substantive* amendment, the competent authority may request for a public participation process to be undertaken and additional specialist assessments (if required). However, in keeping with good practice, ERM is undertaking a comprehensive public participation process for the amendment application, in line with Section 54 of the EIA Regulations (2010).

The amendment report will be released for a 40 day public comment period, before submitting to DEA as the competent authority for decision making. The previous specialist studies undertaken for the 2009 EIA (air quality, noise, vibration, traffic, ecology, archaeology and cultural heritage, and the social environment) have provided a comprehensive investigation of the direct area of influence and therefore no additional specialist investigations are being proposed. The impact assessment for the amendments is therefore based primarily on the previous specialist study findings. However, due to potential

changes in the socio-economic environment since 2009, this baseline was updated, and the impacts subsequently re-assessed. Despite the changes to the socio-economic environment, the nature of anticipated impacts and effectiveness of associated mitigation presented in the 2009 EIA Report remain applicable.

## 2.2 *POLICY AND ADMINISTRATIVE REQUIREMENTS*

DEA (formerly referred to as the Department of Environment and Tourism [DEAT]) has produced a number of policy and guideline documents to guide EIA processes in South Africa and to reflect best practice. These include the:

- DEAT Integrated Environmental Management Information Series, 2002; and
- DEAT EIA Guideline Documents, 2006.

The relevance and applicability of these documents to the amendment process underway for the project are briefly discussed below.

### 2.2.1 *DEAT Integrated Environmental Management Information Series*

The DEAT Information Series of 2002 was drafted as a source of information on the concepts and approaches to Integrated Environmental Management (IEM). IEM is a key instrument of NEMA and provides the overarching framework for the integration of environmental assessment and management principles into environmental decision-making. The aim of the information series is to provide general information on techniques, tools and processes for environmental assessment and management. ERM have referred to these various documents for information on the most suitable approach to the amendment process for the proposed development.

### 2.2.2 *DEAT EIA Guideline Documents*

Following the promulgation of the revised EIA Regulations in April 2006, DEAT published a number of guideline documents to assist with the undertaking of EIA processes in South Africa. The guidelines relate to the EIA process in general, the public participation process, the assessment of alternatives and environmental management frameworks.

These guidelines have been incorporated into the amendment report and have informed the proposed public participation process.



### 3 *APPROACH AND METHODOLOGY APPLIED TO AMENDMENT PROCESS*

The approach to the amendment process, including the stakeholder engagement, is outlined in this Chapter. However, prior to describing the suggested amendment process, it is important to recognise the process followed during the EIA undertaken in 2009. Due to the limited nature of expected changes to the approved project description, the amendment process will be guided by Section 39 of the EIA Regulations (2010) and will be supplemented with information from the 2009 EIA process.

#### 3.1 *PREVIOUS EIA APPROACH*

The previous EIA process started with a high level screening study followed by the legislated EIA process which comprised a Scoping Phase, EIA Phase and public participation. These phases are described briefly below.

##### 3.1.1 *High Level Screening Study*

In February 2008, ERM was appointed by Transnet to undertake a high level screening Study as part of a larger feasibility study being undertaken for the proposed project. The aim of the study was to identify key environmental and social risks that would affect the development/expansion of rail loops between the Port of Ngqura and De Aar.

##### 3.1.2 *Previous EIA Process*

The previous EIA process consisted of the following three phases:

- Project Initiation Phase;
- Scoping Phase; and
- Integration and Impact Assessment Phase (including an Environmental Management Plan).

Authorisation was received for the project on 16 November 2009.

##### *Project Initiation Phase*

The initiation phase included a number of meetings between the consultant and client teams to confirm the project scope. It also included a pre-application meeting with the DEA (then known as the DEAT) to confirm the approach to the EIA, followed by the formal submission of the EIA Applications for authorisation in terms of EIA Regulations (2006) to initiate the EIA process (two separate applications were submitted, one for the section from De Aar to Hotazel and the second, which is relevant to this

amendment covered the area from De Aar to the Port of Ngqura with DEAT Ref no: 12/12/20/1241).

### *Scoping Phase*

During this phase the project team aimed to identify potential biophysical and socio-economic issues, concerns and opportunities related to the proposed Project. This included engaging stakeholders to understand their views.

A number of specialist studies were commissioned to provide baseline information about the study area and to identify potential impacts associated with the project. These studies included investigations on air quality, noise, vibration, traffic, ecology, archaeology and cultural heritage, and the social environment.

Based on this work, a Draft Scoping Report, including a Plan of Study for EIA, was compiled and made available to stakeholders for comment for a 30 day public comment period. The updated Final Scoping Report, including a comments and response report of stakeholder comments received, was then submitted to DEAT for approval, which was received on 17 November 2008.

### *Integration and Assessment Phase*

The issues of concern raised by stakeholders during the Scoping Study provided a basis for identifying specialist studies and their terms of reference (ToRs), as well as clarifying other issues that needed to be addressed in the EIA. The specialist studies that were undertaken are listed below in *Table 3.1*. Copies of the specialist reports can be made available upon request.

**Table 3.1** *Specialist Studies Undertaken*

<b>Specialist Study</b>	<b>Specialist</b>
Noise assessment	Jongens Keet Associates
Vibration assessment	Department of Mechanical and Aeronautical Engineering , University of Pretoria
Traffic impact study	ITS
Air quality impact assessment	uMoya-NILU Consulting (Pty) Ltd
Phase 1 archaeological and cultural heritage study	Archaic Heritage Project Management, University of Pretoria
Terrestrial ecology assessment	Natural Scientific Services
Social Impact Assessment	ERM Southern Africa

The aim of the integration and assessment phase was to bring together the findings of the above-mentioned specialist studies and the relevant available information into an EIA report and to once again elicit stakeholder comment on the proposed project and impact assessment process. The Draft EIR focused on the description, assessment and evaluation of potential biophysical and socio-economic impacts and benefits, as well as the identification of appropriate mitigation / enhancement measures for the construction and operational phases of the Project. The report was released for a 30 day public comment period.

### *Environmental Management Plan (EMP)*

An EMP was compiled in accordance with Section 34 of the EIA Regulations. The EMP was essentially a delivery mechanism for environmental and social mitigation measures, recommendations and commitments from the EIA Report for the proposed development <sup>(1)</sup>.

The Project EMP consisted of three documents, namely:

- A Construction EMP (CEMP) (refer to *Annex G*);
- A Standard Environmental Specification (SES) (refer to *Annex H*); and
- A Project Environmental Specification (PES) (refer to *Chapter 8*).

Both the CEMP and SES are generic documents, approved by DEAT, and used for all Transnet projects. The PES, however, included information specific to this project that is not documented in the CEMP or SES.

The 2009 EMP remains valid but will be updated in light of the amended project description and appended to this report, as per the cross-references given above.

## **3.2 PROPOSED APPROACH TO THE AMENDMENT PROCESS**

In recognising that a comprehensive EIA process was previously undertaken including impact identification and assessment by a specialist team, the proposed amendment process will be undertaken in the following manner:

- Project Initiation;
- Amendment Report; and
- Decision-making.

### **3.2.1 Project Initiation Phase**

A Background Information Document (BID) (refer to *Annex A*) was released for a 30 day public comment period (02 October – 01 November 2012), which served to notify stakeholders of the proposed project and provide them with an opportunity to submit comment or raise queries. In addition, newspaper adverts were placed in newspapers and site notices were placed on site and in nearby towns to inform potential stakeholders of the project. The stakeholder database compiled in 2009 was used to develop an initial list of stakeholders which is being expanded accordingly, based on feedback received during the initial and subsequent public participation activities.

### 3.2.2 *Amendment Report Phase*

Upon completion of the Project Initiation phase (October 2012), this Amendment Report was compiled together with an amended PES. During this phase of the process, the project team aimed to identify and assess potential biophysical and socio-economic issues, concerns and opportunities related to the revised project description.

Specialist studies undertaken during the EIA in 2009 were reviewed to augment the level of understanding of the affected environment and potential impacts arising from the amended project description. These specialist studies were used to guide the impact identification and assessment of potential impacts related to the proposed amendment.

This Amendment Report has been released for a 30 day public comment period (from 22 November 2012 - 09 January 2013)<sup>1</sup>, during which public meetings and focus group discussions with directly affected landowners will be held.

Upon completion of the 40 day public comment period, a Comments and Response Report will be compiled and distributed to registered I&APs. The Amendment Report will then be updated based on comments received and released for an additional 21 day public comment period, while simultaneously being submitted to DEA for their consideration and decision-making. Comments received during the 21 day public comment period will be submitted to DEA directly.

### 3.2.3 *Decision Making Phase*

Upon submission of the Final Amendment Report, DEA will commence with the decision making period. Although Section 42 of the EIA Regulations (2010) requires the competent authority to either reject or accept the Amendment Report within 30 days of completion of the Amendment Process, the EIA Regulations do not specify a regulated timeframe to reach a decision on the amendment application.

If a positive decision is made on the amendment application, the competent authority will either issue a new Environmental Authorisation or an addendum to the existing authorisation. In terms of Section 42 (4) of the EIA Regulations (2010), upon having reached a decision, the competent authority must issue the decision within 2 days.

Upon issuing of the Environmental Authorisation (positive or negative), the decision will be advertised and registered I&APs will be notified in writing.

<sup>1</sup> The comment period excludes the period from 15 December to 02 January, in line with public participation requirements in terms of the EIA Regulations.

Lastly, I&APs will be provided with the relevant information should they wish to lodge an appeal against the decision directly to the DEA.

### 3.3 ASSESSMENT METHODOLOGY

The scale of a potential impact is assessed according to the significance of the impact on an affected party or the environment. Specialists will aid the project team in assigning significance ratings to potential impacts before and after the implementation of mitigation measures or management actions.

#### 3.3.1 Introduction and definitions

The purpose of impact assessment and mitigation is to identify and evaluate the likely extent and significance of potential impacts on identified receptors and resources according to defined assessment criteria. Furthermore, the impact assessment aims to develop and describe measures that will be taken to avoid, minimise, mitigate/ compensate for any potential adverse effects and to report the significance of the residual impacts that remain following mitigation/compensation.

There are a number of ways that impacts may be described and quantified. An impact is essentially any change to a resource or receptor brought about by the presence of the project component or by the execution of a project related activity.

The types of impacts and terminology used in this assessment are outlined in *Table 3.2 Impact assessment terminology*.

**Table 3.2 Impact assessment terminology**

Term	Definition
<i>Impact nature</i>	
<b>Positive</b>	An impact that is considered to represent an improvement on the baseline or introduces a positive change.
<b>Negative</b>	An impact that is considered to represent an adverse change from the baseline, or introduces a new undesirable factor.
<i>Grouping of impact</i>	
<b>Routine/planned impact</b>	Occurs as a result of expected common or regular project activities.
<b>Non-routine/unplanned impact</b>	Occurs as a result of exceptional events or upset/emergency conditions.
<i>Impact type</i>	
<b>Direct impact</b>	Impacts that result from a direct interaction between a planned project activity and the receiving environment/receptors (e.g. between occupation of a site and the pre-existing habitats or between an effluent discharge and receiving water quality).
<b>Indirect impact</b>	Impacts that result from other activities that are encouraged to happen as a consequence of the project (e.g. in-migration for employment placing a demand on resources).

Term	Definition
<b>Cumulative impact</b>	Impacts that act together with other impacts (including those from concurrent or planned future third party activities) to affect the same resources and/or receptors as the project.

### 3.3.2 Assessing significance

There is no statutory definition of 'significance' and its determination is, therefore, somewhat subjective. However, it is generally accepted that significance is a function of the magnitude of the impact and the likelihood of the impact occurring. The criteria used to determine significance are summarised in Table 7.4.

**Table 3.3 Significance criteria**

<i>Impact magnitude</i>	
<b>Extent</b>	<p><i>On-site</i> – impacts that are limited to the boundaries of the rail reserve.</p> <p><i>Local</i> – impacts that affect an area in a radius of 20km around the development site.</p> <p><i>Regional</i> – impacts that affect regionally important environmental resources or are experienced at a regional scale as determined by administrative boundaries, habitat type/ecosystem.</p> <p><i>National</i> – impacts that affect nationally important environmental resources or affect an area that is nationally important/ or have macro-economic consequences.</p>
<b>Duration</b>	<p><i>Temporary</i> – impacts are predicted to be of short duration and intermittent/occasional.</p> <p><i>Short-term</i> – impacts that are predicted to last only for the duration of the construction period.</p> <p><i>Long-term</i> – impacts that will continue for the life of the project, but ceases when the project stops operating.</p> <p><i>Permanent</i> – impacts that cause a permanent change in the affected receptor or resource (e.g. removal or destruction of ecological habitat) that endures substantially beyond the project lifetime.</p>
<b>Intensity</b>	<p><i>Negligible</i> – the impact on the environment is not detectable.</p> <p><i>Low</i> – impact affects the environment in such a way that natural functions and processes are not affected.</p> <p><i>Medium</i> – where the affected environment is altered but natural functions and processes continue, albeit in a modified way.</p> <p><i>High</i> – where natural functions or processes are altered to the extent that it will temporarily or permanently cease</p> <p>In terms of social impacts, intensity can be defined in terms of the ability to adapt.</p>
<i>Impact likelihood (Probability)</i>	
<b>Unlikely</b>	The impact does not occur.
<b>Possible</b>	Impact occurs infrequently.
<b>Highly probable</b>	Impact is likely to occur under most conditions.
<b>Definite</b>	Impact will definitely occur.

Once a rating is determined for magnitude and likelihood, the following matrix can be used to determine the impact significance.

**Table 3.4** Example of significance rating matrix

		Likelihood		
		Low	Medium	High
Magnitude	Negligible	Minor	Minor	Minor
	Low	Minor	Moderate	Moderate
	Medium	Moderate	Moderate	Major
	High	Major	Major	Major

In Table 7.6, the various definitions for significance of an impact are given.

**Table 3.5** Significance definitions

Significance definitions	
<b>Negligible impact</b>	Negligible impact (or insignificant impact) is where a resource or receptor (including people) will not be affected in any way by a particular activity, or the predicted effect is deemed to be ‘negligible’ or ‘imperceptible’ or is indistinguishable from natural background variations.
<b>Minor impact</b>	An impact of minor significance is one where an effect will be experienced, but the impact magnitude is sufficiently small (with and without mitigation) and well within accepted standards, and/or the receptor is of low sensitivity/value.
<b>Moderate impact</b>	An impact of moderate significance is one within accepted limits and standards. The emphasis for moderate impacts is on demonstrating that the impact has been reduced to a level that is as low as reasonably practicable (ALARP). This does not necessarily mean that ‘moderate’ impacts have to be reduced to ‘minor’ impacts, but that moderate impacts are being managed effectively and efficiently.
<b>Major impact</b>	An impact of major significance is one where an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued/sensitive resource/receptors. A goal of the assessment process is to get to a position where the project does not have any major residual impacts, certainly not ones that would endure into the long term or extend over a large area. However, for some aspects there may be major residual impacts after all practicable mitigation options have been exhausted (i.e. ALARP has been applied). An example might be the visual impact of a development. It is then the function of regulators and stakeholders to weigh such negative factors against the positive factors such as employment, in coming to a decision on the project.

The level of confidence in the findings and key uncertainties will be clearly identified, e.g. where information is insufficient to determine the impact significance, this will be clearly stated.

The impact assessment will consider the extent to which project impacts contribute to or undermine the achievement of sustainable development visions and objectives which have been defined for the area in question.

The impact rating will be summarised to reflect the significance of the impact with and without the incorporation of mitigation measures.

#### 4.1 INTRODUCTION

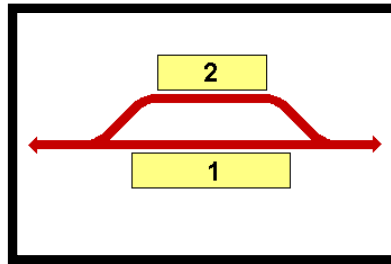
The purpose of this Chapter is to present the amended project description. However, in order to contextualise the amendments required, the project description as assessed and authorised in 2009 will be discussed briefly, together with the rationale for extending the existing rail loops beyond what was originally assessed.

In response to an increase in the global demand for manganese ore (an essential component of iron and steel production), 29 loops were identified in the 2009 EIA for expansion and/or construction along the existing railway line between Hotazel in the Northern Cape, and the Port of Ngqura in the Eastern Cape. The rail loops, also called passing loops or crossing loops (see *Figure 4.1*, below) would facilitate increased manganese ore traffic on the line by allowing trains travelling in opposite directions on a single line to pass each other safely.

**Figure 4.1** *Passing/crossing loops*

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A passing loop or crossing loop is a place on a single line railway where trains travelling in opposite directions can pass each other. A passing loop is usually double ended and connected to the main track at both ends.




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A typical rail loop is depicted in *Figure 4.2*, below.



Figure 4.2 Typical Infrastructure Requirements for Rail Loop Upgrades



Although the 2009 EIA was based on a larger project description (i.e. inclusion of various rail yards, access roads/ level crossings), this amendment report is limited to a review and assessment of the updated scope of work for the following rail loop upgrades:

Northern Cape

- Burgervilleweg
- Linde

Eastern Cape

- Rosmead
- Tafelberg
- Knutsford
- Verby

An amendment process is required for these loops because the line extensions required for these loops are larger than previously anticipated to accommodate the crossing of two 200 wagon trains. As mentioned in *Section 1*, any new loops and/or loop extensions that were not previously assessed, are now being assessed through a basic assessment process which is being run concurrently with this amendment process. A brief description of the scope of the proposed loop upgrades associated with this amendment is given below in *Table 4.1*.

**Table 4.1** *Description of the Loop Upgrades*

<b>Loop name</b>	<b>Description</b>
<b>Eastern Cape</b>	
Verby	The loop will be located on the northern side of the main line and will extend in both directions ie towards Port of Ngqura and Hotazel from the centre of the Verby station.
Knutsford	The loop will extend in both directions i.e. towards Port of Ngqura and Hotazel. Lengthening of the loop in one direction only, would result in undesirable steep gradients which are not effective for the operation of these long trains. Therefore, the lengthening of the loop is done in both directions.
Tafelberg	The loop will be lengthened in the direction of the Port of Ngqura to avoid costly alterations to a road-over-rail bridge in the direction of Hotazel.
Rosmead	The loop will be lengthened in the direction of the Port of Ngqura due to a steep gradient in the approach direction from Hotazel.
<b>Northern Cape</b>	
Linde	The loop will be lengthened in the direction of the Port of Ngqura.
Burgervilleweg	The loop will be lengthened in the direction of the Port of Ngqura.

#### **4.1.1** *Previously Assessed and Authorised Associated Infrastructure*

Associated infrastructure authorised previously is described briefly below. It should be noted that during the 2009 EIA process, detailed engineering design was not completed. In order to ensure that all potential environmental and social impacts were adequately identified and assessed, the EIA process defined the area of influence using a worst case scenario (i.e. an area / footprint larger than what is required), was assessed to allow for refinement and finalisation of the project design. The scope of work for the associated infrastructure has not changed and therefore these aspects will not be reassessed as part of the amendment.

##### *Service and Maintenance Roads*

As described in the previous Final EIA Report (ERM, 2009), the six existing loop sites subject to the amendment process are mostly accessible from the existing road network. However, temporary construction roads are required at all the sites. Furthermore, upgrading (i.e. widening or lengthening) and/or construction of access and maintenance roads are also required and have been authorised, together with temporary construction roads.

##### *Level Crossings and Associated Roads*

Construction of new level crossings and associated roads is required at Knutsford and Verby loop extension sites. This was previously assessed and subsequently authorised and it should be noted that this is not subject to further amendments.

### *Signalling Equipment*

Signalling equipment and associated structures needed to be relocated to accommodate the extension of the six loops. This was previously assessed and subsequently authorised and it should be noted that the signaling equipment is not subject to further amendments.

### *Borrow Pits*

During the 2009 EIA process, a number of existing and new borrow pits were identified to be utilised for both ballast and sub-base material during the construction period. Geotechnical investigations are currently being undertaken to evaluate the suitability of materials at various locations.

### *Site Offices, Construction Camps and Laydown Areas*

During the 2009 EIA, the construction phase for the extension of the six loops required temporary site offices, construction camps and laydown areas. No amendment to the 2009 EIA is required in this regard although it is anticipated that construction camps will not be required.

Temporary use of adjacent land may be necessary during the construction phase (e.g. for equipment laydown areas or access/maintenance roads). Fences will be maintained in their current and/or temporary positions and reinstated to their original or new positions at the completion of the construction phase. Transnet will secure permission from the affected landowners before any fencing is removed.

### *Culverts*

The alignment of the rail loop extensions will follow the existing railway line, which means that cuttings and embankments, where required, will be widened at the same track level. Culverts and drainage structures will be extended in the same positions, whilst maintaining the existing surface water drainage patterns. Water Use Licence Applications will be submitted in this regard.

### *Electrical Equipment*

Electrical equipment will be similar to the existing equipment and will consist of mast poles supporting the overhead traction wires feeding power to the locomotives. Colour light signals and relay rooms will be placed at the loops to control the train movements.

Based on the detailed design, *Table 4.2*, summarises the specifics for the upgrading and/or construction of new associated infrastructure proposed at the amended loop upgrades. It should be noted that the associated infrastructure will be located within the direct area of influence that was previously assessed in the 2009 EIA process.

**Table 4.2 Summary of Associated Infrastructure**

<b>Loop Name</b>	<b>Service road/Maintenance Road</b>	<b>Fencing</b>	<b>Culvert extension</b>	<b>Temporary laydown area</b>	<b>Level crossing</b>	<b>Crossing loop</b>	<b>Site office</b>	<b>OTHER</b>
<b>Linde</b>	New service road (+/- 2200m long)	Existing fence to be dismantled and reconstructed in new location.	2 box culvert and 3 pipe culvert extensions-	+/- 6800 m <sup>2</sup>	None	Crossing loop extension (+/- 2400m long)-	Site office near Laydown 2093 m <sup>2</sup>	
<b>Burgervilleweg</b>	+/- 500m of existing road to be deviated	Existing fence to be dismantled and reconstructed in new location.	5 box culvert extensions	Laydown area to be located near existing station yard.	None	crossing loop extension (+/- 2500m long)-	Small site office (container) located near laydown area.	
<b>Knutsford</b>	Public access road 428m long and 5m wide	Existing fence to be dismantled and reconstructed in new location.	2 pipe culvert and 3 box culvert extensions	(+/- 6000 m <sup>2</sup> )	New level crossing-	Crossing loop extension – (+/- 2000 m long)	Small site office (container) located near laydown area.	
<b>Rosmead</b>	Existing service road to be deviated	Existing fence to be dismantled and reconstructed in new location.	4 box culverts extensions	Laydown area to be located near existing station yard.	None	Crossing loop extension (+/- 2000m long)-	Small site office (container) located near laydown area.	
<b>Tafelberg</b>	Deviat main road (+/- 300m) Deviat service road (+/- 300m)	Existing fence to be dismantled and reconstructed in new location.	3 box culvert and 1 pipe culvert extensions	3250 m <sup>2</sup>	None	Crossing Loop extension (+/- 2250m long)	Small site office (container) located near laydown area.	Existing Eskom transmission lines to be deviated.
<b>Verby</b>	Existing farm road to be relocated	Existing fence to be dismantled and reconstructed in new location.	2 box culvert and 4 pipe culvert extensions	2 x 3000 m <sup>2</sup>	2 x New level crossings	New loop +/- 2700m long	Small site office (container) located near laydown area.	

The proposed amendments to the six previously authorised rail loop upgrades are tabulated in *Table 4.4*, below.

A series of maps reflecting the location/ footprint of the previously authorised descriptions for loop extensions compared to the proposed amended description of loop extensions are contained in *Annex B*. The length of the rail loop upgrades has increased. The land to be acquired beyond the rail reserve for the six loops is approximately 6.3 ha, in total. However, the additional areas required fall within the area of influence that was previously assessed and authorised in the 2009 EIA.

**Table 4.3** *Comparison of Previously Authorised and Proposed Amendments to Rail Loop Upgrades*

Loop name	Length of authorised loop extension (m)	Length of amended loop extension (m)	Land to be acquired beyond the rail reserve (ha)	Number of farms affected	Farm Names
<b>Eastern Cape</b>					
Verby	777	2 700	0.2	3	Rem of Sandkloof No. 116; Rem of Brakfontein No. 120; and Ptn 6 of De Bruyns Kraal No. 113
Knutsford	658	2 000	-	-	Het Fortuin 66
Tafelberg	712	2 250	1.1	1	Ptn 2 of Tafelberg No. 176
Rosmead	730	2 000	1.8	2	Ptn of Buffelspoort No. 336; Ptn 13 of Leuwe Fontyn No. 119
<b>Northern Cape</b>					
Linde	698	2 400	2.7	1	Ptn 1 of Van Der Lindes Kraal No. 79
Burgervilleweg	760	2 500	0.5	2	Ptn 1 of Leuwe Fountain No. 27; Ptn 1 of Riet Fountain No. 39

During the 2009 EIA process, it was expected that the rail loop extensions would be located inside the existing rail reserve (with the exception of Verby) however, as can be seen from the table above, small tracts of land will be required for the proposed amendments. Portions of a total of ten farms will be affected by the proposed loop amendments. Transnet will be in contact with the affected landowners in this regard and the land acquisition process is outlined in *Section 5.5*. As part of the amendment process, landowners have been contacted and interviewed. Issues raised by landowners have been captured in the impact assessment section and comments will be incorporated into a Comments and Responses Report after the close of the comment period on this report.

#### 4.2.1 *Construction Methodology for Loop Upgrades*

The typical loop construction methodology is outlined below. This is a generic methodology and some aspects may not be relevant to all of the proposed loop developments.

- Establish temporary offices, workshops, stores, shelters, mess and ablution facilities;
- Relocate fences to new permanent or temporary positions as required for construction purposes;
- Clear land for site facilities within the rail reserve;
- Relocate existing electrical, communication and signal equipment where construction is necessary;
- Clear land, remove topsoil and stockpile within the rail reserve where loops are to be lengthened;
- Clear land, remove topsoil and stockpile outside the rail reserve where new roads and level crossings are to be constructed;
- Construct new roads and level crossings where required to the standards specified by the relevant road and rail authorities;
- Extend culverts;
- Excavate cuttings where required;
- Excavate material from borrow pits inside/outside the rail reserve and transport it by tipper lorry to the required site where it will be placed and compacted;
- Widen cuttings, where required, by blasting with commercial explosives;
- Erect temporary crushing plants on site;
- Build up banks and cuttings in layers and compact the final load-bearing gravel foundation to the required standard;
- Build a new maintenance road within the rail reserve;
- Dispose of excess material not used for fill or stockpiling;
- Lay skeleton track of sleepers and rails;
- Add ballast stone to hold and cushion the track and align it to the required level and horizontal placement;
- Erect the overhead traction equipment (OHTE) on masts mounted on concrete foundations next to the track;
- Erect signals and install equipment in secure relay rooms;
- Rehabilitate the site using topsoil and natural vegetation and re-establish drainage patterns where water courses have been dammed or diverted during construction; and
- Reinststate fences where required.

Construction requirements will include construction materials, water and electricity. Raw materials will be sourced both locally and abroad. For example, rails and signalling equipment will be imported from Europe, while sleepers, fasteners, cement, steel reinforcing, electrification equipment, prefabricated culverts, ballast stone and fencing materials will all be sourced locally.

Water will be sourced locally (i.e. from municipalities) or trucked in by road. In certain instances surface or groundwater may need to be abstracted with the relevant permission from the Department of Water Affairs (DWA) as part of a Water Use License Application.

Electricity for work sites will be provided by mobile generators.

## 5.1 INTRODUCTION

This Chapter provides a description of the baseline biophysical and socio-economic environment of the project area which traverses the Northern Cape and Eastern Cape provinces. The study area for this Amendment Process mostly follows the existing railway line between De Aar and Port of Ngqura.

## 5.2 BIOPHYSICAL ENVIRONMENT

### 5.2.1 Climate

The climate varies over the length of the existing railway line from the dry and arid Northern Cape to the wetter coastal regions of the Eastern Cape.

The climate of the eastern part of the Northern Cape Province, which includes the town of De Aar, is typically characterised by summer rainfall of approximately 400 mm per annum, high summer temperatures, with extreme temperatures exceeding 40 °C, and cold and clear winters with temperatures below 0 °C at night (Mucina, & Rutherford, 2006).

The climate of the central and western part of the Eastern Cape Province, through which the exiting railway line runs, varies according to the distance from the Indian Ocean. Coastal regions are typically characterised by mild, temperate conditions with high summer temperatures of 23 °C and cold winter temperatures of 14 °C. The inland areas experience slightly more extreme conditions, with summer temperatures of 35 °C and winter temperatures of 5 °C.

Local climatic conditions at the development sites could influence the scale and affect of project activities on the environment. For example, dust generation or erosion is directly linked with rainfall patterns in the region.

### 5.2.2 Topography

The topography of the project area is largely dominated by the semi arid Karoo basin in the Northern Cape and much of the Eastern Cape, as well as the sub-escarpment and coastal areas of the Eastern Cape. The terrain through which the existing railway line runs is predominantly quite flat, with exception of those sections of the line that traverse the Cape Fold Mountains and the escarpment north of Patterson and south of Cradock.

### 5.2.3 Geology

Given the length of the line, the geology has been roughly divided into regions with similar morphology. These are listed below and based on the



Geology Map of South Africa and the Kingdoms of Lesotho and Swaziland (Keyser, 1997):

- The geology between De Aar to Kommadagga is typical of the Beaufort Group, which is characterised with mudstones and sandstones, and with doleritic intrusions.
- Between Kommadagga and Paterson, where the line crosses the Suurberg mountain range, the project area is underlain by sedimentary rocks (quartzite and shales) from the Cape Supergroup; and finally
- Between Paterson and Port Elizabeth, the geology is comprised mainly of mudstones and limestones of the Algoa and Uitenhage Groups.

#### 5.2.4 *Surface and Groundwater*

From Kimberley, the existing railway line runs south south west, crossing the Riet River, the Orange River and the Hondeblafspruit, en-route to De Aar, before crossing the provincial border between the Northern Cape and Eastern Cape near Carlton. From there, the line runs in a south easterly direction towards Cradock before following the Noupootspruit, the Groot and Klein Brak, Great Fish, Boesmans and Sundays Rivers in a generally southerly direction to the Port of Ngqura and Port Elizabeth.

River systems encountered along the route of the amendments to the proposed extensions (where the railway either crosses or is located within 500m of a river system) are largely classified by the National Spatial Biodiversity Assessment (NSBA), compiled by the South African National Biodiversity Institute (SANBI), as endangered and critically endangered<sup>(1)</sup> with the exception of the Ga-Mogara, Hondeblafspruit, Groot Brak and Noupootspruit, all of which are classified as not threatened (see *Error! Reference source not found.*1 and Figure 5.12). According to the NSBA, “critically endangered ecosystems have lost so much of their original natural habitat that ecosystem functioning has broken down and species associated with the ecosystem have been lost or are likely to be lost.” Therefore, any remaining natural habitat must be protected and conserved to ensure that species associated with these systems are not threatened further.

In terms of groundwater, the Aquifer Classification Map of South Africa (1998) classifies the groundwater vulnerability<sup>(2)</sup> along the current railway line between De Aar and Barredeel (including Linde and Burgervilleweg Stations) as low to moderate, and then generally low thereafter as the railway line enters the Eastern Cape en-route to Port Elizabeth. A similar pattern is evident with regard to groundwater sensitivity<sup>(3)</sup> (see Figure 5.1 and Figure 5.2), which is generally high between De Aar and Barredeel (including Linde and

(1) Critically endangered river heterogeneity signatures have an intact length below their conservation target (in this case 10% of their total length).

(2) Vulnerability is a measure of the potential for a release from the site actually impacting the receptor, i.e. there is a pathway from the site to the receptor.

(3) Sensitivity is the measure of the degree of impact a release from the facility may have on a receptor. The sensitivity is related to the quality and use or potential use.

Burgervilleweg Stations). Thereafter, it is predominantly low with the exception of Barkly Bridge, which falls outside of the scope for this amendment process.

The groundwater beneath the railway line is of variable quality, although for most of the Karoo and Kalahari, the towns are dependent on groundwater for domestic use.

Figure 5.1 River ecological status: De Aar to Port Elizabeth

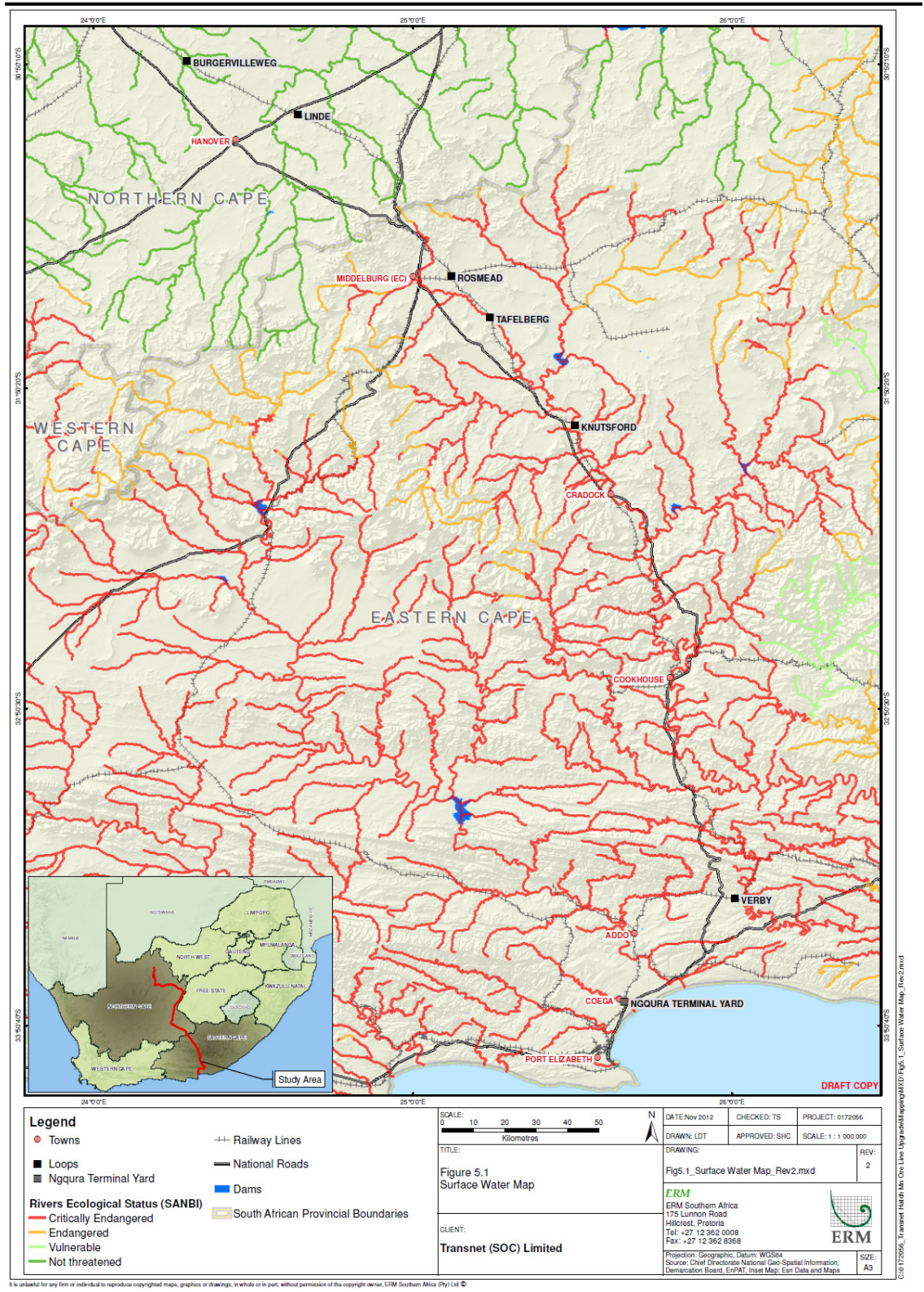
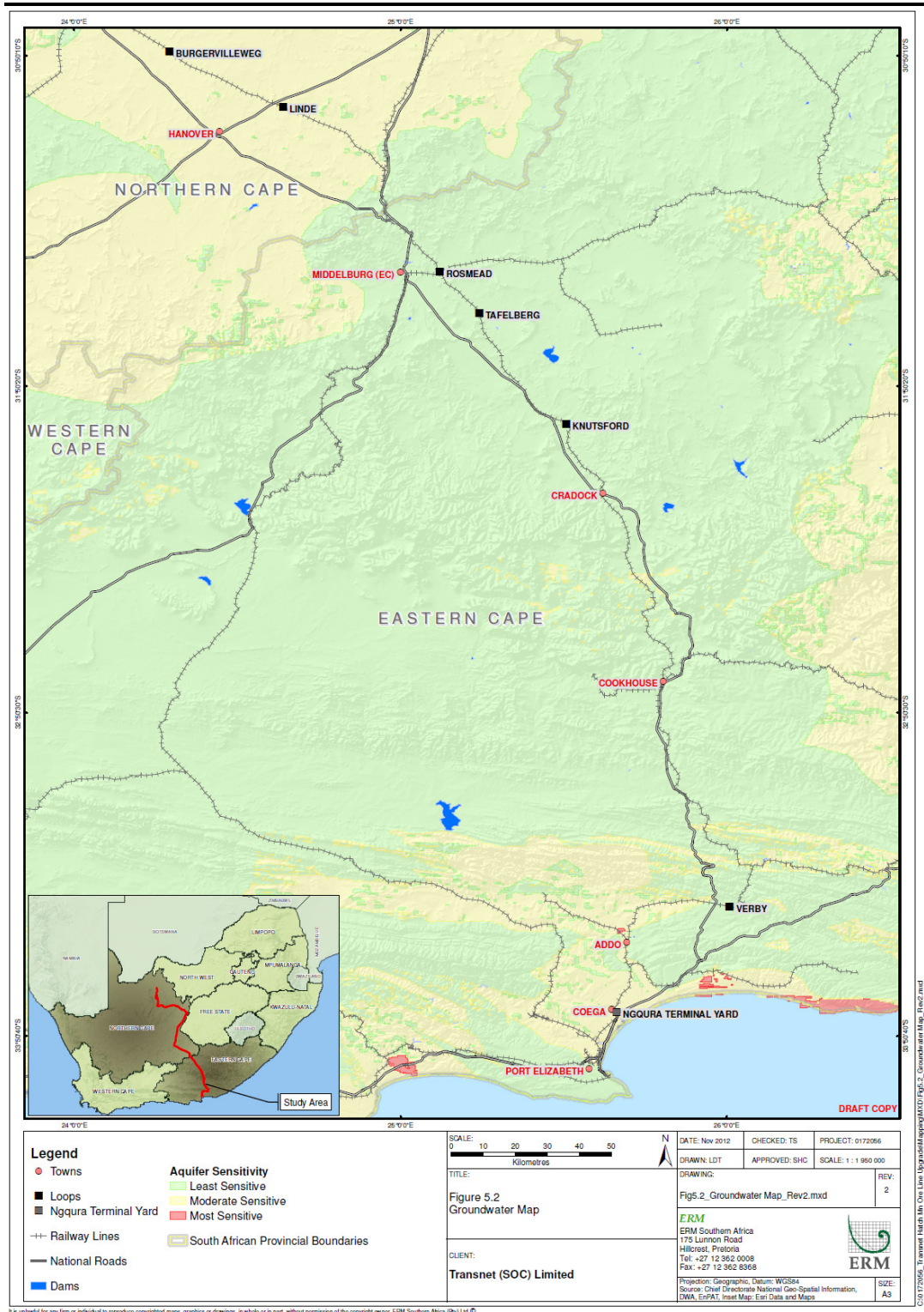


Figure 5.2 Groundwater sensitivity: De Aar to Port Elizabeth



5.2.5

*Flora and Fauna*

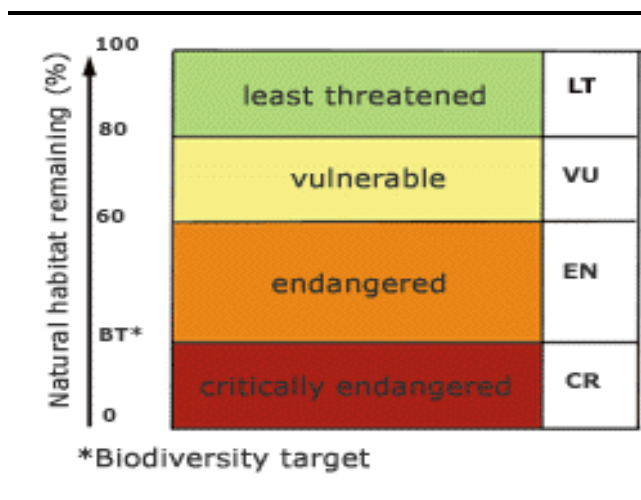
*Flora*

The topography along the current railway line is characterised by the escarpment and Karoo basin in the north and Cape Fold Mountains in the south. As such, the vegetation in the north is characterised by species that constitute the Savannah, Nama Karoo and Grassland Biome species. As the railway line approaches the escarpment edge, moving into the sub escarpment region, the vegetation is dominated by Albany Thicket Biome species and those associated with the Fynbos and Azonal Biome (Mucina and Rutherford, 2006).

The area subject to amendments falls within three different vegetation types, based on Mucina and Rutherford (2006). From north to south of the project area, this includes, Northern Upper Karoo, Eastern Upper Karoo and Kowie Thicket. Of the three vegetation types identified within the study area, all vegetation types are classified as Least Threatened.

The ecological status [Least Threatened (LT), Vulnerable (VU), Endangered (EN) and Critically Endangered (CR)] is based on how much of a given vegetation type’s original area remains intact, relative to the four basic thresholds calculated on the basis of the best available science (see *Figure 5.3*) (Driver *et al*, 2005). Note that the threshold beyond which an ecosystem becomes Critically Endangered varies from 16% to 36%, depending on the ecosystem. Basically, the more species-rich the ecosystem is, the higher the threshold value will be. This threshold is also known as the biodiversity target. It represents the proportion of each ecosystem that would ideally be included in a formal protected area.

*Figure 5.3 National Spatial Biodiversity Assessment (NSBA) thresholds and criteria (Driver, A. et al, 2005)*



The ecological status at a national level for each of the vegetation types relevant to the study area are listed in *Table 5.1* below.

**Table 5.1** *Vegetation types and their NSBA ecological status within the project area*

Vegetation Type	Ecological Status	Sites where Vegetation is found within the Study Area
Northern Upper Karoo	Least Threatened	Burgervilleweg
Eastern Upper Karoo	Least Threatened	Knutsford Tafelberg Rosmead Linde
Kowie Thicket	Least Threatened	Verby

In addition to the national perspective with respect to the ecological status of on-site vegetation, the specialist baseline ecological study identified a number of protected, endemic, IUCN rated Near Threatened <sup>(1)</sup> and conservation worthy species at a number sites.

The ecological sensitivity of any piece of land is based on its inherent ecosystem service level and overall contribution to the preservation of biodiversity. Although national standards and priorities are taken into account, site specific ratings (based on fieldwork and observation) may differ from national ratings. For example:

- A vegetation type with a national listing of Least Threatened can still include habitats that support protected species or ecosystems with high connectivity. These species or ecosystems cannot simply be ignored because of the listing of the vegetation type they occur in. When considering biodiversity at the species level, protected species and species of conservation concern need to be taken into consideration; and
- Likewise, a vegetation type that is listed as Threatened can also have disturbed areas. Taking into consideration the limited impact of the proposed project upgrades in an area that is already disturbed, the ecological sensitivity of the vegetation can only be rated as medium, rather than high.

During the 2009 EIA process, a specialist ecologist was appointed to undertake a detailed assessment. According to the study, high, medium and low ecological importance is defined as follows:

- **High ecological importance** – Sensitive ecosystems with either low inherent resistance or low resilience towards disturbance factors or highly dynamic systems considered being important for the maintenance of

(1) Near-Threatened - is a conservation status assigned to species or lower taxa that may be considered threatened with extinction in the near future, although it does not currently qualify for the threatened status.

ecosystem integrity. Most of these systems represent ecosystems with high connectivity with other important ecological systems OR with high species diversity and usually provide suitable habitat for a number of threatened or rare species. These areas should be protected.

- **Medium ecological importance** – These are slightly modified systems which occur along gradients of disturbances of low-medium intensity with some degree of connectivity with other ecological systems OR ecosystems with intermediate levels of species diversity but may include potential ephemeral habitat for threatened species.
- **Low ecological importance** – Degraded and highly disturbed/transformed systems with little ecological function and are generally very poor in species diversity (most species are usually exotic or weeds).

A suite of areas along the entire railway line route was identified to be of medium to high ecological importance. However with respect to the proposed amendments to the six existing loops, vegetation identified onsite was categorised as being of low ecological importance. The previous ecological specialist assessment will be made available, upon request.

#### *Fauna*

The previous faunal assessment undertook a Quarter Degree Square (QDS)<sup>(1)</sup> survey for the entire railway line. Amongst those avifaunal species identified, 34 Red Data listed species were recorded of which 19 are listed as Not Threatened and 15 as Vulnerable. Thirty nine Red Data listed mammal species were also recorded within the Study area. Of the 39 species recorded, 13 are listed as Data Deficient, 7 are Not Threatened, 11 are Protected Species, four are Vulnerable, three are Endangered and one is listed as Critical. Some of these mammals only occur within protected areas (i.e. Nature Reserves, Private Game Reserves, etc.), such as the Black Rhinoceros (*Diceros bicornis*), listed as Critically Endangered, and the Oribi (*Ourebia ourebi*), listed as Endangered.

A number of herpetofaunal species were also identified in the QDS analysis, many of which are endemic, restricted or rare in occurrence including the Plain Mountain Adder (*Bitis inornata*), Namaqua Plated Lizard (*Namakwapantserakkedis*), Elandsberg Dwarf Chameleon (*Bradypodion taeniabronchum*), and the Giant Bullfrog (*Pyxicephalus adspersus*).

A number of protected macro invertebrates may also occur within the project area. These include Creeping Scorpions (*Opistacanthus asper / validus*), Burrowing Scorpions (*Opisththalmus glabrifrons*), Horned Baboon Spiders (*Ceratogyrus spp.*), Common Baboon Spiders (*Harpactira spp.*), Golden Baboon Spiders (*previously Pterinochilus spp.*), Coega Copper Butterfly (*Aloeides clark*) and the Wineland Blue Butterfly (*Lepidochrysops bacchus*).

(1) Quarter Degree Squares (QDS) correspond to the area shown on a 1:50 000 map and are approximately 27 km long (north-south) and 23 km wide (east-west), depending on the particular latitude.

The specific faunal species identified at the six existing loops subject to extension are presented in *Chapter 7* below.

### 5.2.6 *Biodiversity Conservation Areas*

A number of protected areas are situated in relatively close proximity to the existing railway line between De Aar, the Port of Ngqura and Port Elizabeth. However, only two are relevant to the proposed extensions of the six loops in question. Firstly, the Mountain Zebra National Park which is located 16,8 km south west of the proposed Knutsford loop. Secondly, the Addo Elephant National Park is located within 10km of the Verby loop extension site.

## 5.3 *SOCIO-ECONOMIC BASELINE*

The purpose of this section is to describe the socio-economic environment within which the proposed project is located. The description provided in this section is based on publically available and high level secondary information as well as primary data gather from the affected landowners and Community Development Workers (CDWs). The section covers, *inter alia*, population levels, distribution and densities as well as ethnicity and language. It also reports on employment, poverty levels as well as social infrastructure and services. The information is presented as per the geographic areas through which the railway line passes, namely:

- The Northern Cape and the relevant district municipalities; and
- The Eastern Cape and the relevant district municipalities.

**Table 5.2** *Provinces, Municipalities, and Existing Loops to be Amended*

Province	District Municipalities	Local Municipalities	Existing Loops
Northern Cape	Pixley Ka-Seme District Municipality	Emthanjeni	Linde
			Burgervilleweg
Eastern Cape	Chris Hani District Municipality	Inxuba Yethemba	Knutsford
			Tafelberg
			Rosemead
	Cacadu District Municipality	Sunday's River Valley	Verby

### 5.3.1 *Provincial Level*

#### *Northern Cape*

The Northern Cape Province is the largest province in South Africa, measuring 361,830 km<sup>2</sup>. The primary metropolitan areas within the Northern Cape include Kimberly and Upington. Smaller district towns include Douglas, De Aar, Prieska, Victoria West, Hopetown and Colesburg.



The Northern Cape is the least populous province in South Africa, containing approximately 1.8 percent of national population <sup>(1)</sup>. The Province has a high poverty rate <sup>(2)</sup> despite the fact that the per capita GDP in the Northern Cape is higher than the national average <sup>(3)</sup>. The poverty rate for the Province is 48.5 percent, which is slightly lower than the national average <sup>(4)</sup>. Poverty rates differ vastly between racial groups, with low poverty rates among the White and Asian populations, and high poverty rates among Coloured (53.3 percent) and African (58.7 percent) population groups <sup>(5)</sup>. Over two thirds (70 percent) of the population live in urban areas, despite the vast extent of the Province.

The Northern Cape faces the challenge of high unemployment rates and low income levels. The unemployment rate in the Province is 26.7 percent, which is above the national average of 23.9 percent <sup>(6)</sup>.

### *Eastern Cape*

The Eastern Cape Province is the second largest province in South Africa, measuring 169,580 km<sup>2</sup>. There are two primary metropolitan areas within the Eastern Cape, namely, Port Elizabeth and East London. Smaller district towns include Grahamstown, King Williams Town, Queenstown, Bisho and Mthatha. There are small towns scattered along the coast of the Province.

The Eastern Cape is the third most populous province in South Africa, containing approximately 13.5 percent of national population <sup>(7)</sup>. It is, however, also the poorest province in South Africa, with a poverty rate of 68.7 percent <sup>(8)</sup>. Poverty rates differ vastly between racial groups, with low poverty rates among the White and Asian populations, and high poverty rates among Coloured (48.7 percent) and African (73.8 percent) population groups <sup>(9)</sup>. Just under two thirds (61.5 percent) of the population live in rural areas, which is different to the national trend, where 63 percent of the population live in urban areas and 37 percent in rural areas <sup>(10)</sup>.

The Eastern Cape faces the challenge of high unemployment rates and low income levels. The unemployment rate in the Province is 27.1 percent, which is above the national average of 23.9 percent <sup>(11)</sup>.

(1) StatsSA, July 2011

(2) The poverty rate is defined as the number of people earning less than the minimum level of income deemed adequate in a country. The World Bank uses the figure of \$1.25 per day.

(3) PROVIDE: Project Background Paper 2005.

(4) StatsSA, July 2011

(5) PROVIDE Project Background Paper 2005.

(6) Unemployment rate for Q4 2011 according to StatsSA.

(7) StatsSA, July 2011

(8) PROVIDE: Project Background Paper, 2005.

(9) Community Survey, 2007.

(10) PROVIDE Project Background Paper 2005.

(11) Unemployment rate for Q4 2011 according to Statssa.

### 5.3.2 *District Municipality - Northern Cape*

#### *Pixley Ka-Seme District Municipality*

The Pixley Ka-Seme District Municipality (PKDM) is one of five District Municipalities in the Northern Cape. It is located in the south eastern portion of the Northern Cape and is bordered by the Free State, Eastern Cape and Western Cape. The District is approximately 102,272 km<sup>2</sup> in size. There are eight Local Municipalities (LM) in PKDM, namely, Emthanjeni, Kareeberg, Renosterberg, Siancuma, Siyathemba, Thembelihle, Ubuntu, and Umsobomvu.

According to the 2007 Community Survey, the population of the PKDM is approximately 164,412, accounting for 16.9 percent of the total population of the Northern Cape. The population density within the District is 1.6 persons per km<sup>2</sup>, which is lower than that of the Provincial population density of 2.27 persons per km<sup>2</sup>. Forty one (41) percent of the population within the District are under the age of 20 years <sup>(1)</sup>.

The PKDM is considered largely rural, with small to medium urban centres, such as Douglas, De Aar, Prieska, Victoria West, Hopetown and Colesburg. The District Municipality faces high poverty rates, with an estimated 63.5 percent of the population living in poverty, significantly higher than the Provincial rate of 48.5 percent <sup>(2)</sup>. As with the Provincial trend, the poverty rate is more prevalent amongst the African and Coloured population groups.

PKDM contributes 10 percent to the total gross geographic product of the Northern Cape Province and is currently the poorest of the five municipal districts in the province. The key economic sectors in order of prominence are agriculture, community services, trade/tourism, construction and private households. The towns primarily function as agricultural service centres. The District Municipality is the largest wool producing area in the country and has a long history of sheep farming. There is a growing trend towards game farming, resulting in further job losses in the agricultural sector.

### 5.3.3 *District Municipality - Eastern Cape*

#### *Chris Hani District Municipality*

The Chris Hani District Municipality is one of seven District Municipalities in the Eastern Cape. It is located inland, roughly in the centre of the Province and is approximately 36,561 km<sup>2</sup> in size. There are eight LM within the District Municipality, namely, Emalahleni, Engcobo, Inkwanca, Intsika Yethu, Inxuba Yethemba, Lukhanji, Tsolwana, and Sakhisizwe. The LM that will be affected by the project is Inxuba Yethemba Local Municipality.

(1) Statistics South Africa, Community Survey, 2007

(2) Pixley ka Seme District IDP, 2011/2012

According to the 2007 Community Survey, the population of the Chris Hani District Municipality is approximately 798,597, accounting for 13 percent of the total population in the Eastern Cape. A large portion of the population (54.4 percent) within the District is between the age of five and 20 years <sup>(1)</sup>. This reflects a Province wide occurrence and may be linked to the fact that the Eastern Cape has a long history of being a labour sending area.

The Chris Hani District Municipality is largely rural, with small to medium urban centres, such as Queenstown, Middleburg, Lady Frere and Cradock. Like the Eastern Cape Province as a whole, the Chris Hani District Municipality also experiences high levels of poverty, with an estimated 56.6 percent of the population living in poverty <sup>(2)</sup>. As with the Provincial trend, the poverty rate is more prevalent in the African (57.8 percent) and Coloured (57.4 percent) population groups.

The Chris Hani District Municipality contributes 0.4 percent towards the national GDP. Key economic sectors in the District Municipality are agriculture, community services, construction and trade. The transport sector achieved a growth rate of 4.3 percent between 1996 and 2005.

#### *Cacadu District Municipality*

The Cacadu District Municipality is one of the largest Districts in the Eastern Cape Province and covers a land area of 58,243 km<sup>2</sup> (approximately 34 percent of the Province's land area). It wholly surrounds Nelson Mandela Bay Metropolitan area. The District has nine LMs namely Makana, Kouga, Ndlambe, Camdeboo, Sunday's River Valley, Blue Crane Route, Kou-Kamma, Baviaans, Ikwezi; of which Sunday's River Valley and Blue Crane Route will be affected by the project. The Cacadu District Municipality includes less than five percent of the population of the Eastern Cape Province. The total population is 388,206 and the population density equates to seven people/ km<sup>2</sup>.

A relatively large part of the District Municipality consists of national parks, namely the Addo Elephant National Park and the Tsitsikamma National Park. The Cacadu District Municipality is predominantly rural in nature and is characterised by small, scattered towns and settlements. Cacadu District Municipality assists nine LMs in providing the services needed by their communities. Despite its rural nature, it is the most urbanised District Municipality in the province with 67 percent of people living in urban areas.

Agriculture is one of the key drivers of the economy in the Cacadu District Municipality as it contributes nearly 40 percent to the Eastern Cape's agricultural output. It has an export based economy largely tied to agriculture. Farm output is transported to Port Elizabeth for processing and/or export. There has been some diversification of farming into tourism activities through, for example, game farming and hunting.

(1) Chris Hani IDP 2011/12

(2) PROVIDE: Project Background Paper, 2005

The Cacadu District Municipality depends predominantly on ground water for both human consumption and agricultural activity. The Cacadu District Municipality falls within what is known as the 'drought corridor' <sup>(1)</sup> <sup>(2)</sup>. This region is known for its sporadic droughts and scarcity of water. The low level of local rainfall results in sporadic droughts consequently drying up supply boreholes to towns and villages.

#### 5.4 LOCAL MUNICIPALITIES AND PROJECT SITES

##### 5.4.1 Emthanjeni Local Municipality

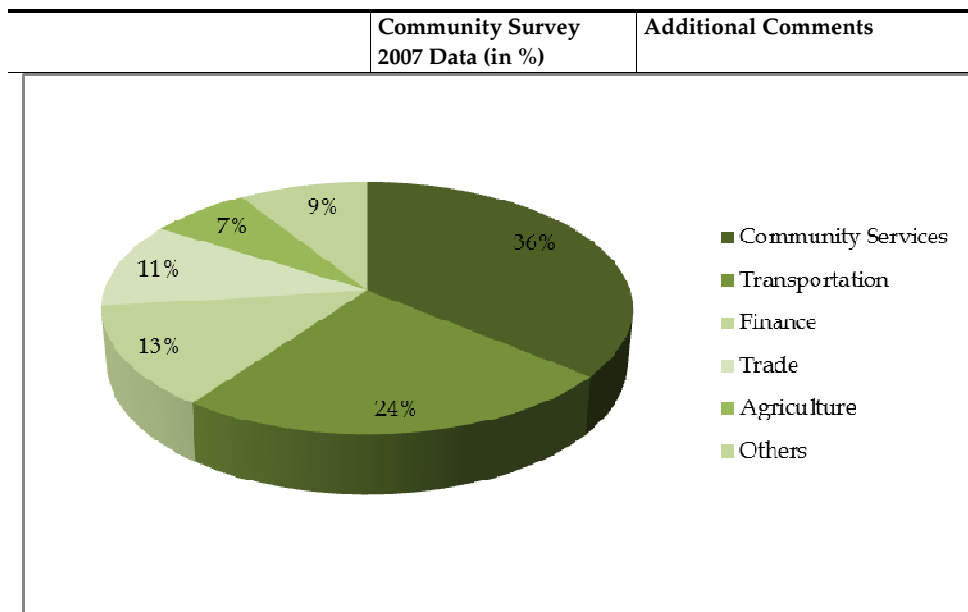
Emthanjeni Municipality comprises the towns of De Aar, Hanover, and Britstown. De Aar acts as the administrative seat of the municipality and it is also the third-largest town in the Northern Cape. It is centrally located on the main railway line between Johannesburg, Cape Town, Port Elizabeth and Namibia. Hanover lies approximately 65km east of De Aar on the N1, while Britstown is situated about 55km west of De Aar on the N12. Both these main routes link Johannesburg and Cape Town. The town of Emthanjeni lies in an extensive stock farming area, primarily sheep (mutton and wool farming), especially Merino sheep. Table 5.3 provides a statistical summary of Emthanjeni Local Municipality.

Table 5.3 Emthanjeni Local Municipality

	Community Survey 2007 Data (in %)	Additional Comments
<b>DEMOGRAPHIC INDICATORS</b>		
<b>Population Size</b>	38,228	Grew by 8% in 5 years The majority of the land is used for commercial farming activities, especially livestock
Annual growth rate	1.6	
<b>Rural/Urban Split</b>	Mostly rural	
<b>Racial Composition:</b>		
African/Black	26	
Coloured	63	
White	11	
Indian/Asian	0	
<b>SOCIO-ECONOMIC INDICATORS</b>		
<b>Education</b>		
No Schooling	25	The economically Inactive indicator includes Unspecified and Institutions
Primary Schooling	32	
Secondary Schooling	25	
Grade 12	15	
Tertiary	3	
<b>Employment rate</b>	42	
<b>Unemployment rate</b>	19	
<b>Economically Inactive</b>	39	
<b>ECONOMIC INDICATORS (highest sector contributions)</b>		

(1) The drought corridor extends across the Southern Africa region. This region extends from 20 degrees to 25 degrees south and is typically a summer rainfall region, but the region often experiences half or more of the summer season as a dry spell.

(2) Usman and Reason, 2004



Sources: StatSA: 2007 Community Survey; and Emthanjeni Local Municipality Integrated Development Plan, 2012

#### 5.4.2 *Description of the Closest Settlement/Town to the Project Site*

There are two project affected loops within Emthanjeni LM, namely Linde and Burgervilleweg. The closest town to these loops is the town of Hanover (21km to Linde and 31km to Burgervilleweg). A brief description of the town of Hanover is outlined below.

Hanover is a small town situated in the far south-eastern portion of the Northern Cape known as the Great Karoo. The town was established in 1854 on farmland purchased from a farmer named Gous, who requested that the town be named after his ancestor from Germany (Hanover). The population of Hanover is an estimated 2,693, with the majority of the population being Black/African, followed by Coloured and lastly Whites. The town is situated on the N1 main highway between Gauteng and Western Cape, and Kwa-Zulu/Natal as such provides an excellent stopover for travellers between these two Provinces. The economy of the town centres on stock farming with the emphasis on sheep, mutton and wool farming, especially Merino's. Like the other towns in this region, wool is exported to Port Elizabeth without being processed. According to the LM's Integrated Development Plan, the town has a large number of qualified construction industry artisans.

#### 5.4.3 *Description of the Project Sites (Linde and Burgervilleweg)*

The following section provides a brief description of the farms affected by the project, and provides information related to the size of the farms, the type of agricultural activities undertaken, as well as list of infrastructure found on the farms.

### *Burgervilleweg*

There are two farm portions which will be affected by the loop, namely portion of Portion 1 of the farm Leuwe Fontein No. 27 and portion of Portion 1 of the farm Riet Fontein No. 39, both situated in the Administrative District of Hanover, Northern Cape Province. The combined size of the farms is an estimated 20,000ha, with farm Leuwe Fontein being 15,000ha. Of the total land ownership an area of approximately 0.5ha will be acquired by Transnet for the project. These areas are adjacent to the current railway line and acquisition of ownership thereof by Transnet will not have an adverse effect on the agricultural activities of the owner. However, additional land may be required for a laydown area for the construction phase. The farms are privately owned with farm Riet Fountain owned by a family trust (WJ Retief Trust). There are no pending land claims on either farm.

Farming is the primary livelihood activity undertaken by the landowners; with both farmers undertake livestock keeping (Merino sheep). The sheep on the farms are sold to slaughter houses, leased to other farmers for reproductive purposes, and for wool production.

Both farmers reside permanently on their properties with their families. On farm Riet Fountain there are no workers residing on site, while there are five workers residing on farm Leuwe Fountain.

Infrastructures currently found on the farms include fences, houses, dams, (next to the railway line), stockyard, and sheds.

### *Linde*

Only one farm will be affected by the project. Two portions of Portion 1 of farm Van Der Lindes Kraal No 79, in the Administrative District Hanover, Northern Cape Province. These properties are adjacent to the current railway line and ownership thereof would be acquired by Transnet. The one portion is a narrow strip approximately 7m wide ( $\pm 2.2$ ha). The other portion is approximately 0.5ha in extent. The farm is privately owned, and is 1,400ha in size. Ownership of an estimated 2.6ha will be acquired by Transnet for the project. However, additional land may be required for a laydown area for the construction phase. According to the landowners, there are no pending land claims on farm.

The landowner is dependent on farming for his livelihood, specifically livestock keeping (sheep). The landowner owns the entire farm Van Der Lindes Kraal No 79 which is divided into nine portions (over 5,000ha). The project affected farm is only used to keep sheep and it has no permanent residents.

The landowner has given a solar energy development company, an option to lease a section of the farm for the development of a solar power plant. He would like to ensure that the project designs and layouts are not in conflict

with one another. Transnet will negotiate with this particular company to ensure that its leasing rights are not affected by the project.

Infrastructure currently found on the farm comprises of the remains of an old farm house that is nearly 200 years old, boreholes, power lines, servitude (used by Eskom), windmills, water reservoirs, and fenced off grazing camps.

#### 5.4.4 *Inxuba Yethemba Local Municipality*

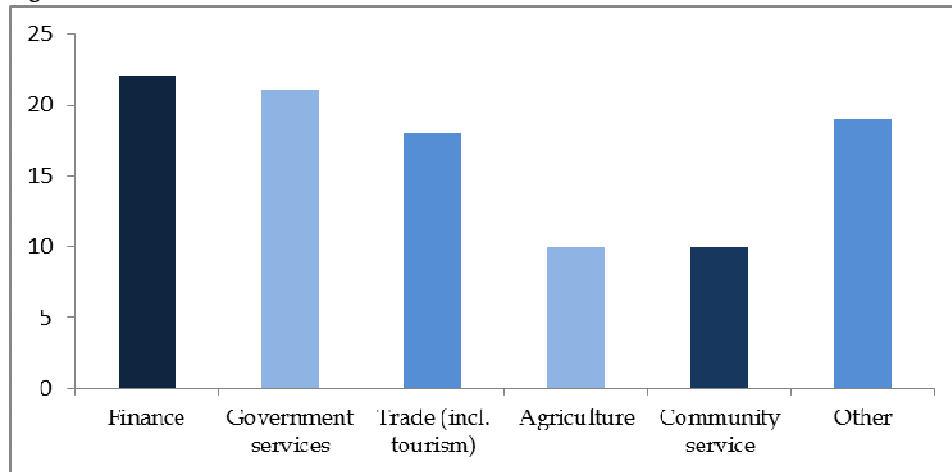
Inxuba Yethemba Municipality stretches over a geographical area of 11,595 km<sup>2</sup>. The municipality is very rural, with a limited number of people residing in the urban areas. The main towns in the municipality are Cradock and Middelburg (urban centres). The rural areas consist of commercial farms and small rural settlements such as Fish River Mortimer and Rosmead. The economy of the Municipality is largely based on agriculture and tourism, with small and medium enterprises comprising of government departments and finance and commercial institutions. *Table 5.4* provides a statistical summary of Inxuba Yethemba Municipality.

*Table 5.4 Inxuba Yethemba Local Municipality*

	Community Survey 2007 Data (in %)	Additional Comments
<b>DEMOGRAPHIC INDICATORS</b>		
<b>Population Size</b>	48,399	Estimated, based on a 20% decrease over past five years. The decline can be attributed to a lack of employment opportunities in the Municipal area and people moving out of the area in search of employment elsewhere.
Annual growth rate	- 4	
<b>Rural/Urban Split</b>	Mostly Rural	Characterised by commercial farming, livestock and crops
<b>Racial Composition:</b>		
African/Black	48	
Coloured	36	
White	16	
Indian/Asian	0	
<b>SOCIO-ECONOMIC INDICATORS</b>		
<b>Education</b>		
No Schooling	17	
Primary Schooling	23	
Secondary Schooling	27	
Grade 12	22	
Tertiary	11	
<b>Employment rate</b>	38	Economically inactive group incl. unspecified and institution
<b>Unemployment rate</b>	23	
<b>Economically Inactive</b>	39	
<b>ECONOMIC INDICATORS</b>		

	Community Survey 2007 Data (in %)	Additional Comments
Annual growth rate	> 6	The municipality aimed to grow its economy by six percent in 2009, it is unclear if that objective has been met or not, since the global down-turn.

**Highest sector contributions**



Sources: StatSA: 2007 Community Survey; and Inxuba Yethemba Local Municipality Integrated Development Plan, 2011

**5.4.5 Description of the Closest Settlement/ Town to the Project Sites**

There are three loops within Inxuba Yethemba LM, namely Knutsford, Tafelberg, and Rosmead. The closest town/settlement to Knutsford loop is Cradock (25km), whereas the small rural settlement of Rosmead is the closest to the Tafelberg and Rosmead loops (18km and 500m, respectively). A brief description of Cradock and Rosmead (settlement) is outlined below.

Cradock has a population of 28,689 with a majority of the population being Xhosa. The economy of Cradock is chiefly based on livestock keeping and crop farming. The town is well known for its wool industry, along with the production of beef, dairy, fruit, Lucerne, and mohair. Tourism is also a significant activity in the area due to the hot sulphur springs which attracts a large number of tourists.

The small rural settlement of Rosmead has an estimated 250 people. The settlement was formed by former Transnet workers who worked on the construction of the railway line. The land the community occupies belongs to Transnet; as such the community pays rates to Transnet and not the Municipality. Furthermore, none of the community members have title deeds to the land; as a result the municipality cannot provide them with basic services such as electricity, water, and housing. According to the CDW, the municipality is negotiating with Transnet regarding the transfer of the title deeds of the land to the community, but this has not been finalised.

Unemployment is high in the community (estimated at 95 percent). This is attributed to a general lack of opportunities, skills and education amongst the



community members. The remaining five percent are employed in the agricultural sector (as casual labourers) and in other small businesses in Middleburg.

#### 5.4.6 *Description of the Project Sites (Knutsford, Tafelberg, and Rosmead)*

The following section provides a brief description of the project affected farms, and provides information related to the size of the farms, the type of agricultural activities undertaken, as well as list of infrastructure found on the farms.

##### *Knutsford Loop*

Only one farm will be affected by this loop, namely Portion 1 of farm Het Fortuin No.66, Administrative District Middelburg, Eastern Cape Province. The farm is privately owned and is 954ha in size. Transnet will not be seeking to acquire ownership of any portion of this property to undertake the project. However land may be required for the laydown area during the construction phase. According to the landowners, there are no pending land claims on farm.

The landowner is solely dependent on farming for his livelihood, specifically livestock keeping (sheep and cattle), and crop farming (Lucerne). Irrigation farming, which includes flooding and underground irrigation, is undertaken on the farm. It is used to water lucerne and pastures. The water used for irrigation is drawn from the Knutsford Irrigation Scheme.

Infrastructure currently found on the farm comprises of worker housing (four workers reside permanently on the farm), a farm house, underground and flood irrigation systems, and two small dams.

##### *Tafelberg Loop*

Only one farm will be directly affected by this loop. Ownership of three portions of Portion 2 of the farm Tafelberg No 176, situated in the Administrative District of Middelburg, Eastern Cape Province, would be acquired by Transnet. The farm is privately owned, and is 3,830ha in size. Of the total land area, approximately 1.14ha will need to be acquired by Transnet for the project. All these properties are adjacent to the current railway line from Cookhouse to Noupoort. However, additional land may be required for a laydown area for the construction phase. According to the landowners, there are no pending land claims on farm.

The landowner is solely dependent on the farming activities for his livelihood (livestock farming). The farmer keeps sheep and cattle on the farm. Infrastructure currently on site includes an old church (140 years) which is still being used by the Anglican Church goers (local farmers), a homestead that is 112 years old, 12 boreholes, fences, farm house, and a windmill tower. These improvements will not be affected by the project.

### *Rosmead Loop*

Transnet would need to acquire two portions of farm land for this loop. These are a portion of the farm Buffelspoort No 336 and a portion of Portion 13 of the farm Leuwe Fontyn No 119, both situated in the Administrative District Middelberg, Eastern Cape Province measuring approximately 1.75ha and 0.27ha respectively. Portion 13 of the farm Leuwe Fontyn is 616 ha in size, while the size of farm Buffelspoort is unknown. Additional land may be required for a laydown area during the construction phase. The farms are privately owned with the farm Buffelspoort owned by a family trust. There are no pending land claims on either farm.

Farming is the primary livelihood activity undertaken by the landowners, but the owner of farm Leuwe Fontyn owns a shop, butchery and another farm; while the owner of farm Buffelspoort leases some of his cattle to other farmers for additional income. Both farmers undertake livestock keeping (cattle and sheep). The owner of farm Buffelspoort used to undertake dairy farming on the property, but has since stopped (in 2012), as he has decided on leasing most of his cattle to other farmers.

The owner of farm Buffelspoort has been approached by renewable energy developers for a solar development on his farm along with several of his neighbours. No specific decision has been made regarding which farm will house the solar facility. At this stage, it is anticipated that the solar development would not be affected by the project as those portions of land to be acquired by Transnet are adjacent to the current Cookhouse to Noupoort railway line. The farm Buffelspoort, along with its neighbours, is located close to the Collett Sub-station.

Both farmers reside permanently on their properties, and there are six families currently residing on farm Buffelspoort.

Infrastructure currently found on the farms includes fences, houses, boreholes, windmill, water reservoir (next to the railway line), stockyard, and underground water supply pipelines.

#### **5.4.7 *Sunday's River Valley Local Municipality***

The Sundays River Municipality (SRVM) is located in the Eastern Cape approximately 80km north and east of the Nelson Mandela Bay Metropolitan area. It includes the coastal zone between Alexandria and the Sundays River Mouth, and in-land stretches towards the Klein Winterhoek and Zuurberg Mountains. The area is characterised by the Addo Elephant National Park, the Woody Cape Nature area along the coast, and the Sundays River Valley irrigation and citrus farming region. SRVM plays an important role in the local economy of the Eastern Cape, due to high intensity irrigation farming which is largely based on the export market. Major urban centres include the

towns of Kirkwood, Addo and Paterson, with smaller nodes being Enon, Bersheba and Sunlands. *Table 5.5* provides a statistical summary of SRVM.

**Table 5.5** *Sunday's River Valley Local Municipality*

	Community Survey 2007 Data (in %)	Additional Information
<b>DEMOGRAPHIC INDICATORS</b>		
<b>Population Size</b>	41,580	Estimated, based on a 20% growth over past 5 years
Annual growth rate	4	
<b>Rural/Urban Split</b>	90/10	predominantly rural, agriculture based economy (commercial farming)
<b>Racial Composition:</b>		
African/Black	55	
Coloured	16	
White	3	
Indian/Asian	0	
<b>SOCIO-ECONOMIC INDICATORS</b>		
<b>Education</b>		
No Schooling	22	No tertiary institutions in the LM area
Primary Schooling	40	
Secondary Schooling	26	
Grade 12	9	
Tertiary	3	
<b>Employment rate</b>	23	High seasonal employment as the economy is agriculture based.
<b>Unemployment rate</b>	44	
<b>Economically Inactive</b>	33	Young children, elderly, sick and those who choose not to seek employment
<b>ECONOMIC INDICATORS</b>		
<b>Highest sector contributions</b>		
The agricultural sector is the highest contributor to the local GDP at 31 percent. The sector centres on citrus fruit, dairy and chicory farming. Other agricultural products grown in the area include vegetables, potatoes, maize, wheat, chicory, flowers and rye grass. Furthermore the sector employs the majority of people (an estimated 48 percent).		
Eco-tourism is another driving force of the local economy, as it houses the Addo Elephant National Park (which receives an estimated 115,000 visitors each year), Woody Cape Nature Reserve, the Alexandria Coastal Reserve and the Alexandria State Forest. Other sectors include community and personal services, trade, and construction.		

Sources: StatSA: 2007 Community Survey; and Sundays River Local Municipality Integrated Development Plan, 2011-2016

#### 5.4.8 *Description of the Closest Settlement/ Town to the Project Sites*

The closest settlement to the project is Patterson (four km), which has a population of 8,000. The community's livelihoods are based on agricultural activities, tourism (the Shamwari Guest Lodge in nearby (two km). The majority of the population has completed secondary schooling, but due to the lack of funds and opportunities have not studied further. Unemployment in

the community is high (60 percent) due to a lack of employment opportunities. The major employers are farmers (mostly seasonal work), government and tourism establishments.

#### **5.4.9 Description of the Project Site (Verby)**

There are three farm portions which will be affected by the project, namely portion of the Remainder of Sandkloof No. 116, portion of the Remainder of Brakfontein No 120, and portions 2 of portion 6 of De Bruyns Kraal No. 113. All the farms are privately owned and there are no pending land claims on all three farms. The combined size of the farms is 1,025ha. Of the total land area 0.6ha will be required for project implementation; however, additional land may be required for a laydown area during the construction phase.

All the affected landowners are solely dependent on their farming activities for their livelihoods, which include livestock and crop farming. Livestock farming is centred on cattle keeping, while crop farming includes growing of citrus fruit, oats, wheat, maize, and fodder production (Kolf, Panikum and steer grass) <sup>(1)</sup>.

On farm De Bruyns Kraal there are 14 people residing permanently on site.

The current infrastructures on the farm/s include:

- Farm Brakfontein - boreholes, and underground water main lines (irrigation, system);
- Farm De Bruyns Kraal – worker’s houses, boreholes and power-lines; and
- Farm Sandkloof – worker’s houses and boreholes.

#### **5.5 LAND ACQUISITION PROCESS**

There is currently not enough land available in the railway reserves to implement the project and this requires Transnet to acquire portions of land from the adjacent farm (property) owners.

(1) Fodder production occurs on farm De Bruyns Kraal only

Transnet is committed to the following Land Acquisition Principles when undertaking the acquisition of ownership of the properties:

- Ownership of those portions of the properties required by Transnet will, as far as possible, be based on negotiations with landowners and an amicable agreement being reached. It needs to be mentioned that all of the properties to be acquired by Transnet will require that sub-divisional diagrams be framed and approved by the surveyor-general. This is a timeous process and all property rights acquired by Transnet need to be secured immediately. With this in mind Transnet intends negotiating with the land owners, a clause to be included in the Sale of Property Agreement, whereby the consent of the owners that ownership of the properties may be expropriated. This will afford Transnet the opportunity of noting the transaction against the current owner's title deed in the Registrar of Deeds. The consented expropriation will require Transnet to pay the owner full compensation on date of occupation of the property and will be mitigating all risks relating to any future transactions with the property by the current owner.
- The outright expropriation shall only be considered if all reasonable avenues to secure ownership of the properties have been exhausted.
- The calculation of compensation will be on a willing buyer and willing seller basis to be negotiated with the land owner. A professional valuer shall be appointed to compile an evaluation of the land, based on the prevailing market conditions. These valuation reports normally reflect the market value per hectare as per the current use of the land.
- The compensation principles to be implemented shall entail the following:
  - Where the extent of the property to be acquired is less than 5000 square metres (50% of a hectare), a fixed minimum compensation for full ownership and all rights in the property will be offered to the land owner. This should amount to 75% of the market value of a hectare, depending on the current use of the land.
  - Where the extent of the property to be acquired is between 5000 and 10000 square metres (one hectare), the market value of one hectare will be paid to the land owner for full ownership and all rights in the property.
  - Where the extent of the property is more than one hectare, the market value of the property will be paid to the land owner for full ownership and all rights in the property.
  - The market value will take into consideration any loss to crops and other financial losses.
  - A once off full payment of a market related compensation will be paid to the land owner before occupation is taken of the property/ies for construction purposes.
- As last resort to acquire ownership of the properties and should all negotiations with the current land owners be unsuccessful, Transnet may consider the expropriation of full ownership and all rights in the properties. This will be undertaken in terms of Paragraph 7 of Schedule 1 to the Legal Succession to the South African Transport Services Act, 1989(Act 9 of 1989) read with the Expropriation Act, 1975 (Act 63 of 1975).

Where outright expropriation is undertaken (after failure of all negotiations with the property owner) compensation will be paid as stipulated by The Expropriation Act, 1975 (Act 63 of 1975).

- Disagreements about valuations shall be settled, where possible, by the landowner provided Transnet with a valuation report commissioned by the landowner. There after any further disagreements will be settled upon recommendation by both the Transnet appointed valuer and a valuer appointed by the landowner.

**6.1*****INTRODUCTION***

The purpose of this Chapter is to present the stakeholder engagement process completed to date and outline future engagement activities proposed as part of the amendment process.

Stakeholder engagement in an EIA is not only a statutory requirement in terms of the EIA Regulations (2010) which has specific requirements related to public participation, but a process that is designed to provide stakeholders with an opportunity to evaluate all aspects of the proposed development, with the objective of maximising its benefits while minimising its adverse effects. Stakeholders represent relevant sectors of society and responsible organs of state.

This stakeholder engagement is seen as a tool to facilitate cooperative governance through informed comments from a spectrum of stakeholders and organs of state. The aim of this is to ensure that an informed decision making process is undertaken, which incorporates social, financial and environmental considerations into the application for amendment.

The stakeholder engagement process has been designed to achieve the following objectives:

- To ensure that stakeholders are well informed about the proposed development;
- To provide stakeholders sufficient opportunity to engage and provide input and suggestions on the proposed project;
- To verify that stakeholder issues have been accurately recorded;
- To draw on local knowledge in the process of identifying environmental and social issues associated with the proposed project, and to involve stakeholders in identifying ways in which these can be addressed; and
- To comply with the legal requirements and international good practice.

**6.2*****WHO ARE THE STAKEHOLDERS***

One of the key principles informing stakeholder engagement is that it should be an inclusive process and notification activities have been designed to ensure that as wide an array of stakeholders as possible are invited to be involved in the process.

Stakeholders were invited to become part of the process in three ways:

- Through notification activities which ensure that the broader public were informed of the process and invited to be involved;

- Through ERM's proactively registering stakeholders identified as potentially interested or affected; and
- Networking with key stakeholders during the release of the draft and final amendment report.

Stakeholders have been notified and invited to register their interests in the proposed project and the associated authorisation process through a series of English, Afrikaans, Tswana and Xhosa public notification materials.

A stakeholder database has been compiled, which incorporates stakeholder information from existing databases available to ERM, and will continue to be updated throughout the stakeholder engagement process. The existing full stakeholder database is appended in *Annex A*.

### **6.3** *PROPOSED STAKEHOLDER ENGAGEMENT PROCESS FOR AMENDMENT APPLICATION*

In terms of Section 39 (3) of EIA Regulation R543 of 2010, if the application is defined as a *substantive* amendment, the competent authority may request for a stakeholder engagement process to be undertaken and additional specialist assessments (if required). In line with good practice, a stakeholder engagement process is currently being undertaken for the Amendment Process.

#### **6.3.1** *Project Initiation Phase*

During the Project Initiation phase, a BID (refer to *Annex A*) was released to the public for review and comment. Furthermore, site notices were placed at various locations, adverts were published in multiple newspapers and initial stakeholder engagement was undertaken. A detailed summary of the stakeholder engagement process undertaken during the Project Initiation Phase is tabulated below (*Table 6.1*).



**Table 6.1 Summary of Public Participation Process for Project Initiation Phase**

Activity	Details	Reference in Amendment Report
<b>Announcement Phase/Stakeholder Consultation</b>		
Field visit to proposed loop extension sites, towns and compilation yard.	Field visit during 24 – 28 September 2012 for the Eastern Cape and 1 – 5 October 2012 for the Northern Cape to gather baseline information, consult with key stakeholders, gather additional stakeholder information and put up site notices.	N/A
Distribution of proposed project announcement letter and BID.	BID and announcement documentation emailed and posted in English and Afrikaans to stakeholders on Wednesday 2 October and Thursday 3 October 2012.  (Public comment and registration period concluded on 1 November 2012)	<b>Annex A</b>  BID, letters, registration and comment sheet, adverts, site notices.
Placing of adverts.	A statutory advert, in English and Afrikaans, was placed in: <ul style="list-style-type: none"> <li>• Somerset Budget on 4 October 2012;</li> <li>• Volksblad on 4 October 2012;</li> <li>• The Kathu Gazette on 6 October 2012; and</li> <li>• West and East Burger on 15 October 2012.</li> </ul>	<b>Annex A</b>  BID, letters, registration and comment sheet, adverts, site notices.
Placement of site notices.	Approximately 24 English, Afrikaans, Xhosa and Tswana site notices were placed at the proposed project sites, local libraries and frequently visited shops within the proposed project areas.	<b>Annex A</b>  BID, letters, registration and comment sheet, adverts, site notices.
Identification of stakeholders.	Stakeholder database includes information from existing ERM databases, information provided by Transnet and stakeholder information gathered during the field visit.	<b>Annex A</b>  Stakeholder database.
Consultation with relevant stakeholders.	Consultations with key stakeholders and directly affected landowners were conducted between 24 September and 5 October 2012 in the Northern Cape and Eastern Cape Provinces. All comments, issues of concern and suggestions will be captured in the Comment and Response Report (CRR) in the final Amendment Report after the stakeholder engagement in the form of public meetings.	Comment and Response Report to be attached to the Final Amendment Report.
Obtained comments from stakeholders.	Comments, issues of concern and suggestions received from stakeholders during the comment period will be captured in the CRR to be compiled at the end of the comment period.	Comment and Response Report to be attached to the Final Amendment Report.

### 6.3.2 *Public Comment on Amendment Report*

Upon completion of the Project Initiation phase, this Amendment Report was compiled. During this phase of the process, the project team aimed to identify and assess potential biophysical, social and socio-economic issues, concerns and opportunities related to the revised project description, in light of comments received.

The Draft Amendment Report will be released for a 40 day public comment period. During this comment period, public meetings and focus group discussions will be held, with all registered I&APs and members of the public invited to attend. The meetings will be held at suitable locations, based on the proximity to the various rail loops. *Table 6.2* below summarises the details of the proposed public and focus group meetings.

**Table 6.2** *Summary of PP Process for Amendment Report Phase*

<b>Draft Amendment Phase</b>		
Announcement of Amendment Report.	Amendment announcements will be sent to I&APs on the stakeholder database during November 2012 to announce the availability of the Amendment Report together with a schedule and venues for public meetings.  (Amendment Application public review period of 30 days from 22 November – 09 January 2013 which excludes the period from 15 December to 02 January).	<b>Annex A</b>  Public Participation material.
Making Draft Amendment Report available to I&APs.	The Amendment Report will be available on the project website: <a href="http://www.erm.com/transnet-expansion">www.erm.com/transnet-expansion</a>  and at the following libraries: <ul style="list-style-type: none"> <li>• Paterson Public Library;</li> <li>• Cookhouse Public Library;</li> <li>• Middelburg Public Library;</li> <li>• Hanover Public Library;</li> <li>• Cradock Public Library;</li> <li>• Barkley West Public Library;</li> <li>• Postmasburg Public Library;</li> <li>• Kathu Public Library; and</li> <li>• Hotazel Public Library.</li> </ul>	<b>Annex A</b>  Public Participation material.
Stakeholder meetings.	Public meetings will be held in the Northern and Eastern Cape at the following towns:  <i>Northern Cape (26 – 30 November 2012)</i>	To be provided in Final Amendment Report.

	<ul style="list-style-type: none"> <li>• Hanover</li> </ul> <p><i>Eastern Cape (3 – 7 December 2012)</i></p> <ul style="list-style-type: none"> <li>• Patterson</li> <li>• Middelburg</li> </ul> <p>These meetings and the associated information will be announced together with the announcement of Amendment Report availability.</p> <p>In addition, Focus Group meetings will be held with all directly affected landowners along proposed loop extension routes.</p>	
Obtain comments from stakeholders.	Comments, issues of concern and suggestions received from stakeholders during the Draft Amendment Report public review period will be captured in the CRR, which will be included in the Final Amendment Report.	To be provided in Final Amendment Report.
Making Final Amendment Report available to I&APs	The Final Amendment Report will be simultaneously submitted to the competent authority and be made available to stakeholders in the first quarter of 2013. A public review period of 21 days will be provided for stakeholders to submit comments directly to DEA.	N/A

### 6.3.3 *Decision Making Phase*

Upon submission of the Final Amendment Report and completion of the 21 day public comment period, the DEA will commence with the decision making period. Although Section 42 of the EIA Regulations (2010) requires the competent authority to either reject or accept the Amendment Report within 30 days of receipt, the EIA Regulations do not specify a regulated timeframe to reach a decision on amendment applications.

When a decision is made on the amendment application, the competent authority will either issue a new environmental authorisation or an addendum to the existing authorisation, within two days.

Upon issuing of the environmental authorisation (positive or negative), the decision will be advertised and all stakeholders will be notified in writing. Lastly, stakeholders will be provided with the relevant information to lodge an appeal against the decision to the DEA.

## 7.1 INTRODUCTION

During the EIA process completed and authorised in 2009, a detailed impact assessment was undertaken for potential impacts associated with the full rail expansion required to achieve a capacity of 12 Mtpa. This Chapter is limited to the identification and assessment of impacts associated with the amendment of the environmental authorisation specifically related to the following six loops (described in the project description and illustrated in *Annex B*):

### Northern Cape

- Burgervilleweg
- Linde

### Eastern Cape

- Rosmead
- Tafelberg
- Knutsford
- Verby

The previously assessed impacts were reviewed in light of the amendment and updated, where necessary. The significance ratings of the impacts associated with the biophysical environment remain unchanged. However, resulting from the necessity to acquire additional land (albeit minimal) and changes in the socio-economic environment, new impacts were identified. A detailed assessment of new impacts resulting from the amendment is presented below. This is followed by a summary of the previously assessed impacts on the biophysical and socio-economic environment, highlighting their relevance and any changes that should be noted.

## 7.2 NEW IMPACTS IDENTIFIED

As mentioned previously, the proposed amendments to the extension of the six loops remain within the direct area of influence assessed during the 2009 EIA process. Maps showing the previous footprint and the current, proposed footprint are included in *Annex B*. The impacts previously identified and assessed remain relevant, and it is anticipated that neither the significance ratings nor mitigations would change significantly. However, two new impacts have been identified as part of the social investigation, namely:

- Disruption to agricultural activities; and
- Loss of agricultural land.

These potential socio-economic impacts are discussed in more detail below.

### 7.3 CONSTRUCTION PHASE IMPACTS ON THE SOCIO-ECONOMIC ENVIRONMENT

#### 7.3.1 Disrupted Agricultural Activities

The proposed amendments require the acquisition of small tracts of land adjacent to all the loops with the exception of Knutsford (see *Chapter 4*). The total land required across the six loops is 6.3ha affecting nine farms (see *Table 4.4*). The directly affected farms are used solely for agricultural purposes; including both crop and livestock farming. Livestock kept on the farms include sheep and cattle, while crops include lucerne, citrus fruit, oats, wheat, maize, and pastures.

**Table 7.1 Impact Characteristics: Disrupted Agricultural Activities**

Summary	Construction
Project Aspect/ activity	Site clearance, road widening/construction, assembly and installation of rail and associated infrastructure.
Impact Type	Direct, negative impact.
Stakeholders/ Receptors Affected	Directly affected land owners, neighbouring landowners, Local, Provincial and National Government.

#### *Construction Phase*

During the construction phase of the project agricultural activities may be disrupted on the affected farms. Currently, the farms are used for livestock (sheep and cattle) and crop farming (lucerne). The crop farmers undertake irrigation farming (including flood and underground irrigation). The construction activities that are likely to disrupt agricultural activities include site clearance, road widening/construction, assembly and installation of rail and associated infrastructure.

#### *Livestock farming activities*

All the farmers practice rotational farming as the vegetation requires time to regenerate. This is achieved through the division of the farm into camps which are individually fenced and gated; the farms are large enough to enable such rotational methods. During construction, the farmers will need to keep their livestock in alternate camps, away from the construction area in order to ensure that the stock is not harmed or lost as a result of construction activities.

As mentioned above, the farms are divided into camps and in order to access the project site it will be necessary for the construction team to travel between camps; requiring them to open and close gates as they move. They will, at times, also be required to travel across/alongside neighbouring farms to reach

the selected sites. It is critical that the gates are always closed once the team has passed in order to secure the stock.

The high numbers of light - and heavy vehicles that will be passing through the farm camps may damage the gates and fencing. Any damage to this infrastructure could also lead to stock losses.

#### *Crop farming activities (irrigation farming)*

Of the affected landowners, irrigation farming is undertaken in the vicinity of the Verby loop (Brakfontein and Sandkloof farms) and the Knutsford loop (Het Fortuin farm). The landowners receive their water for irrigation from boreholes and in the case of Het Fortuin, from the Knutsford Irrigation Scheme. At the farms adjacent to the Verby loop, the irrigation systems are used to water citrus fruit, oats, wheat, maize, and pastures whilst in Knutsford the irrigation is used to water the pastures and lucerne fields. The irrigation systems used include flooding and underground irrigation. According to the landowners the irrigation pipes for the underground systems are buried five metres below the surface and can easily be disturbed. According to the landowners, some of the underground irrigation infrastructure is close to the railway line. Any destruction of the irrigation system is likely to negatively affect the farming activities as the crops are dependent on the water from the system. Furthermore, the disruption will lead to an economic loss for the directly affected landowners along with their neighbours who use the same system.

### **Box 7.1**

#### ***Construction Impact: Disrupted Agricultural Activities***

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**Nature:** The disruption to agricultural activities would be regarded as a **direct, negative** impact.

##### **Impact Magnitude – Medium**

- **Extent:** It is anticipated that the disruption to agricultural activities will be experienced at the **local** level.
- **Duration:** The disruptions will be experienced during the construction phase and as such will be **short-term**.
- **Intensity:** The intensity will be **medium** as the farmers will have some difficulty adapting to the disruption without some degree of support and compromise, especially crop farmers who rely heavily on irrigation.

**Likelihood** – There is a **high** likelihood that this impact will occur during the construction phase.

##### **IMPACT SIGNIFICANCE (PRE-MITIGATION) – MODERATE -NEGATIVE**

**Degree of Confidence:** The degree of confidence is **high**.

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### *Mitigation Measures:*

- Transnet to minimise the damage to farmland caused by construction activities by ensuring strict compliance with construction plans to minimise the development footprint and to implement a 'Code of Conduct' governing workers.
- The Code of Conduct must address the following aspects:
  - Respect for local residents;
  - Respect for farm infrastructure, agricultural activities and farming practises (i.e. closing gates);
  - No hunting or unauthorised taking of products or livestock;
  - Compliance with the traffic management plan and all road regulations; and
  - Description of disciplinary measures for infringement of the code and company rules.
- If workers are found to be in contravention of the Code of Conduct, which they signed at the commencement of their contract, they will face disciplinary procedures that could result in dismissal.
- Transnet will consult the affected landowners to discuss sensitive areas on their property and design the infrastructure layout in a manner that limits impacts on agricultural activities.
- Any damage to natural vegetation (specifically grazing) will be rehabilitated in accordance with mitigation proposed for the rehabilitation of natural vegetation.
- Construction activities to be undertaken according to a schedule that is agreed upon with the landowners.
- Construction workers to ensure that the gates are closed at all times and that any damage to the infrastructure is repaired immediately.
- Transnet to implement a public complaints procedure that is easily accessible to local communities, through which complaints related to contractor or employee behaviour can be lodged and responded to. Transnet will respond to all such complaints. Key steps of the mechanism include:
  - Circulation of contact details of the key Transnet contact.
  - Raising awareness among local communities (including all directly affected and neighbouring farmers) regarding the complaints procedure and how it works.
  - Establishment of a complaints register to be updated by Transnet, including all responses and response times.

### *Residual Impact*

The implementation of the above mitigation measures would reduce the construction impacts from moderate to minor significance. The pre- and post-mitigation impacts are compared in *Table 7.2*.

**Table 7.2 Pre- and Post- Mitigation Significance: Disrupted Agricultural Activities**

Phase	Significance (Pre-mitigation)	Residual Impact Significance
Construction	<b>MODERATE</b>	<b>MINOR</b>

**7.3.2 Loss of Agricultural Land**

The combined size of the project affected farms is approximately 30,000ha. It is estimated that of this total area, only approximately 6ha or 0.02 percent will be required to establish the rail loop amendments.

**Table 7.3 Impact Characteristics: Loss of Agricultural Land**

Summary	Construction
Project Aspect/ activity	Land take for the construction.
Impact Type	Direct, negative impact.
Stakeholders/ Receptors Affected	Directly affected land owners, Local, Provincial and National Government.

*Construction Phase Impacts*

The land needed for the loop extensions across the six loops is estimated at 0.02 percent of the size of the farms. The majority of the land owners have not raised any concerns in this regard and do not anticipate a significant impact on their ability to continue current farming operations although small tracts of land will be lost and incorporated into the existing rail reserve.

The affected landowners will be compensated for the loss of land by Transnet due to the project; however, it is unknown how the landowners will use the income generated.



## Box 7.2 Construction Impact: Loss of Agricultural Land

**Nature:** The impact on agricultural land is going to be experienced as a **direct, negative** impact.

### Impact Magnitude – Low

- **Extent:** The impact on agricultural land resulting from the construction activities will occur at the **local/regional** level.
- **Duration:** This impact will occur for the duration of the construction phases and continue through operation except with respect to lay down areas and will therefore be **long-term**.
- **Intensity:** The intensity will be **low** as limited agricultural land will be lost.

**Likelihood** – There is a **high** likelihood that this impact will occur.

### IMPACT SIGNIFICANCE (PRE-MITIGATION) – LOW NEGATIVE

**Degree of Confidence:** The degree of confidence is **high**.

## 7.3.3 Mitigation

- Transnet will consult the affected landowners to reach agreement on an infrastructure layout that limits direct and indirect impacts on agricultural activities.
- Any damage to natural vegetation (specifically grazing) outside of the land to be acquired (i.e. land required for laydown areas will be rehabilitated in accordance with mitigation proposed for the rehabilitation of vegetation.

## 7.3.4 Residual Impact

The implementation of the above mitigation measures would ensure that the residual construction impacts remain of low significance. The pre- and post-mitigation impacts are compared in *Table 7.4*.

**Table 7.4 Pre- and Post- Mitigation Significance: Loss of Agricultural Land**

Phase	Significance (Pre-mitigation)	Residual Impact Significance
Construction	LOW	LOW

## 7.4 OPERATIONAL PHASE IMPACTS ON THE SOCIO-ECONOMIC ENVIRONMENT

### 7.4.1 Disrupted Agricultural Activities

Operational activities are not expected to cause any disruption to agricultural activities. However, during the initial stakeholder consultation landowners and neighbours raised concerns of veld fires which could be exacerbated by over-grown vegetation in the rail reserve. They suggested that Transnet needs to better maintain the vegetation that grows in the rail reserve in order to

minimise the potential for fires and resultant damage to the livestock and crops.

**Table 7.5** *Impact Characteristics: Disrupted Agricultural Activities*

Summary	Operation
Project Aspect/ activity	Operational activities
Impact Type	Direct, negative impact
Stakeholders/ Receptors Affected	Directly affected land owners, neighbouring landowners, Local, Provincial and National Government.

**Box 7.3** *Operational Impact: Disrupted Agricultural Activities*

**Nature:** The disruption to agricultural activities would be regarded as a **direct, negative** impact.

**Impact Magnitude – Low**

- **Extent:** It is anticipated that the disruption to agricultural activities will be experienced at the **local** level.
- **Duration:** The disruptions will be experienced throughout the operation phase and as such will belong **occasional/temporary**, especially as veld fires are rare.
- **Intensity:** The intensity will be **low/negligible** as the farmers will be able to adapt with relative ease during the operational phase.

**Likelihood** – There is a **medium** likelihood that this impact will occur during the operational phase.

**IMPACT SIGNIFICANCE (PRE-MITIGATION) – NEGLIGIBLE**

**Degree of Confidence:** The degree of confidence is **medium**.

*Mitigation Measures:*

- Any damage to natural vegetation (specifically grazing) during servicing or maintenance will be rehabilitated in accordance with mitigation proposed for the rehabilitation of natural vegetation.
- The railway servitude will be regularly (biannually) inspected for the re-establishment of invader and weed species and the follow-up removal thereof to prevent the reserve from becoming over-grown and exacerbating risks associated with veld fires.
- Cleared areas will be succeeded by proper soil stabilisation procedures and rehabilitation to prevent soil erosion.

### *Residual Impact*

With the implementation of the above mitigation measures, the operation impacts will remain negligible. The pre- and post-mitigation impacts are compared in *Table 7.6*

**Table 7.6** *Pre- and Post- Mitigation Significance: Disrupted Agricultural Activities*

Phase	Significance (Pre-mitigation)	Residual Impact Significance
Operation	NEGLIGIBLE	NEGLIGIBLE

## 7.5

### **PREVIOUSLY ASSESSED IMPACTS**

Based on the previous project description, a suite of impacts were identified and assessed. The impact assessment process undertaken included construction, operational, decommissioning and cumulative impacts on the biophysical and socio-economic environment. For ease of reference, the nature of the impacts together with the associated **pre-mitigation** impact rating is bulleted below (Please note, impacts rated as negligible previously have not been included).

#### **Construction Phase Biophysical Impacts:**

- *Spread or colonisation of invasive alien and weed species (Major significance)*
- *Loss of vegetation communities (Moderate significance)*
- *Loss of faunal diversity and richness (Moderate significance)*
- *Loss of protected invertebrate species (Moderate significance)*
- *Disturbance to riparian zone (Moderate significance)*
- *Noise disturbance (Moderate significance)*

#### **Construction Phase Socio-Economic Impacts:**

- *Increased pressure on infrastructure and services (Moderate significance)*
- *Spread of HIV/AIDS and STIs (Moderate significance)*
- *Increase in social ills (Moderate significance)*

#### **Operational Phase Biophysical Impacts:**

- *Impact from increased noise generation (Major significance)*

#### **Operational Phase Socio-Economic Impacts:**

- *Change in sense of place (Moderate significance negative impact and Minor significance positive impact)*

Additional impacts were identified during the 2009 EIA. However, these were pre-screened out of the process due to their negligible significance. The impacts described above related to the upgrading of the entire railway line, and therefore included impacts associated with extensions to existing rail loops as well.

For ease of reference, a review of the previously assessed impacts is presented below.

## 7.6 *CONSTRUCTION PHASE IMPACTS ON THE BIOPHYSICAL AND SOCIO-ECONOMIC ENVIRONMENT*

In light of the proposed amendment, the following construction phase impacts are anticipated on the bio-physical and socio-economic environment. The proposed amendments to the extension of the six rail loops fall within an area that was assessed in the previous specialist investigations. The specialist assessments used to inform the impact identification and assessment in this amendment process are listed in *Section 3.1.2*.

Copies of the previous specialist assessments completed in 2009 will be made available during the amendment process, upon request.

Based on the extent of changes made to the previously approved project description for the extension of the six loops, together with sensitivities identified on-site, ERM is of the opinion that significance ratings and associated mitigation measures for construction phase impacts to the biophysical environment outlined in the 2009 EIA process remain applicable and significance ratings have not increased. However, a justification for such is presented below.

### 7.6.1 *Spread or colonisation of invasive alien and weed species*

The ecological assessment identified the potential impact of increased alien and weed species generation during construction. Disturbed patches of soil, inappropriate handling of topsoil and disturbances along drainage lines are potential contributors to the spread or colonisation of invasive species.

Patches of disturbed soil are likely to be vulnerable to colonisation by ruderal <sup>(1)</sup> weeds (mostly annual weeds), or declared alien invasive species, that will prohibit the natural succession of the local indigenous vegetation during rehabilitation. Although primarily linked to construction phase activities, if measures are not taken to control and eradicate alien invasives and weeds, then the impact on local vegetation communities could persist well beyond the construction phase.

Although the footprints for the loops in question will increase, the additional land to be acquired to establish the loop amendments is relatively small with a combined area of 6.3ha required for the six loop extensions. It is for this reason that the post mitigation significance of the potential impact is expected to remain *Moderate negative*.

(1) A ruderal species is a plant species that is first to colonise disturbed lands.

## 7.6.2 *Loss of vegetation communities*

Based on the proposed amendments to the extensions of the six rail loops, additional vegetation will be removed due to an increase in length and overall footprint of the rail loop extensions.

The floral characteristics at each loop are summarised below:

**Table 7.7** *Summary of vegetation at the six loops*

<b>Loop</b>	<b>Floral characteristics</b>
<i>Verby:</i>	The proposed study area was surrounded by orchards and anthropomaintained secondary grassland that was primarily utilised for grazing purposes. However, the study area comprised of secondary graminoid taxa applied to counter the possible erosion of the existing railway cuttings. The remainder of the study area comprised of secondary herbs and woody lianas that were relicts of the regional vegetation type, namely Kowie Thicket. Exotics were represented by localised groves of tall <i>Eucalyptus camaldulensis</i> .
<i>Knutsford:</i>	The study site showed signs of past disturbances to the extent that any phytosociological study was deemed unnecessary.
<i>Tafelberg:</i>	The study site coincided with the Nama-Karoo Biome and comprised of open, flat plains dominated by a diverse basal cover of mid-successional graminoid taxa. The floristic composition consisted of dwarf, microphyllous forbs and scattered spinescent shrub.
<i>Rosmead:</i>	The study site showed signs of frequent anthropogenic disturbances to the extent that a phytosociological study was deemed unnecessary. The floristic composition comprised mainly of secondary grass taxa and ruderal forb species. Exotics were represented by localised groves of tall <i>Pinus spp.</i> and <i>Eucalyptus camaldulensis</i> .
<i>Linde:</i>	The study site coincided with the Nama-Karoo Biome and comprised of open grassy plains dominated by a basal cover of secondary graminoid taxa pertaining to the genera <i>Aristida</i> and <i>Eragrostis</i> . The floristic composition comprised of dwarf, microphyllous forbs reflecting past disturbance regimes.
<i>Burgervilleweg:</i>	The study site showed signs of frequent anthropogenic disturbances to the extent that a phytosociological study was deemed unnecessary. The floristic composition comprised primarily of secondary grass taxa and ruderal forb species.

The affected areas around the six rail loops have all been allocated an ecological importance of *Low*, based on the specialist investigation. Although some of the loops (specifically Tafelberg and Linde) are characterised with vegetation from the Nama-Karoo biome, anthropogenic influences (namely, the existing railway line and associated loops) have modified the affected environments significantly (2009 EIA).

The proposed amendment to the authorised extension of the six rail loops will result in an increase in footprint and resultant increase in clearing of vegetation. However, since the ecological importance of the vegetation around the rail loops is determined to be low, since the additional land required is minimal, and provided mitigation measures outlined in the EMP

are implemented to manage the impacts, the post mitigation significance of the potential impact is expected to be *Minor negative*.

### 7.6.3 *Loss of Faunal Diversity and Richness*

Faunal activity is generally low in the project affected area, due to disturbed habitats. However, the clearing of vegetation for construction activities such as rail loop extensions, the establishment of laydown areas and the creation and use of access roads could have both a direct (through direct mortality) and indirect (through the loss of habitat) impact on fauna at the loop sites. The effects of this impact would continue through the operational phase of the project.

The faunal characteristics at each loop site is summarised below followed by a brief discussion of the impact significance rating:

**Table 7.8** *Summary of fauna at the six loops*

<b>Loop</b>	<b>Faunal characteristics</b>
<i>Verby:</i>	Open fields used predominantly for grazing of livestock form the majority of the landscape surrounding the proposed loop expansion site, which limited the availability of natural habitat for faunal species. During the field investigations 17 bird species were observed in the vicinity of the site. Vervet Monkeys ( <i>Cercopithecus aethiops</i> ) were also observed in close proximity to the site. The construction of the loop extension at Verby is unlikely to cause any major disturbance to fauna in the area when taking into account the existing disturbances.
<i>Knutsford:</i>	The proposed loop expansion site is surrounded by disturbed vegetation, which was the likely factor for limited faunal activity in the area. During the field investigations only eight bird species and one mammal species were observed, or evidence of their presence was observed. No Red Data species were recorded on site. The construction of the loop extension at Knutsford is unlikely to cause any major disturbance to fauna in the area.
<i>Tafelberg:</i>	The proposed loop expansion site is located on flat open karoo veld. Faunal activity in the area was low. During the field investigations only two bird species and two mammal species were observed, or evidence of their presence was observed. The Lanner Falcon <i>Falco biarmicus</i> , which is a Red Data species (Near Threatened), was observed foraging in the general vicinity of the study area. The construction of the loop extension at Tafelberg is unlikely to cause any major disturbance to fauna in the area.
<i>Rosmead:</i>	The proposed loop expansion at Rosemead is located in an already disturbed site. Faunal activity was low. The construction of the loop extension is unlikely to cause any major disturbance to fauna in the area.

Loop	Faunal characteristics
<i>Linde:</i>	The proposed loop expansion site is located in open disturbed karoo veld. Faunal activity in the area was low. During the field investigations 10 bird species and four mammal species were observed, or evidence of their presence was observed. A Lanner Falcon ( <i>Falco biarmicus</i> ), which is listed as a Near Threatened species, was observed foraging in the vicinity of the site. However, the construction of the loop extension at Linde is unlikely to cause any major disturbance to fauna in the area.
<i>Burgervilleweg:</i>	The proposed loop expansion site is located in open disturbed karoo veld. Faunal activity at the site was low, however, in the general vicinity of the study area faunal activity was relatively high. During the field investigations seven bird species and five mammal species were observed, or evidence of their presence was observed. Blue Cranes ( <i>Anthropoides paradiseus</i> ) and Ludwig's Bustard ( <i>Neotis ludwigii</i> ), which are listed as Vulnerable species, were recorded foraging in the general vicinity of the study area. However, even with the Red Data species foraging nearby, the construction of the loop extension at Burgervilleweg is unlikely to cause any major disturbance to fauna in the area provided construction activities remain within the railway reserve and disturbed areas adjacent to the reserve.

It is important to recognise the presence of three Red Data Listed Species, Lanner Falcon (*Falco biarmicus*), Blue Cranes (*Anthropoides paradiseus*), and Ludwig's Bustard (*Neotis ludwigii*) identified near the Tafelberg, Linde and Burgervilleweg loops. The latter two species are listed as Vulnerable, whereas the Lanner Falcon is listed as a Near Threatened species. These Red Data Listed species have a large habitat ranges and are mobile. The specialist study anticipated that the loss of habitat due to construction activities is unlikely to cause significant disturbance to these species or any other Red Data mammal species possibly occurring in the vicinity of the sites.

In light of the above, the post mitigation significance of the potential impact is expected to remain unchanged and is therefore anticipated to be *Minor negative*.

#### 7.6.4 *Loss of protected invertebrate species*

The clearing of vegetation for construction activities such as the establishment of rail loops, establishment of laydown areas, the creation and use of access roads, earthworks (such as cut and fill operations) and blasting, could have both a direct (through direct mortality) and indirect (through the loss of habitat) impact on protected invertebrate species such as Burrowing Scorpions (*Opisthophthalmus spp.*) and Baboon Spiders (likely from the Family *Theraphosidae*). During the ecological assessment in 2009, evidence of their presence or suitable habitat was identified at a number of the rail loop sites however, no protected invertebrate species were identified in proximity to the six loops subject to this amendment.

No additional impacts to protected invertebrate species are anticipated from the amended description for the extension of the six rail loops. The post mitigation significance of the potential impact is not anticipated to increase and is expected to be *Minor negative* providing mitigation measures outlined in the EMP are implemented.

#### 7.6.5 *Noise disturbance*

Noise and vibrations during the construction phase will result from the use of heavy machinery (e.g. generators) and vehicles, blasting, drilling and general noise from workers. While the noise emitted from construction activities is likely to be highly variable, noise and vibrations could be experienced by some social receptors, such as human settlements, located in proximity to the railway line. Of the six rail loops subject to amendment, the Rosmead loop extension was the only one identified as being located in close proximity to sensitive receptors in the form of human settlements adjacent to the existing Rosmead station. In the vicinity of the Verby loop, the existing railway line passes through the outskirts of the town of Paterson and although some construction will occur within the rail reserve some 500m out of the town the bulk of the expansion activities will be concentrated to the southeast some 4km away. The Burgervilleweg, Tafelberg, Knutsford and Linde loops are relatively isolated, and are thus not expected to result in significant impacts on sensitive receptors. Based on the above, the significance rating will not increase and therefore the post mitigation significance of the potential impact is expected to be *Minor negative*.

The mitigation measures outlined in the 2009 Environmental Authorisation should be implemented to ensure that noise and vibrations impacts remain within the thresholds specified by SANS 10103 for noise emissions.

#### 7.6.6 *Impact on Employment and Procurement*

The project will create employment opportunities (direct, indirect and induced) during the construction phases along the six loops. Direct jobs will require unskilled, semi-skilled and highly skilled workers. Indirect and induced jobs will be created through the supply chain (goods and other services). In addition, worker camps will not be established at the rail loop amendment sites and therefore, the local hospitality industry will benefit from opportunities to provide accommodation to highly skilled workers (those who will be working on all project sites) and local employment of unskilled and semi-skilled construction workers will also be maximised. The post mitigation significance rating of the potential employment and procurement impact will therefore remain *Moderate positive*.



## 7.7 *OPERATIONAL PHASE IMPACTS ON THE BIOPHYSICAL AND SOCIO-ECONOMIC ENVIRONMENT*

Based on the extent of changes anticipated to the previously authorised project expansion for the extension of the six rail loops, together with sensitivities identified on-site, ERM is of the opinion that significance ratings and associated mitigation measures outlined in the 2009 EIA for operational phase impacts remain applicable and are not anticipated to change significantly. The impacts and the applicability to the loop amendments are discussed below.

### 7.7.1 *Impact of increased noise generation*

The expected increase in railway traffic and the associated noise generation from an increased number of trains between De Aar and the Port of Ngqura is likely to have a direct and negative impact on communities living close to the line. The 2009 EIA outlined key areas that could be impacted by noise disturbance and vibrations as a result of increased train frequency and train length from the upgrading of the entire railway line. The proposed expansion would facilitate the increase in capacity, from the authorised activities which would allow for an increase in capacity to 16 Mtpa. This capacity increase translates to an approximate increase in two manganese ore trains per day per direction. It is not anticipated that this increase would result in a change in the significance rating of the impact associated with increased noise generation. The post mitigation significance of the potential impact is therefore expected to remain *Major negative*.

### 7.7.2 *Impact on Sense of Place*

The operational phase impacts relating to the change in the sense of place are largely restricted to the anticipated increase in the frequency of trains and the general increase in activity around level crossings which may impact on movement patterns across the line. The potential increase in noise and vibration could also impact on the sense of place.

The proposed amendment to the extension of the six loops is unlikely to change the impact to the sense of place, as compared to what was assessed during the 2009 EIA. Therefore previous significance ratings and associated mitigation measures as contained in the final EIA Report of 2009 remain applicable to manage predicted negative impacts and the post mitigation significance will remain *Negligible negative*.

### 7.7.3 *Impact on Employment and Procurement*

The project will create employment opportunities (direct, indirect and induced) during the operational phase of the larger railway upgrade. Direct jobs will require unskilled, semi-skilled and highly skilled workers. Indirect and induced jobs will be created through the supply chain (goods and other

services). The proposed amendments would allow for an additional increase in capacity of the existing railway line and the positive impacts associated with employment and procurement opportunities would not increase significantly but would remain valid for the proposed amendments. The enhancement measures outlined in the 2009 EIA and included in the EMP remain applicable for the management and enhancement of impacts related to employment and procurement. The post mitigation significance will remain *Moderate positive*.

## 7.8 *DECOMMISSIONING IMPACTS*

The potential impacts linked to decommissioning of the extended loops were identified and qualitatively assessed in the 2009 EIA process. The nature of the expected impacts associated with decommissioning will not change from what was originally identified and assessed in the 2009 EIA and subsequently authorised.

## 7.9 *CUMULATIVE IMPACTS*

Cumulative impacts can be regarded as the combined effects of more than one development (past, present or in the foreseeable future) within the same geographical area or on the same receptor/resource.

The potential cumulative impacts linked to the full project description were identified and assessed in the 2009 EIA process. The nature of the expected impacts associated with the entire railway line route was considered and these will not be revisited. It however important to note that an important positive impact of the project, pertains to the cumulative regional and national economic benefits associated with the increase in capacity on the railway line which would result in an increased level of export. This has positive implications associated with increased revenue generation and export taxes which in turn results in job creation (both direct and indirect) and poverty reduction.

However, since the 2009 EIA, two renewable energy projects (photovoltaic facilities) have been proposed at Rosmead and Linde loop extension sites, respectively. The proposed renewable energy projects have the potential to result in significant losses to agricultural land. Although the loss to agricultural land associated with the proposed loop extensions is not anticipated to be significant, it would contribute to this cumulative impact. It is however important to note that uncertainty still exists around the implementation of renewable energy projects since although projects have been selected by the Department of Energy to progress to further rounds, this process has not been concluded.

## 7.10 *IMPACTS NOT APPLICABLE FROM PREVIOUS EIA*

A number of the impacts (and significance ratings) identified during the previous EIA remain applicable, with the exception of the following:

- Increased pressure on infrastructure and services;
- Spread of HIV/Aids and STIs; and
- Increase in social ills.

At the time of the 2009 EIA, Transnet was planning to have construction worker camps on each project site, thus the impacts on infrastructure and services, spread of communicable diseases and social ills were applicable. However, there will no longer be any on-site worker camps at the loops subject to amendment. Unskilled and semi-skilled workers will be recruited in the local area. Highly skilled workers (working from site to site) will be housed in local accommodation facilities. The current capacity of these local facilities is unknown and it is not certain whether new establishments will be able to sustain themselves after the project is completed.

## 7.11 *ASSESSMENT OF THE NO-GO ALTERNATIVE*

In light of the full project scope, the impact of not implementing this project can be viewed as both positive and negative. The positive consequences include not impacting on the biophysical and social environment, particularly to sensitive ecological or social receptors, whereas the negative implications are associated with the direct loss of opportunities for local employment and procurement of goods and services at a provincial and national scale. The key negative consequence would, however, be lost opportunities and revenue associated with reduced manganese export and container handling as well as employment. If the railway line and associated structures are not upgraded to handle the additional capacity, this would result in a negative, direct impact on the generation of foreign income, which would affect the provincial and national economy. Negative, indirect impacts would also be experienced on the supply chain that services this sector of the economy.

The need for the amendment process has been driven by the need for an increase in the export capacity of the manganese ore corridor from 12 to 16 Mtpa. As a result, should the applicant choose not to amend the extensions to the six loops, the overall capacity of the railway line will **not** be increased. This would result in the financial implications discussed in the previous paragraph.

In order to manage the construction phase impacts associated with the amended design to extend six existing loops, the following Project Environmental Specification was developed during the EIA process in 2009. Based on the outcomes of the Impact Statement (Chapter 7), it is evident that the potential impacts associated with the amendment process are likely to be similar to those which were assessed in the initial EIA process (ERM, 2009). In anticipation of similar impacts resulting from the amendments, the previously approved Environmental Management Plan, together with associated documentation, remains applicable, and is presented below.

### 8.1 **TRANSNET EMP DOCUMENTATION**

Transnet, with agreement from the then Department of Environmental Affairs and Tourism, has created an Environmental Management Plan (EMP) that consists of three documents and is applied to all Transnet projects. The three EMP documents are:

- The Construction EMP (CEMP) (refer to *Annex G*);
- The Standard Environmental Specification (SES) (refer to *Annex H*); and
- The Project Environmental Specification (PES).

In brief, the CEMP outline the roles and responsibilities during the construction phase. The SES provides generic guidance and mitigation for potential impacts while the PES outlines potential impacts and their mitigation that are specific to the project. All three documents are used by the contractor to draw up detailed method statements outlining their approach to construction taking all the potential generic and specific impacts into account.

The potential operational phase impacts are addressed in the generic Transnet Environmental Management System (EMS) and as such no operational impacts will be addressed in this chapter.

### 8.2 **SITE ESTABLISHMENT**

Refer to Section 4.1 of the SES (*Annex H*)

#### 8.2.1 **Scope**

Refer to Section 4.1.1 of the SES (*Annex H*)

#### 8.2.2 **Site plan**

Refer to Section 4.1.1.1 of the SES (*Annex H*)

- 8.2.3**      ***Sewage and Sanitation***  
Refer to Section 4.1.1.2 of the SES (*Annex H*)
- 8.2.4**      ***Effluent Management***  
Refer to Section 4.1.1.3 of the SES (*Annex H*)
- 8.3**        ***WASTE MANAGEMENT OBJECTIVE***  
Refer to Section 4.2 of the SES (*Annex H*)
- 8.3.1**      ***Scope***  
Refer to Section 4.2.1 of the SES (*Annex H*)
- 8.3.2**      ***Approach***  
Refer to Section 4.2.2 of the SES (*Annex H*)
- 8.3.3**      ***Waste Management***  
Refer to Section 4.2.3 of the SES (*Annex H*)
- 8.4**        ***VEHICLE AND EQUIPMENT REFUELLING OBJECTIVE***  
Refer to Section 4.3 of the SES (*Annex H*)
- 8.4.1**      ***Scope***  
Refer to Section 4.3.1 of the SES (*Annex H*)
- 8.4.2**      ***Refuelling***  
Refer to Section 4.3.2 of the SES (*Annex H*)
- Control*  
Refer to Section 4.3.2.1 of the SES (*Annex H*)
- Spill response*  
Refer to Section 4.3.2.2 of the SES (*Annex H*)
- 8.5**        ***SPRAY PAINTING AND SANDBLASTING***  
Refer to Section 4.4 of the SES (*Annex H*)

### 8.5.1 *Objective*

Refer to Section 4.4.1 of the SES (*Annex H*)

### 8.5.2 *Scope*

Refer to Section 4.4.2 of the SES (*Annex H*)

### 8.5.3 *Spray painting and sandblasting*

Refer to Section 4.4.3 of the SES (*Annex H*)

## 8.6 *DUST MANAGEMENT*

Refer to Section 4.5 of the SES (*Annex H*)

### 8.6.1 *Objective*

Refer to Section 4.5.1 of the SES (*Annex H*)

### 8.6.2 *Scope*

Refer to Section 4.5.2 of the SES (*Annex H*)

### 8.6.3 *Dust management*

Refer to Section 4.5.3 of the SES (*Annex H*)

- The removal of vegetation will be limited to the construction areas only;
- Minimise disturbance of natural vegetation during right-of-way construction (e.g. transmission lines and erection of fences) to reduce potential erosion, run-off, and air-borne dust;
- Strip and store topsoil in separate stockpiles with mounds not exceeding 2 m in height to prevent wind-blown dust;
- Apply dust suppression that is appropriate, reasonable and practicable to the scale of the stock piles (it is anticipated that these will be small) that are based on accepted principles such as wetting. This would restrict the consumption of water and allow the contractor to implement other appropriate measures that could be equally effective e.g. dust suppressors, shade cloth etc.;
- Access roads should be wetted down where reasonable and practicable to limit dust generation;
- Construction material being transported by trucks will be suitably moistened or covered to prevent dust generation;
- Speed restrictions of 40km/h will be implemented on construction sites and access roads to limit dust entrainment by vehicles;
- Verges, cuttings, lay-down areas and construction areas will be re-vegetated according to specific site conditions as soon as the construction

activity is completed at each of the respective sites and in accordance with the operational or post-construction utilisation of that particular site.;

- Material in transit will be loaded and contained within the load bin of the vehicle in such a way as to prevent any spillage onto the roads and the creation of dust clouds. If necessary, the load bin of the vehicle will be covered with a tarpaulin to prevent dust;
- Minimise haulage distances, if possible; and
- Environmentally friendly soil stabilisers may be used as additional measures to control dust on gravel road and at construction work areas.

## **8.7 STORM WATER AND DEWATERING**

Refer to Section 4.6 of the SES (*Annex H*)

### **8.7.1 Objective**

Refer to Section 4.6.1 of the SES (*Annex H*)

### **8.7.2 Scope**

Refer to Section 4.2 of the SES (*Annex H*)

### **8.7.3 Storm water and dewatering**

Refer to Section 4.6.3 of the SES (*Annex H*)

*Surface run-off*

Refer to Section 4.6.3.1 of the SES (*Annex H*)

*Dewatering*

Refer to Section 4.6.3.2 of the SES (*Annex H*)

*Wastewater*

Refer to Section 4.6.3.3 of the SES (*Annex H*)

*Management requirements*

Refer to Section 4.6.3.4 of the SES (*Annex H*)

## **8.8 REHABILITATION**

Refer to Section 4.7 of the SES (*Annex H*)

### **8.8.1 Objective**

Refer to Section 4.7.1 of the SES (*Annex H*)

**8.8.2**      *Scope*

Refer to Section 4.7.2 of the SES (*Annex H*)

**8.8.3**      *Rehabilitation*

Refer to Section 4.7.3 of the SES (*Annex H*)

**8.9**        *NOISE MANAGEMENT*

Refer to Section 4.8 of the SES (*Annex H*)

**8.9.1**      *Objective*

Refer to Section 4.8.1 of the SES (*Annex H*)

**8.9.2**      *Scope*

Refer to Section 4.8.2 of the SES (*Annex H*)

**8.9.3**      *Noise Management*

Refer to Section 4.8.3 of the SES (*Annex H*)

- Operate equipment within its specification and capacity so as not to overload it and cause them it operate ineffectively;
- Regularly maintain equipment (particularly with regards to lubrication) and vehicles (exhausts) so that they operate efficiently;
- Operate equipment with appropriate noise abatement accessories, such as sound hoods;
- Drive at the legal speed limit on public roads and at 40 km/hr on dirt or private roads to limit the noise generated;
- Restrict construction activities to daylight hours that are reasonable and practicable to the specific site conditions; and
- Sensitive social receptors (e.g. surrounding towns or landowners) will be given adequate notice of when noisy activities, such as blasting, will occur (if applicable).

**8.10**      *PROTECTION OF HERITAGE RESOURCES*

Refer to Section 4.9 of the SES (*Annex H*)

**8.10.1**     *Objective*

Refer to Section 4.9.1 of the SES (*Annex H*)

**8.10.2**     *Scope*

Refer to Section 4.9.2 of the SES (*Annex H*)



### **8.10.3**      *Archaeological sites*

Refer to Section 4.9.3 of the SES (*Annex H*)

### **8.10.4**      *Graves and Middens*

Refer to Section 4.9.4 of the SES (*Annex H*)

### **8.10.5**      *Site specific measurers*

The objective of mitigation is to minimise the impacts on archaeological, paleontological or cultural resources within the project area. Mitigation measures include:

#### **General measures:**

- A chance-find procedure will be implemented so that in the event of graves or stone age artefacts/fossils being uncovered, the ECO/Site Engineer will take the appropriate action, which includes:
  - Stopping work in the immediate vicinity and fencing off the area with tape to prevent further access;
  - Reporting the discovery to the provincial department of the South African Heritage Resources Agency;
  - Appointing a local archaeological/paleontological expert to inspect the artefacts/fossils;
  - Implementing further mitigation measures proposed by the expert; and
  - Allowing work to resume only once clearance is given in writing by the relevant authorities.
  
- In the case of a chance-find of a grave, the South African Heritage Resources Agency (SAHRA) will be contacted and arrangements made for an undertaker to carry out exhumation and reburial. The undertaker will, together with SAHRA, be responsible for attempts to contact family of the deceased and for the site where the exhumed remains can be re-interred. A detailed process would be stipulated by SAHRA prior to undertaking any form of exhumation.

## **8.11**      *FIRE PREVENTION*

Refer to Section 4.10 of the SES (*Annex H*)

### **8.11.1**      *Objective*

Refer to Section 4.10.1 of the SES (*Annex H*)

### **8.11.2**      *Scope*

Refer to Section 4.10.2 of the SES (*Annex H*)

**8.11.3**      *Fire control*

Refer to Section 4.10.3 of the SES (*Annex H*)

**8.12**            *SUPPLY OF WATER FOR HUMAN USE*

Refer to Section 4.11 of the SES (*Annex H*)

**8.12.1**        *Objective*

Refer to Section 4.11.1 of the SES (*Annex H*)

**8.12.2**        *Scope*

Refer to Section 4.11.2 of the SES (*Annex H*)

**8.12.3**        *Collection of water from natural resources*

Refer to Section 4.11.3 of the SES (*Annex H*)

**8.12.4**        *Provision of drinking water*

Refer to Section 4.11.4 of the SES (*Annex H*)

**8.13**            *PROTECTION OF LIVESTOCK OR GAME AND THE COLLECTION OF FIREWOOD*

Refer to Section 4.12 of the SES (*Annex H*)

**8.13.1**        *Objective*

Refer to Section 4.12.1 of the SES (*Annex H*)

**8.13.2**        *Scope*

Refer to Section 4.12.2 of the SES (*Annex H*)

**8.13.3**        *Poaching of livestock or game*

Refer to Section 4.12.3 of the SES (*Annex H*)

**8.13.4**        *Killing of animals*

Refer to Section 4.12.4 of the SES (*Annex H*)

**8.13.5**        *Collection of firewood*

Refer to Section 4.12.5 of the SES (*Annex H*)

#### 8.14 ENVIRONMENTAL AWARENESS TRAINING

Refer to Section 4.13 of the SES (*Annex H*)

#### 8.15 PREVENTION OF VEGETATION LOSS OR DISTURBANCE

##### 8.15.1 *Scope*

Prevent the loss of or disturbance to vegetation communities, conservation worthy plant species and riparian vegetation due to construction related activities including site clearance and the establishment of construction camps.

##### 8.15.2 *Management*

Minimise the loss of or disturbance to vegetation communities and riparian vegetation due to construction related activities including site clearance and the establishment of construction camps. Specific measures include:

##### 8.15.3 *Vegetation communities*

- Establish the footprint of laydown areas as far as possible on existing disturbed areas as opposed to “greenfield” areas;
- The extent of the laydown/construction area will be fenced-off and all materials and equipment will be restricted to this work area;
- The extent of the construction site will be demarcated on the site layout plans, and no construction personnel or vehicles will be allowed to encroach beyond the demarcated area without prior authorisation to do so. Those areas surrounding the construction site that are not part of the demarcated development area will be marked as “no-go” areas for employees, personnel or machinery. These no-go areas will be demarcated with construction/ danger tape to control unauthorised access to them;
- A qualified local botanist will be appointed to supervise the identification, marking and transferring of plant taxa, where required. This is only expected to occur at sites flagged as having vegetation of moderate to high ecological importance, or where sensitive/protected vegetation species and communities are known to occur;
- Where any Red Listed, protected or important medicinal plant species are identified by the local botanist, they will be marked, and if threatened by destruction, they will be removed (with the relevant permits) and temporarily placed within an on-site nursery for re-establishment after the construction phase;
- Regular checks will be carried out by the Environmental Control Officer (ECO) or Site Engineer to identify areas where erosion is occurring as a result of the vegetation removal. Appropriate remedial action, including the rehabilitation of the eroded areas, and where necessary, the relocation of the paths/sources causing the erosion, will be undertaken;
- Vehicles transporting materials to and from a designated offloading area will be covered with tarpaulins to reduce dust generation and will be restricted to designated roads;

- Stockpiles of sand and earthworks material that is susceptible to wind erosion will be covered during windy periods;
- Harvesting of firewood or any plant material will be prohibited. The immediate surrounding area will be regularly monitored by the ECO for evidence of wood collection. Fines could be implemented to alleviate firewood collection;
- Contractors, labourers and visitors will be familiarised with the regulations and good practice regarding general housekeeping and the ecological process, biodiversity value and function of the area, during awareness building and capacity building/ training exercises/ induction programmes or their first visit to the site (in the form of a pamphlet or training session);
- Topsoil removed (during levelling of areas where loops are to be constructed, in levelling of laydown areas and yards, or topsoil removal at access roads) should be kept separate and used for vegetation rehabilitation purposes; and
- Where necessary, special erosion prevention/ protection measures will be implemented.

#### 8.15.4 *Riparian zone*

The objective of mitigation is to minimise the impacts on the riparian vegetation and prevent pollution/degradation of adjacent or nearby river systems. Specific measures include:

- All construction activities near watercourses will be restricted to the railway reserve, as far as practically possible;
- Areas adjacent to the riparian vegetation will be fenced and marked on layout plans as no-go areas;
- The extent of the construction work area will be fenced-off and no unauthorised access will be allowed outside of the rail reserve and designated work areas;
- Ablution facilities, aggregate stockpiles, spoil areas and hazardous material stockpiles will be located as far away as possible from the riparian zone and any water courses;
- Vehicles transporting materials to and from a designated offloading area will be covered with tarpaulins to reduce dust generation and will be restricted to designated roads;
- Stockpiles susceptible to wind erosion will be covered during windy periods;
- Harvesting of firewood or any plant material will be prohibited. The immediate surrounding area will be regularly monitored by the ECO for evidence of wood collection. Fines could be implemented to discourage firewood collection;
- Contractors, labourers and visitors will be educated on the regulations and good practice regarding general housekeeping and the ecological process, biodiversity value and function of the area, during induction or their first visit to the site (in the form of a pamphlet or training session); and

- Legislative requirements in terms of Section 21 of the National Water Act (No. 36 of 1998) will be applied outside of this amendment process.

## **8.16**      *MANAGEMENT AND PREVENTION OF COLONISATION BY INVASIVE ALIEN AND WEED SPECIES*

### **8.16.1**      *Scope*

Manage and prevent the spread/colonisation of invasive alien plant and weed species that may result from construction activities that will leave terrestrial vegetation areas significantly disturbed and altered.

### **8.16.2**      *Management*

Minimise the impacts on vegetation communities, faunal habitats and species diversity. Specific measures include:

- An alien invasive and weedy species removal programme will be implemented throughout the construction phase and the railway servitude will be regularly (biannually) inspected for the re-establishment of invader species and the follow-up removal thereof;
- All declared invader and weed species occurring at project sites and within the rail reserve will be eradicated (see Table 7.1);
- All plant material that is cleared should be removed from the site, to a designated storage area (in the case of replanting) or waste site so that seeds cannot disperse; and
- Cleared areas will be succeeded by proper soil stabilisation procedures and rehabilitation to prevent soil erosion.

## **8.17**      *PREVENTION OF LOSS IN FAUNA/INVERTEBRATE DIVERSITY AND RICHNESS*

### **8.17.1**      *Scope*

Prevent the loss of, or disturbance to, faunal and invertebrate species diversity and richness due to construction related activities including site clearance and the establishment of construction camps.

### **8.17.2**      *Management*

Minimise the impacts on faunal diversity and species richness within and adjacent to the project area. Specific measures include:

- Establish the footprint of laydown areas on existing disturbed areas as opposed to “greenfield” areas;
- The extent of the laydown/construction area will be fenced-off and all materials and equipment will be restricted to this work area;
- The extent of the construction site will be demarcated on the site layout plans, and no construction personnel or vehicles will leave the demarcated area without authorisation to do so. Those areas surrounding the

construction site that are not part of the demarcated development area will be marked as “no-go” areas for employees, personnel or machinery. These no-go areas will be demarcated on the ground with tapes or pegs to prevent unauthorised access to them;

- Construction vehicles should be restricted to driving during daylight hours only. This will reduce the likelihood of “road kills”;
- As a minimum, the legal speed limit on public roads will be enforced on all drivers. However, the speed on temporary or private dirt roads will be restricted to 40 km/hr;
- Hunting, the unnecessary destruction of burrow systems or nesting sites and any direct interactions with wildlife will be prohibited;
- Littering at work sites and in adjacent areas will be prohibited. Suitable facilities will be provided for waste management; and
- Contractors, labourers and visitors will be educated on the regulations and good practice regarding general housekeeping and the ecological process, biodiversity value and function of the area, during induction or their first visit to the site (in the form of a pamphlet or training session).

## **8.18**      *SOCIAL ISSUES*

### **8.18.1**    *Scope*

The scope with respect to social issues is as follows:

- ensure that the project activities do not place any direct pressure on the already strained local infrastructure and services;
- implement corporate social investment projects that off-set impacts on infrastructure and services from in-migration;
- encourage and support government in improving the levels of infrastructure and services provided in the project area, e.g., public lighting and electricity;
- minimise the transmission of diseases and reduce their impact on the health of employees/contractors to the lowest possible level, through effective control measures;
- limit, where possible, social pathologies brought about by in-migration into the project area; and
- ensure that Transnet and contractors manage their employees in such a way that the impacts on local communities are limited.

### **8.18.2**    *Disruption to agricultural activities*

- Transnet to minimise the damage to farmland caused by construction activities by ensuring strict compliance with construction plans to minimise the development footprint and to implement a ‘Code of Conduct’ governing workers.
- The Code of Conduct must address the following aspects:
  - respect for local residents;

- respect for farm infrastructure and agricultural activities;
  - no hunting or unauthorised taking of products or livestock;
  - compliance with the Traffic Management Plan and all road regulations; and
  - description of disciplinary measures for infringement of the Code of Conduct and company rules.
- If workers are found to be in contravention of the Code of Conduct, which they signed at the commencement of their contract, they will face disciplinary procedures that could result in dismissal.
  - Transnet will consult the affected landowners to discuss sensitive areas on their property and design the infrastructure layout in a manner that limits impact on agricultural activities.
  - Any damage to natural vegetation (specifically grazing) will be rehabilitated in accordance with mitigation proposed for the rehabilitation of natural vegetation.
  - Construction activities to be undertaken according to a schedule that is agreed upon with the landowners.
  - Construction workers to ensure that the gates are closed at all times and that any damage to the infrastructure is repaired immediately.
  - Transnet will implement a grievance procedure that is easily accessible to local communities, through which complaints related to contractor or employee behaviour can be lodged and responded to. Transnet will respond to all such complaints. Key steps of the grievance mechanism include:
    - Circulation of contact details of 'grievance officer' or other key Transnet contact.
    - Awareness raising among local communities (including all directly affected and neighbouring farmers) regarding the grievance procedure and how it works.
    - Establishment of a grievance register to be updated by Transnet, including all responses and response times.

### **8.18.3      *Loss of agricultural land***

- Transnet will consult the affected landowners to discuss sensitive areas on their property and design the infrastructure layout in a manner that limits impacts on agricultural activities.
- Any damage to natural vegetation (specifically grazing) will be rehabilitated in accordance with mitigation proposed for the rehabilitation of natural vegetation.

## **8.19**      **VIBRATION**

### **8.19.1**      **Scope**

Minimise the impacts of vibration nuisance on social and ecological (faunal and avifaunal) receptors as a result of construction activities.

### **8.19.2**      **Management**

Minimise the impacts of vibration on social and ecological receptors. Specific measures include:

- Ensure proper maintenance of wheel and rail surfaces to optimise the life of the train and rails, and at the same time to reduce operational vibrations;
- At special trackwork such as turnouts and crossovers where significant increases in the vibration levels can occur, special devices that incorporate mechanisms to close the gaps between rails should be implemented to significantly reduce vibration levels;
- Trenches could be used to control ground-borne vibration in areas close to social receptors. A 5 m deep trench should be effective if the peak of the frequency content of the vibration is at around 30 Hz; and
- Adjust night time schedules to minimise movements during the most sensitive hours, based on specific complaints received.

## **8.20**      **TRAFFIC HAZARDS AND DISRUPTION**

### **8.20.1**      **Scope**

Minimise the potential traffic hazards and disruption as a result of increased construction related traffic within the project area and surrounding arterials and access roads, including national and provincial roads.

### **8.20.2**      **Management**

Minimise the potential traffic hazards and disruption. Specific measures include:

- The impacts of delivery trucks during construction can be reduced by transporting more construction materials via rail;
- The impacts on the existing traffic can be reduced by scheduling the arrivals and departures of construction vehicles;
- Educate both the construction crew and the local community on traffic safety and possible hazards arising from the construction activities;
- All warning, regulatory and prohibition signs recommended by the National Department of Transportation, South African Roads Traffic Signs Manual (SARTSM) should be implemented;
- All regulatory and warning signs recommended by the SARTSM should be adhered to; and



- All plans and specifications should provide details on how the traffic control operations are to be carried out.

**8.21 ASSOCIATED FORMS**

Refer to Section 5 of the SES (*Annex H*)

**8.22 RECORDS**

Refer to Section 6 of the SES (*Annex H*)

## 9.1 CONCLUSION

This section highlights the most significant impacts identified to possibly occur during the construction and operational phases of the project.

The amendment process has identified the impacts associated with the revised designs of the loop extensions. Based on the impacts identified, an assessment was undertaken in light of the previously approved and proposed project description. Due to the nature of amendments to the design, the potential impacts are likely to be similar to what was assessed previously, and thus the findings and recommendations are in line with the EIA process undertaken in 2009. Despite the changes to the socio-economic environment, associated impacts can be effectively mitigated to acceptable standards.

This section provides an overview of the key findings associated with the amendments and makes recommendations regarding key mitigation measures and management actions.

### 9.1.1 *Potential Construction Phase Impacts*

Only one potentially negative impact of major significance (pre-mitigation) could be identified for this amendment process. This impact relates to the required vegetation clearing at the proposed loop sites and the resulting spread or colonisation of alien invasive species and weeds. It is important to note that this impact can be effectively managed through the implementation of the mitigation measures described in Chapters 7 and 8. If these mitigatory measures are effectively enforced, the significance of these impacts can be reduced from major to an acceptable level of moderate significance.

No negative socio-economic impact of major significance is anticipated during the construction phase. Key construction phase impacts related to the socio-economic environment include the impacts related to loss of agricultural land, and disruption to agricultural activities. A positive impact associated with the construction phase of the loop sites is associated with the generation of employment and procurement opportunities; however, these will be very limited, mainly owing to the phasing of construction activities over time.

### 9.1.2 *Potential Operation Phase Impacts*

The negative operational phase impact of major significance is associated with noise generation from an increase in train frequencies over time, along the railway line between De Aar and Port of Ngqura.

Although this impact (from current and future rail traffic) is only expected to be experienced where sensitive receptors such as human settlements, schools and wildlife areas are in close proximity to the railway line (within 50 m), there is very little that can be done to reduce the noise generated from the

passing trains in these locations. This said, the increase in train frequencies will be marginal and spread over a long period of time, as demand drives the need to increase rail transport capacity. The post-mitigation significance of this impact has, therefore, remained as **major (-)**.

A positive impact associated with the operational phase of the railway line is related to employment creation and procurement of goods and services. However, opportunities generated will be negligible and certainly less than the construction phase. A further positive impact is the change in the sense of place. However, this would only be relevant to certain parts of the population (for eg. the youth) who view signs of infrastructure development as having the potential to generate future opportunities for the local area. The impact on sense of place can also be negative for certain groups of people, owing to different perspectives and/ or attachments to the affected land.

### 9.1.3 *Other impacts*

An obvious key positive impact of the project pertains to the regional and national economic benefits from the export of manganese. This impact was not assessed in terms of the amendment application as its sphere of influence relates to the larger project scope. This has positive implications in terms of local procurement of goods and services along the supply chain as well as the generation of foreign revenue from export.

The benefits of this are felt at both national and provincial levels. Therefore, if one considers the “no-go” or “do nothing” alternative to the project, this would have negative implications for the economy at various scales through direct loss of foreign exchange generation and indirectly through impacts on the supply chain.

## 9.2 *RECOMMENDATIONS*

A number of recommendations have been made in Chapters 7 and 8 around mitigation and management measures to either reduce the negative impacts or to enhance the positive impacts. These recommendations/ mitigation measures should be written into the authorisation of this amendment, should it be approved.

Further to these measures, it is worthwhile pointing out the following:

- The significance of the impacts can only be reduced/enhanced if Transnet effectively implements the mitigation measures that have been outlined;
- Although the EMP in Chapter 8 and the typical mitigation measures outlined in Transnet’s generic documents in *Annex G and H* only apply to the construction phase, it is expected that measures to manage operational impacts, as outlined in this report, will be drawn into the Environmental Management System for the Project, which will be implemented following construction;

- The Project Environmental Specification provided in Chapter 8 needs to be continually revised to adapt to changes in the project and to include any further conditions of the environmental authorisation;
- Should decommissioning of any infrastructure associated with the project occur at a future stage, the general mitigation measures outlined in Transnet's generic EMP documents should be adhered to. Where necessary, specialist botanical or archaeological input may be sourced to advise on protection of sensitive sites and rehabilitation measures; and
- It is Transnet's responsibility to ensure that other permitting/licensing requirements in terms of the National Heritage Resources Act, National Water Act, and National Environmental Management: Biodiversity Act are complied with outside of this amendment process, prior to the commencement of construction.

Finally, it is a requirement of the EIA Regulations under NEMA that the independent environmental consultant provides a recommendation on whether the Project should be authorised or not. In light of the the assessment of potential impacts associated with the proposed amendment and development of the mitigation measures to be implemented by Transnet, ERM is of the opinion that the amendment to the previously approved loop extensions be authorised, keeping in mind the conditions described above.

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