environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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File Reference Number:	
Application Number:	
Date Received:	

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **08 December 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.

11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included in the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?	YES ✔	NO

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

a) Describe the project associated with the listed activities applied for

Market Demand Strategy (MDS) requires Transnet Freight Rail to increase its volumes to 350 Mtpa by 2017. It is expected that unlocking the Waterberg and eventually the Botswana coal field, will contribute significantly to the targeted MDS volumes. The development of the Waterberg to Gauteng and Richards Bay corridors will strengthen the favourability of using the Southern route rather than alternative routes to Mozambique.

Consequently, rail capacity expansion has been identified as a strategic initiative that received much focus from Government as a key drive for South Africa's economy. In line with these strategic priorities for the country, Transnet has developed a programme for expansion of railway infrastructure between Lephalale in Limpopo and Pyramid South in Gauteng. The expansions will feed the heavy haul coal line for increased coal exports through the Port of Richards Bay and also deliver coal to several power stations along the existing rail route.

The proposed development comprises of railway loop expansions and associated activities at the following site:

- Thabazimbi ;
- Ferro gate; and
- Northam.

The three sites are located on various farms within the jurisdiction of Thabazimbi Local Municipality in Limpopo Province, South Africa.

The proposed project is a Strategic Infrastructure Project (SIP) that triggers listed activities under ~~the~~ GNR 327 (Listing Notice 1) and ~~Activity 12 (xii) (a) (c); 19(i) and 64 as well as Activity 14 (c) (ii) under~~ GNR 324 (Listing Notice 3). Therefore, Environmental Authorisation must be obtained in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations of December 2014 as amended in April 2017.

Further the activity will trigger listed activities 21 (c) and (i) under the National Water Act, 1998 (Act 36 of 1998) therefore a Water Use License must be obtained accordingly.

b) Provide a detailed description of the listed activities associated with the project as applied for

Listed activity as described in GN 734, 735 and 736	Description of project activity
Example: ***GN 734 Item xx xx): The construction of a bridge where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.***	***A bridge measuring 5 m in height and 10m in length, no wider than 8 meters will be built over the Orange river***
Notice R. 327 Activity 48 (i) (a) (c); The development of: (i) infrastructure or structures with a physical footprint of 100 square metres or more; Where such development occurs- (a) Within a watercourse (c) If no development setback exists, within 32 metred of a watercourse, measured from the edge of a watercourse.	The proposed expansion will entail construction of a railway loop of approximately 3.7km and associated infrastructure. The physical footprint will be more than 100 square meters and the proposed development will occur within a watercourse.
Notice R. 327 Activity 19 The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from watercourse.	It is anticipated that the construction phase of the development will warrant excavation and removal of soil from the adjacent watercourses. Given the magnitude of the project it is anticipated that this will be more than $10m^3$.
Notice R. 327 Activity 64 The expansion of railway lines, stations or shunting yards where there will be an increased development footprint.	The proposed development entails expansion of a railway loop thus increasing the development footprint.
GN R 324 Activity 12 (e)((ii) The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for	The proposed Thabazimbi and Ferrogate loops will require clearance more than 300 square meters of indigenous vegetation within a Critical Biodiversity Area.

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maintenance purposes undertaken in accordance with a maintenance management plan. (e) In Limpopo (i). Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; (ii) Within critical biodiversity areas identified in bioregional plans.	
GN R 324, Activity 14 (ii) (i) (ff) and (hh) The development of: (ii) infrastructure or structures with a physical footprint of 10 square metres or more; (e)(i) In Limpopo: (ff) Critical Biodiversity Areas (CBAs) or Ecosystem Service Areas (ESAs) as identified in systematic in the biodiversity plans adopted by the competent authority or in bioregional plans. (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve.	The proposed development of ablution facility will be more than 10 square meters and it encroaches on CBAs and ESAs within the study area.
GN R 324, Activity 23 (ii) (a)(c) (e)(i)(ee)(gg) The expansion of: (ii) infrastructure or structures with a physical footprint of 10 square metres or more; Where such an expansion occurs – (a)within a watercourse; (c) If no development setbacks has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;	The proposed railway loop will be more than 10 square meters and it encroaches on CBAs and ESAs within the study area.

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(e) In Limpopo: (i) Outside urban areas: (ee) Critical Biodiversity Areas (CBAs) or Ecosystem Service Areas (ESAs) as identified in systematic in the biodiversity plans adopted by the competent authority or in bioregional plans. (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve.	

2. FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

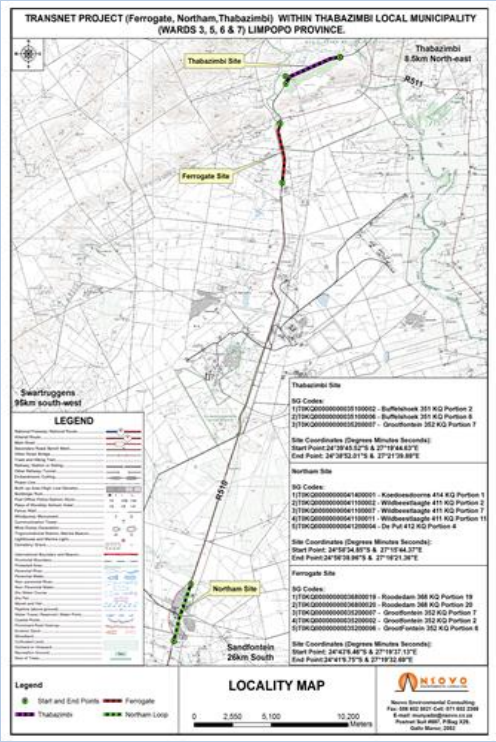
Describe alternatives that are considered in this application as required by Appendix 1 (3)(h), Regulation 2014. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations

and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
The proposed development entails expansion of railway loops along sections of the Thabazimbi, Ferrogate and Northam railway line within the jurisdiction of the Thabazimbi Local Municipality, in the Limpopo Province, South Africa as depicted on the locality map below:  Figure 1: Locality map of the proposed development. The three sections are described in detail below:		
Thabazimbi		

The proposed development will take place on Farms Grootfontein 352 KQ Portion 7 and Buffelshoek 351 KQ Portions 2 & 7 within Ward 3. The railway loops will be developed adjacent to the existing railway line on the southern side. The proposed development entails construction of two railway loops of approximately 3.4 km and associated infrastructure at the Thabazimbi station to accommodate 200 wagon trains. The primary activities will include the commissioning of the 25kV AC Electrical Overhead Track Equipment (OHTE), Track Switches (Non Tele-Controlled) and electrification of the new loops comprising of structures which carry 25kV overhead equipment. The associated infrastructure will also include the following: • **Upgrade of Culverts** The proposed construction of the new crossing loop and the tie in with the mainline requires extension of the seven existing box culverts i.e. the culverts will be demolished and replaced with bigger culverts that can better handle the Design Flood Peak Discharges Value. (Facility illustration attached as Appendix C-1) • **Road and Railway crossing** Construction of approximately 3km, 4m width, new gravel service road to provide access to the ablution facility as well as to the other side of the line via a railway crossing. • **Crewing facility (Ablution facilities)** Provided that the proposed loops will be used as a locomotive change over yard, ablution facilities will be constructed to make provision for train drivers.	**Loop 1** Start 24°39'45.52"S ~~24°39'45.5239' 52"S~~ Middle 24°39'12.92"S End 24°38'52.01"S **Loop 2** Start 24°39'46.91"S End 24°38'51.84"S	 27°19'44.63"E ~~27°19'44.63"E~~ 27°20'38.02"E 27°21'39.89"E 27°19'43.95"E 27°21'41.55"E

• **Retaining wall** Approximately 400m and 2.5m of dry stack retaining wall to be constructed along the loop.		
Ferrogate		
The proposed development will take place on Farms Rood edam 368 KQ Portions 19 & 20, Grootfontein 352 KQ Portions 2, 6 & 7 within the same ward. The start middle and end coordinates of the Ferrogate loop are as follows: The scope of work entails the expansion of the railway network by construction a new 3750m crossing loop to accommodate the proposed 200 wagon train length. The construction will include uplifting of the existing loop to allow for the loop expansion to be undertaken beyond the Transnet servitude; therefore an additional 2.2 hectares of land will need to be acquired. The associated infrastructure will also include the following: • **Upgrade of Culverts** The proposed construction of the new crossing loop and the tie in with the mainline requires extension of the five existing box culverts i.e. the culverts will be demolished and replaced with bigger culverts that can better handle the Design Flood Peak Discharges Value. Facility illustration attached as Appendix C-2. • **Road demolishing and construction** Activities will include demolishing a portion of the existing access road and rerouting of approximately 20m long and 2m width to match the existing. Further a new 330m and 4m wide maintenance road will be	Start 24°43'6.46"S ~~24°43'6.46"S~~ Middle 24°42'6.04"S End 24°14'6.6.75"S	27°19'37.13"E ~~27°19'37.13"E~~ 27°19'38.52"E 27°19'32.69"E

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constructed. • **Relocation of Light** The existing light pole will be relocated to clear off track work. The relocation will be within the start and end of the loop, about 3.2m from the centre. • **Construction of Retaining wall** Retaining walls of various sizes; at a maximum of 3245m height and 240m length will be constructed along the loop. Additional activities will include installation of day lights.		
Northam		
• The proposed development will take place on Farms Koedoesdoorns 414 KQ Portion 1, Wildbeestlaagte 411 KQ Portions 2, 7 and 11 as well as De Put 412 KQ Portion 4 within Wards 5 & 7.The start middle and end coordinates of the Northam loop are as follows: The proposed development entails the expansion of the existing railway loop at Northam by approximately 4000m towards Thabazimbi i.e. North. The proposed new loop will extend beyond the Transnet servitude; therefore an additional 1.88 ha of land will need to be acquired. Associated Infrastructure at Northam will include the following: • **Upgrade Culverts** The proposed construction of the new crossing loop and the tie in with the mainline requires extension of the two existing box culverts i.e. the culverts will be demolished and replaced with bigger culverts that can better handle the Design Flood Peak Discharges Value. (Facility illustration attached as Appendix C-3).	Start 24°38'51.845"S Middle 24°57'36.90"S End 24°56'39.96"S	25°15'44.37"E 27°16'0.89"E 27°16'21.36"E

• Construction of retaining wall Retaining walls of various sizes; at a maximum of 1.8m height and 400 m length will be constructed along the loop.		
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)
.		
.		

According to the EIA Regulations of April 2017 "expansion" means the modification, extension, alteration or upgrading of a facility, structure or infrastructure at which an activity takes place in such a manner that the capacity of the facility or the footprint of the activity is increased

Subsequently the proposed development entails expansion of existing infrastructure and the site location is based on train simulation studies that yield a maximum number of train slots, therefore no site alternatives were considered as it would defeat the primary purpose.

In the case of linear activities:

Alternative: **Latitude (S):** **Longitude (E):**

Alternative S1 (preferred)

• Starting point of the activity	**Thabazimbi Loop 1**
	24°39'45.52"S ~~24°39'45.52"S~~	27°19'44.63"E~~27°19'44.63"E~~
• Middle/Additional point of the activity	24°39'12.92"S ~~24°39'12.92"S~~	27°20'38.02"E~~27°20'38.02"E~~
• End point of the activity	24°38'52.01"S~~24°38'52.01"S~~	27°21'39.89"E~~27°21'39.89"E~~
•	**Thabazimbi Loop 2**
•	24°39'46.91"S	27°19'43.95"E
•		
•	24°38'51.84"S	27°21'41.55"E
	Ferrogate

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24°43'6.46"S~~24°43'6.46"S~~	27°19'37.13"E~~27°19'37.13"E~~
24°42'6.04"S ~~24°42'6.04"S~~	27°19'38.52"E~~27°19'38.52"E~~
24°14'6.6.75"S~~24°14'6.6.75"S~~	27°19'32.69"E~~27°19'32.69"E~~
Northam	
24°58'34.85"S~~24°58'34.85"S~~	25°15'44.37"E~~25°15'44.37"E~~
24°57'36.90"S ~~24°57'36.90"S~~	27°16'0.89"E~~27°16'0.89"E~~
24°56'39.96"S~~24°56'39.96"S~~	27°16'21.36"E~~27°16'21.36"E~~

Alternative S2 (if any)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

Alternative S3 (if any)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

The coordinates taken at every 250m for all three loops are included as **APPENDIX J-1.**

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A of this form.

b) Lay-out alternatives-

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Thabazimbi		
The project entails the proposed development of two railway loops of approximately 3.4 km long with associated infrastructure at the Thabazimbi station to accommodate 200 wagon trains. The railway loops will be developed adjacent to the existing railway line on the Southern side.	**Loop 1** Start 24°39'45.52"S End 24°38'52.01"S **Loop 2** Start 24°39'46.91"S End 24°38'51.84"S ~~As above~~	27°19'44.63"E 27°21'39.89"E 27°19'43.95"E 27°21'41.55"E
Ferrogate		
The scope of the project includes the expansion of the existing railway network by expanding the railway loop to accommodate the proposed 200 wagon train length. The preferred option is to extend the loop northwards (towards Thabazimbi). For the purpose of this project the existing loop will be uplifted and the loop expansion will be undertaken beyond the Transnet servitude.	Start 24°43'6.46"S End 24°14'6.6.75"S ~~As above~~	27°19'37.13"E 27°19'32.69"E
Northam		
The proposed development worked around the obstructions which included: a road over rail bridge, confined spaces in the yard and adjacent developments. Track centres and cuts/fills were kept to a minimum to avoid any obstructions. The bridge will not need any alterations/lengthening and there will be no demolition of major infrastructure/private property. Extending the loop in the other direction was not viable due to steep gradients.	Start 24°38'51.845"S End 24°56'39.96"S~~As above~~	25°15'44.37"E 27°16'21.36"E

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Alternative 2		
Thabazimbi		
The railway loop was initially designed on the Southern side of the existing railway (in the direction of increasing kilometres). Due to the instability of the mine dump located in close proximity to the railway line, the loop was moved to the left hand side of the existing mainline. The loop was also originally intended to be 2.8km long (for 200 wagons), and then extended to the length that is required to accommodate colour light signalling (an additional 600m implying a total of 3.4km) in a subsequent phase. This option was considered; however, due to the amount of rework (earthworks and re-grading) that would be required when the additional length was to be constructed in the future this option was not preferred.	**Loop 1** Start 24°39'45.52"S End 24°38'52.01"S **Loop 2** Start 24°39'46.91"S End 24°38'51.84"S ~~As above~~	 27°19'44.63"E 27°21'39.89"E 27°19'43.95"E 27°21'41.55"E
Ferrogate		
Initially it was required that the existing loop be extended towards the North in the direction of Thabazimbi which would require the R510 road over rail bridge to be extended. Subsequent extension towards the south (in the direction of Northam), would mean interference with the farmer's level crossing. To eliminate these issues, the expansion of the railway loop was designed on the western side of the existing main line.	Start 24°43'6.46"S End 24°14'6.6.75"S ~~As above~~	 27°19'37.13"E 27°19'32.69"E
Northam		
The staging loop was designed to tie into the mainline at the same location as the existing 100 wagon loop (that is being uplifted and replaced) on the one side of the yard. Some obstructions were identified at the proposed location, and as such an alternative site was considered approximately 2km further along the track. ~~(from the end of the existing loop increasing chainages).~~ A desktop study was done using the small-scale layout to determine whether a crossing loop would fit in with the existing topography at this location. The desktop study confirmed that the alternative location was a viable option from an alignment perspective; however from a signalling perspective it could not be viable as the train would be entering the yard while technically still in the loop due to the short clearance between the two. Hence reverted to the LTS proposed	Start 24°38'51.845"S End 24°56'39.96"S	 25°15'44.37"E 27°16'21.36"E

location and worked around the obstructions which included a road over rail bridge, confined spaces in the yard and adjacent developments. As part of the design, track centres and cuts/fills were kept to a minimum to avoid any obstructions. The bridge will not need any alterations/lengthening and there will be no demolition of major infrastructure/private property. Extending the loop in the other direction would not allow for steep gradients.		
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

c) Technology alternatives

Alternative 1 (preferred alternative)
The signalling preferred alternative technology to be used at the proposed railway loop expansions will be a two ways self-normalizing electrical point indicator system with key point. The technology was chosen based on the tangential point sets installed by civil/per way. The tangential point set cannot be operated manually by means of a hand tumbler, instead the point set needs to be powered.

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternative 1 (preferred alternative)
Alternative 2
Alternative 3

e) No-go alternative

In accordance with the requirement of the EIA Regulations, consideration must be given to the option not to develop. This option is usually considered when the proposed development is envisaged to have such significant negative environmental impacts that mitigation measures cannot ameliorate effectively. The no-go alternative would be the option of not undertaking the proposed expansion of railway loops as planned.

Paragraphs 3 – 13 below should be completed for each alternative.

3. PHYSICAL SIZE OF THE ACTIVITY

a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:	**Size of the activity:**
Alternative A1[1] (preferred activity alternative)	m^2
Alternative A2 (if any)	m^2
Alternative A3 (if any)	m^2

or, for linear activities:

Alternative:	**Length of the activity:**
Alternative A1 (preferred activity alternative)	~~11 150m~~
Thabazimbi (2 loops of approximately 3400m each)	3400 m
Ferrogate	3750 m
Northam	4000 m
Alternative A2 (if any)	m
Alternative A3 (if any)	m

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Alternative:	**Length of the activity:**
Alternative A1 (preferred activity alternative)	m
Alternative A2 (if any)	m
Alternative A3 (if any)	m

Alternative:	**Length of the activity:**
Alternative A1 (preferred activity alternative)	m
Alternative A2 (if any)	m
Alternative A3 (if any)	m

[1] "Alternative A.." refer to activity, process, technology or other alternatives.

b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:	**Size of the site/servitude:**
Alternative A1 (Thabazimbi)	150000m²
Alternative A1 (Ferrogate)	107216m²
AlternativeA1 (Northam)	195333m²
Alternative A2 (if any)	
Alternative A3 (if any)	

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4. SITE ACCESS

Does ready access to the site exist?	YES	NO
	✔	✔
If NO, what is the distance over which a new access road will be built		m

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Describe the type of access road planned:

The primary access to all the sites will be the R510 and direct access will be through the Transnet existing service roads. However, access to certain sections of the proposed development may be required wherein secondary access will be developed. Access roads planned are as follows:

- An access road of 3km length and 4m width gravel road will be constructed within the Ben Alberts nature reserve to create access to the new Thabazimbi railway loops;
- An access road of approximately 1.17km length and 4m width gravel road will be constructed at Ferrogate to create alternative access for the landowner during the operational phase as it anticipated that the existing railway crossing to his farm may be blocked from time to time during operation phase.

The proposed access roads do not trigger any listed activities under GNR326 EIA Regulations (7 April 2017).

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s ;)
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

The Locality Map is attached as **Appendix A.**

6. LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

The Layout/Route Plan is attached as **Appendix A**.

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWS);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

The Sensitivity Map is attached as **Appendix A**.

8. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report**.** It must be supplemented with additional photographs of relevant features on the site, if applicable.

Eight - directional colour photographs for each site are attached as **Appendix B**.

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

The Facility Illustrations for all three sites are attached as **Appendix C**.

10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?	YES ✔	NO	Please explain
The proposed development entails the expansion of railway loops at the aforementioned sites to accommodate 200 wagon trains and it is well within the existing land use rights.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES ✔	NO	Please explain
Limpopo Province's strategy to attract productive investment is to plan and implement carefully selected public sector investment projects in the priority growth points an economic development clusters within the province, coal and energy cluster in Lephalale Green City urban development Growth Point is one the cluster priorities that provide the strategic framework for most of the economic component of the Limpopo Development Plan. Therefore the proposed development is in line with the PSDF.			
(b) Urban edge / Edge of Built environment for the area	YES ✔	NO	Please explain
An urban edge is defined as the boundary of the city beyond which no urban development is permitted. Accordingly, the Thabazimbi and Ferrogate railway loops will be beyond the urban edge while Northam is within.			

(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES	NO ✔	Please explain
According to the Limpopo Development Plan 2015-2019, constructive and mutually rewarding relationships with Botswana and Zimbabwe relating to the coal and energy cluster in Lephalale and the Mining Cluster in the Musina-Makhado corridor is one of the specific regional integration priorities for the province. The current IDP and SDF is anchored and underpinned with outcomes such as an efficient, competitive and responsive economic infrastructure network as well as environmental sustainability; with clearly defined strategic targets over the medium to long term. Further the IDP promotes SIP related projects including amongst others Nodal infrastructure for the priority growth points; and adequate maintenance for all existing infrastructure. Therefore the approval of this application would promote the aims and objectives of aforementioned policies and programmes by promoting economic growth, upgrading engineering and social infrastructure in the area. Thus its approval will not compromise the integrity approved of the IDPs.			
(d) Approved Structure Plan of the Municipality	YES	NO ✔	Please explain
It is not within the Municipalities mandate to approve Transnet's structure plan; however, the Municipality has been identified as a primary stakeholder eligible to comment on this draft Basic Assessment Report.			
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	YES ✔	NO	Please explain
The proposed project will have a number of environmental impacts of varying significance as outlined in Appendix F that to an extent may compromise the integrity of the EMF if not well managed. However, the long term developmental and sustainability goals coupled with increased economic activity and overarching benefits to both the region and the country in terms of exporting coal through the Port of Richards Bay and also deliver coal to several power stations along the existing rail route, justify the project.			

(f) Any other Plans (e.g. Guide Plan)	YES	NO ✔	Please explain
None identified.			
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES ✔	NO	Please explain
The proposed development is one of the development clusters which are priority for the Municipality and the country at large. Further, the proposed development is a Strategic Infrastructure Project (SIP) and is well aligned within the IDP.			
4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	YES ✔	NO	Please explain
The expansion in rail capacity has been identified as a strategic initiative and received much focus from Government as a key drive for the South Africa's economy. The proposed activity may not necessarily have direct benefits for the immediate community; however, it's much needed to benefit the South African community as it will have significant benefits for the economy.			
5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES	NO ✔	Please explain
The necessary services with adequate capacity are currently available for the proposed project; however, water for construction will be sourced from commercial sources. ~~arrangement will need to be made for provision of water to the Thabazimbi site, both during construction and operation.~~ ~~Confirmation form the Municipality will be sort and attached as Appendix I~~			

6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES ✔	NO	Please explain
The proposed development has been identified by the Municipality as a SIP; therefore it is much needed as it will add support to form part of a link to strengthen the economy. This project will allow load growth of 200 wagon trains and will improve reliability of supply to the end user thus allowing the Municipality to achieve their plan as set out in the IDP.			
7. Is this project part of a national programme to address an issue of national concern or importance?	YES ✔	NO	Please explain
The proposed development forms part of the national programme and SIP 1 which emphasises on mining-related investment and infrastructure development. The expansion in rail capacity has been identified as a strategic initiative and received much focus from Government as a key drive for the South Africa's economy and it will feed the heavy haul coal line for increased coal exports through the Port of Richards Bay and also deliver coal to several power stations along the existing rail route.			
8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	YES ✔	NO	Please explain
The proposed development entails the expansion of railway loops to accommodate 200 wagon trains, parallel to the existing railway line. Therefore proposed locations favour the land use.			
9. Is the development the best practicable environmental option for this land/site?	YES ✔	NO	Please explain
The proposed development is preferred for the site based on environmental and technical studies undertaken; therefore the development is considered to be the best practicable environmental option for the site.			

10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES ✔	NO	Please explain
The proposed project will benefit the Municipality, the district and the country at large. The identified impacts will be managed according to the recommendations from the specialists as well as the EMPr approved by the Department of Environmental Affairs. Moreover, the proposed development will ensure a more positive economic outlook. Therefore, the benefits of the proposed development will outweigh the negative impacts. The negative impacts have been identified and mitigation measures proposed			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	NO ✔	Please explain
The proposed development is the expansion of the existing railway loops to accommodate 200 wagon trains therefore; the proposed development will not set a precedent but will compliment activities in the area.			
12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	NO ✔	Please explain
The Constitution of South Africa Act No. 108 of 1996 provides that everyone has a right to an environment that is not harmful to their health or wellbeing (contained in the Bill of Rights, Chapter 2). In terms of Section 7, the State has an obligation to respect, promote and fulfil the rights as defined in the Bill of Rights. The undertaking of the Basic Assessment is in line with the State's obligation as outlined in the Constitution in its effort to ensure sustainability. The consultation through the Public Participation will ensure that the Interested and Affected Parties' comments and issues are adequately addressed to ensure that the proposed project does not negatively affect any person's rights			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	NO ✔	Please explain
The proposed activity will not compromise the urban edge.			

14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES ✔	NO	Please explain
The proposed project is SIP 1 which entails: • Unlock mineral resources; • Rail, water pipelines, energy generation and transmission infrastructure; • Thousands of direct jobs across the areas unlocked; • Urban development in Waterberg - first major post-apartheid new urban centre will be a "green" development project; • Rail capacity to Mpumalanga and Richards Bay; • Shift from road to rail in Mpumalanga; and • Logistics corridor to connect Mpumalanga and Gauteng.			
15. What will the benefits be to society in general and to the local communities?			Please explain
At the national level, the development is expected to unlock the Waterberg and eventually the Botswana coal field which will contribute significantly to the targeted Market Demand Strategy (MDS) volumes. The development of the Waterberg to Gauteng and Richards Bay corridors will strengthen the favourability of using the Southern route rather than alternative routes to Mozambique. Further the project will increase the economic growth which will in turn benefit the local communities and the country at large.			
16. Any other need and desirability considerations related to the proposed activity?			Please explain
None identified.			
17. How does the project fit into the National Development Plan for 2030?			Please explain
According to the National Development Plan 2030 Capital investments that are relevant to Limpopo and of priority include the construction of a new coal line to unlock coal deposits in the Waterberg. It is therefore expected that unlocking the Waterberg and eventually the Botswana coal field, will contribute significantly to the targeted MDS volumes. Therefore the proposed project fit into the for NDP 2030.			
18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.			
The general objectives of IEM have been taken into account by means of identifying, evaluating, and predicting the actual and potential impacts on the natural, cultural and social environment. The risks, consequences and mitigation measures have been considered to minimise the negative impacts, enhance the positive impacts and promote compliance with environmental management principles.			

19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.
The principles of NEMA have been considered. This Basic Assessment Report (BAR) ensures that the impacts of the proposed activity on the environment are thoroughly and comprehensively assessed to ensure sustainability. Further, successful implementation of the EMPr will aid in minimising pollution and environmental degradation. The undertaking of the Basic Assessment process has been transparent in approach and as such involves Interested and Affected Parties (I&AP), landowners, Organs of State and other key stakeholders, which will ensure that a well informed decision is undertaken by the Authority .

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline	**Applicability to the project**	**Administering authority**	**Date**
Republic of South Africa – Constitution, Act 108 of 1996	The Constitution of South Africa Act No. 108 of 1996 provides for an environmental right (contained in the Bill of Rights, Chapter 2). In terms of Section 7, the state has an obligation to respect, promote and fulfil the rights as defined in the Bill of Rights. The environmental right states that: "Everyone has the right - a)To an environment that is not harmful to their health or well-being; and b)To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other	National Government	1996

	measures that - Prevent pollution and ecological degradation; • Promote conservation; and Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development." The undertaking of the BA process is in line with the state's obligations as outlined in the constitution in its effort to ensure sustainability.		
National Environmental Management Act, Act 107 of 1998 ~~(as amended in 2009).~~	The overarching principles of sound environmental responsibility are reflected in the National Environmental Management Act (NEMA). The principles set out in the National Environmental Management Act, 1998 (Act No. 107 of 1998), hereafter referred to as NEMA, applies to all listed projects. Construction and operation have to be conducted in line with the generally accepted principles of sustainable development, integrating social, economic and environmental factors	National & Provincial Government	1998
National Environmental Management: Biodiversity Act, Act 10 of 2004	The purpose of the Biodiversity Act is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national	National & Provincial Government	2004

	protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed. The proposed expansions encroach on both Critical Biodiversity Area and Ecological Support Areas. Specialist investigation have been commissioned as part of this application to assess the extent and severity of the potential impacts on this protected areas as well as proposed mitigation measures.		
National Water Act, Act 36 of 1998	The National Water Act, 1998 (Act No. 36 of 1998) [NWA] provides for Constitutional water demands including pollution prevention, ecological and resource conservation and sustainable utilisation. In terms of this Act, all water resources are the property of the State and are regulated by the Department of Water and Sanitation (DWS). A channelled valley bottom wetland associated with the Crocodile River was found on the proposed Thabazimbi Loop. A wetland is present approximately 400m to the north of the site. Two small wetlands associated with the Bierspruit River were present on the proposed Ferrogate Loop. The northernmost wetland	National & Provincial Government	1998

	appears to be as a result of a depression created by the R510. The southern wetland is found along the west of the site and is disconnected from the railway by the R510. ~~In Northam Biorspruit Class Largely natural) is located 380m to the west of the end point.~~ ~~A wetland is located 480m west from the end point.~~ No wetland is located close to the proposed Northam site. Phufane Class B-Largely natural river is located 270m to the south of the start point. Mitigation measures will be put in place and the requirements of the Act will be complied with in terms of Water Use Licence Applications.		
National Heritage Act, Act 25 of 1999	The Act legislates the necessity for cultural and heritage impact assessments in areas earmarked for development, which exceed 0.5ha. The Act makes provision for potential destruction to existing sites, pending the archaeologist's recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA).	National & Provincial Government	1999

	Structures of historical importance had been noted in the proposed expansion. These include a bulk loading structure as well as a historical light pole. Both these object are over 60 years of age, hence, there are protected by the National Heritage Act. According to Section 34(1) of the National Heritage Resource Act, no person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit, issued by the relevant provincial heritage resources authority, in this case, LIHRA		
National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)	The purpose of this Act is to provide for the protection, conservation and management of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes. The diversity of ecological processes was determined throughout the study. This Act will be read together with relevant policies and management plans. The proposed development will encroach on Ecological Support Area and 75% of the proposed site is located within a Conservation Area-Ben Albert's. Specialist investigation have been commissioned as part of this application to assess the extent and severity of the potential	National	2003

	impacts on this protected areas as well as proposed mitigation measures.		
Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)	The objective is to provide for control over the utilisation of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith. In Ferrogate and Northam sites the soils are highly suited for arable agriculture where climate permits.	National	1983
National Environmental Management: Air Quality Act, Act 39 of 2004	The objective of the Act is to protect the environment by providing reasonable measures for the protection and enhancement of the quality of air and to prevent pollution of air and ecological degradation. Part 6 of the Act makes provision for measures to control dust, noise and offensive odours. The assessment of impacts relating to air quality control and management, where appropriate, will form part of the environmental impact assessment report and environmental management plan. The proposed development may create minimal dust during excavations and blasting which is	National & Provincial Government	2004

	expected to be short term and site specific.		
Noise Control Regulations in terms of the Environmental Conservation Act 73 of 1989	The assessment of impacts relating to noise pollution management and control, where appropriate, forms part of the environmental impact assessment report and environmental management plan. Applicable laws regarding noise management and control refers to the national noise control regulations issued in terms of the Environment Conservation Act 73 of 1989. The occupation of site by contractors may generally increase the ambient noise levels in the area. Additional noise may be expected from the increased heavy duty traffic as well as construction equipment. The operational activities will also increase the noise levels although not significantly.	Local Authority	1989
National Environmental Management Waste Act, 2008 (Act 59 of 2008)	To reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; to provide for institutional arrangements and planning matters; to provide for national norms and standards for regulating the management of waste by all spheres of	National	2008

	government; to provide for specific waste management measures; to provide for the licensing and control of waste management activities; to provide for the remediation of contaminated land; to provide for the national waste information system; to provide for compliance and enforcement; and to provide for matters connected therewith.		
EIA Regulations	The purpose of these Regulations is to regulate the procedure and criteria as contemplated in Chapter 5 of the Act relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to environmental impact assessment, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto.	National	2017

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12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	YES ✔	NO
If YES, what estimated quantity will be produced per month?	Unknown m^3	

How will the construction solid waste be disposed of (describe)?

The proposed development will generate general construction waste which will be removed by a waste contractor and disposed of at a registered waste disposal site. Any solid waste generated on site will be collected in suitable containers and removed from site by means of waste disposal vehicle. Further, details on solid waste management are provided in the Environmental Management Programme (EMPr). Solid waste could include the following:

- Excess construction material;
- concrete rubble from structure foundations;
- any vegetation cleared; and
- general waste produced by the construction workers.

All waste will be transported to a registered waste site. Should any hazardous waste be generated, it shall be disposed of appropriately at a registered hazardous waste disposal site. Records of the type and quantity of waste disposed will be kept on site.

Where will the construction solid waste be disposed of (describe)?

Solid waste will be managed and disposed of in accordance with the attached EMPr and may include:

- General waste, consisting of non-hazardous substances and hazardous substances that cannot be recycled. Examples include (but not limited to rubble, that cannot be reused, and food waste). This will be disposed and collected in a waste skip and disposed of at a registered site.
- Re-usable and excess material (sleepers, pins and ballast), which can be used at the sites will be reused and the remainder will be carefully packaged and transported to the depot.
- Hazardous waste will be disposed of accordingly at a registered hazardous waste disposal site.
- Refuse will at all times be disposed of at a registered landfill site, which is also approved by the local authority. Refuse will not be burned or buried on or near the site but will be appropriately disposed of.
- Records of the type and quantity of waste disposed will be kept on site.

Will the activity produce solid waste during its operational phase?

YES	NO
✔	

If YES, what estimated quantity will be produced per month?

Unknown m^3

How will the solid waste be disposed of (describe)?

Waste produced during the operational phase will be minimal and primarily from maintenance and general waste from employees. More waste is expected in Thabazimbi as a result of the crewing facility. Waste generated will be managed according to the requirements of the EMPr, which will include proper disposal of waste at a registered site as well as recycling were feasible.

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

A registered landfill site will be used and permission will be sought from the Thabazimbi Local Municipality before commencement of the construction activities. It is assumed that the closest registered waste disposal site will be used.

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

Waste that does not fit into the municipal waste stream will be disposed of at a registered hazardous waste disposal site while recyclable and reusable waste will be treated as such.

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?	YES	NO ✔

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility?	YES	NO ✔

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	YES	NO ✔
If YES, what estimated quantity will be produced per month?		m^3
Will the activity produce any effluent that will be treated and/or disposed of on site?	YES	NO ✔

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?	YES	NO ✔

If YES, provide the particulars of the facility:

Facility name:	[redacted]		
Contact person:			
Postal address:			
Postal code:			
Telephone:		**Cell:**	
E-mail:		**Fax:**	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

None identified.

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other that exhaust emissions and dust associated with construction phase activities?	YES ✔	NO
If YES, is it controlled by any legislation of any sphere of government?	YES	NO ✔

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the emissions in terms of type and concentration:

Low levels of dust emissions may also be expected from excavations and blasting activities during the construction phase; this will be site specific and low in significance, provided that mitigation measures are in place. Appropriate dust control measures such as dampening of surfaces will be put in place as may be required. Further detail on dust management is provided in the EMPr.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?	YES	NO ✔

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?	YES ✔	NO
If YES, is it controlled by any legislation of any sphere of government?	YES	NO ✔

Describe the noise in terms of type and level:

Given the nature of the proposed development it's anticipated that noise would be an impact of significance. Subsequently a noise specialist study was commissioned and Barend Van der Merwe of dBAcoustics was appointed to undertake the study.

The study area covered the boundaries of the three study areas and the noise receptors. The study revealed that residents of the farm houses in the vicinity of the proposed railway loops are already exposed to train activities and traffic noise because of the R510 road and the existing railway line between the north and the south. Domestic noise and natural noises such as insects, wind and animal noises is part of the prevailing environmental ambient noise level.

The following observations were made in and around the study area:

- There was a constant to intermittent flow of traffic along the R510 during the day and night
- time periods respectively;
- The train activities between Thabazimbi and Northam create an increased noise level on a
- finite basis when there are train movements;
- The wind and weather conditions play an important role in noise propagation;
- Distant traffic contributes to a large portion of the prevailing ambient noise levels in the
- Vicinity of some of the noise receptors.

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

- Seasonal farm activity noise;
- Heavy duty vehicle noise;
- Distant traffic noise from the abutting gravel and feeder roads;
- Train noise;
- Domestic and central business associated noise in Northam;
- Distant mine activity noise in some areas;
- Insects;
- Birds; and
- Wind noise.

The study highlighted that there will not be a significant increase in the prevailing ambient noise levels in the vicinity of the proposed railway loops for the additional activities to be classified as a noise disturbance as the activities at the proposed railway loops will increase the noise intensity by less than 2.0dBA. The traffic noise from traffic along the R510 road already contributes to the higher noise level at some of the residential areas. The noise increase from the train activities take place on a finite type basis as the prevailing ambient noise level is maintained once the train moves away from the residential areas. The frequency will increase due to the bigger demand to move commodities along this corridor and similarly the noise impact will also more frequent.

Noise pollution will occur as a result of construction activities and movement of vehicles on site; the impact will be highly localised and of a temporary nature particularly given the remoteness of the site.

The noise intrusion during the operational phase will be low and the proposed activities will not be more than 7.0dBA above the prevailing ambient noise level for it to be classified as a noise disturbance. The specialist recommended that the possible noise intrusion from train activities can be controlled by means of approved acoustic screening measures, state of the art equipment, proper noise management principles and compliance to the Noise Control Regulations, and the International Finance Corporation's Environmental Health and Safety Guidelines. The proposed noise and vibration management plan must be in place during the construction and operational phases so as to identify any noise increase on a pro-active basis and to address the alleged noise and vibration complaints accordingly.

13. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal	Water board	Groundwater	River, stream, dam or lake	Other	The activity will not use water
✔					

All water for construction purposes will be sources from commercial sources and/or the nearest Transnet depots.

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:	~~80 000~~ litres	
Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?	YES ✔	NO ✔

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

The Water Use Licence Application process is in progress.

14. ENERGY EFFICIENCY

Describe the design measures, if any, which have been taken to ensure that the activity is energy efficient:

None.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

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None.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A): **1**

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section?

YES	NO
✔	

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Specialist reports are attached as Appendix D.

- D-1 Wetland Impact Assessment
- D-2 Biodiversity Assessment
- D-3 Heritage Impact Assessment
- D-4 Avifauna Impact Assessment
- D-5 Social Impact Assessment
- D-6 Noise and Vibration Studies

SITE 1 OF 3 - THABAZIMBI

Property description/physical address:

Province	Limpopo Province
District Municipality	Waterberg District Municipality
Local Municipality	Thabazimbi Local Municipality
Ward Number(s)	Wards 3, 5,6 & 7
Farm name and number	See attached Appendix J2
Portion number	See attached Appendix J2
SG Code	See attached Appendix J2

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

Conservation and Mining

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required?

YES	NO
	✔

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1: Thabazimbi

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
	✔					

Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper

than 1:5

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:
Thabazimbi

2.1 Ridgeline		2.4 Closed valley		2.7 Undulating plain / low hills	✔
2.2 Plateau		2.5 Open valley		2.8 Dune	
2.3 Side slope of hill/mountain		2.6 Plain		2.9 Seafront	
2.10 At sea					

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative Thabazimbi Site		**Alternative (if any):**		**Alternative (if any):**	
Shallow water table (less than 1.5m deep)	YES	NO ✔	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	YES	NO ✔	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES	NO ✔	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES ✔	NO	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO ✔	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	NO ✔	YES	NO	YES	NO
Any other unstable soil or geological feature	YES ✔	NO	YES	NO	YES	NO

An area sensitive to erosion	YES ✔	NO	YES NO	YES NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

4. GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Thabazimbi

Natural veld - good condition[E] ✔	Natural veld with scattered aliens[E] ✔	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil ✔

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

The vegetation Studies was undertaken by Simon Todd and the report is attached as Appendix D-2.

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	YES	NO ✔	UNSURE
Non-Perennial River	YES ✔	NO	UNSURE
Permanent Wetland	YES✔	NO	UNSURE
Seasonal Wetland	YES	NO	UNSURE ✔
Artificial Wetland	YES	NO✔	UNSURE
Estuarine / Lagoonal wetland	YES	NO ✔	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

A wetland is located 250m north from the end point and 590m west from the start point and a non-perennial river (Bierspruit- Class B-Largely natural) is located 680m to the west of the start point and Crocodile river- Class D-Largely modified is located 390m north of the end point.

The wetland study undertaken by Lizzete Delport of Delterra highlighted that wetland areas on site were identifiable by dense *Cyperacea sp* growth; further large bare areas of soil were present on the southern side of the railway line, with dense growth of Acacia bushes. The study identified a channelled valley bottom wetland associated with the Crocodile River on the proposed Thabazimbi Loop while another wetland was noted approximately 400m to the north of the site.

According to the specialist assessment the activities associated with the proposed project fall in the medium risk category without mitigation, therefore a Water Use Licence Application process as per the requirements of the National Water Act, 2008 (Act 36 of 2008) must be obtained from the Department of Water and Sanitation before commencement.

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

Thabazimbi Site		
Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station [H]
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential[A]	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland ✔
Light industrial	Sewage treatment plant[A]	Nature conservation area ✔
Medium industrial [AN]	Train station or shunting yard [N]	Mountain, koppie or ridge ✔
Heavy industrial [AN]	Railway line [N] ✔	Museum
Power station	Major road (4 lanes or more) [N]	Historical building
Office/consulting room	Airport [N]	Protected Area ✔

Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam[A] ✔	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe) ✔ Historical structures

If any of the boxes marked with an "[N] "are ticked, how this impact will / be impacted upon by the proposed activity? Specify and explain:

The proposed development is an expansion of the existing railway line. During construction phase, the exisitng railway line may be impacted briefly by interruption on the sections were the proposed extensions join with the existing railway lies.

If any of the boxes marked with an "[An]" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

[redacted]

If any of the boxes marked with an "[H]" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

[redacted]

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	YES ✔	NO
Core area of a protected area?	YES ✔	NO
Buffer area of a protected area?	YES ✔	NO
Planned expansion area of an existing protected area?	YES	NO ✔
Existing offset area associated with a previous Environmental Authorisation?	YES	NO ✔
Buffer area of the SKA?	YES	NO

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If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

Sensitivity Map is Attached as Appendix A.

7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	YES	NO
	Uncertain ✔	

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

A heritage specialist study was undertaken by Munyadziwa Magoma of Vhubvo Archaeo-Heritage consultants and the report is attached as Appendix D3.

The study indicated that no obvious sites of archaeological significance were identified on the proposed Thabazimbi site~~.~~; however the existing railway line is identified as a structure older than 60 years.

Will any building or structure older than 60 years be affected in any way?	YES ✔	NO ✔
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES ✔	NO ✔

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

The necessary permits will be applied for prior construction commencement.

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8. SOCIO-ECONOMIC CHARACTER

The information provided herein is similar for all three sites. Given the nature of the proposed development and its proximity to communities a social impact assessment specialist was commissioned and undertaken by Dr. Frederick Mphephu of Cort and Fred Consulting Engineers.

The specialist report is attached as Appendix D-5.

The report covers the social impacts that the proposed development may pose on the social communities and proposes site specific mitigation measures.

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment: itinerary

Thabazimbi Local Municipality's unemployment rate is 20.6%, %.

Economic profile of local municipality:

The mining industry is a major source of employment.
the area also boosts Agricultural activities which include Cattle, Poultry and Game while mining activities include Iron ore and Platinum.

Level of education:

The level of education within Thabazimbi Local Municipality is relatively low as depicted in the stats below:

- No Schooling 8.8% ,
- Matric 26%
- Higher Education 8.1%

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion? .

What is the expected yearly income that will be generated by or as a result of the activity?	R7200 million	
Will the activity contribute to service infrastructure?	YES ✔	NO
Is the activity a public amenity?	YES	NO ✔
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	~~Minimal new employment opportunities will be created during the construction.~~10063	
What is the expected value of the employment opportunities during the development and construction phase?	R ~~Undetermined~~27542 million	
What percentage of this will accrue to previously disadvantaged individuals?	~~Undetermined~~54%	
How many permanent new employment opportunities will be created during the operational phase of the activity?	~~Undetermined~~5857	
What is the expected current value of the employment opportunities during the first 10 years?	R~~Undetermined~~1869 million per year	
What percentage of this will accrue to previously disadvantaged individuals?	~~Undetermined~~66%	

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9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult http://bgis.sanbi.org or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category	If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan

Critical Biodiversity Area (CBA) ✔	Ecological Support Area (ESA) ✔	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	Sections of Thabazimbi are classified as Critical Biodiversity Areas 1 and 2 and Ecological Support Areas 1 and 2. Accordingly, these areas are not essential for meeting biodiversity representation targets/thresholds but nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration.

b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	60%~~10%~~	The majority of the loop is within largely intact vegetation in a moderate condition, with some negative impacts relating to bush encroachment and heavy grazing from wildlife. Dominant and characteristic species present include trees such as *Acacia tortillis*, *Zizyphus mucronata*, *Terminalia sericea*, *Combretum hereroense*, *Combretum imberbe*, *Celtis africana* and *Croton gratissimus*. Shrubs include *Grewia flava* and *Abutilon angulatum* var *angulatum*, *Hibiscus micranthus*, *Pavonia burchellii*, *Solanum delagoense* and *Hermbstaedtia odorata*. Protected species present at the site include *Boscia albitrunca* on the small hill next to the line as well as a few individuals of *Combretum imberbe*, which are close to the line but not the side of the new loop and as a result should not be affected.~~It is only the northern extent of the loop that is within natural vegetation. This section consists of somewhat degraded and disturbed savannah. The footprint would be contained within the existing railway servitude and no sensitive areas would be impacted. The~~

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		~~density of protected trees within the affected area is low and it is not likely that any individuals would be lost to the development. Common and dominant species include *Grewia flava*, *Zizyphus mucronata*, *Acacia tortillis* and *Acacia erubescens*.~~
Near Natural (includes areas with low to moderate level of alien invasive plants)	10%~~10%~~	The loop will expand into near-natural areas along the edge of existing line that are previously disturbed and considered near-natural, with some tolerant indigenous species present as well as numerous aliens. ~~There are some impacted areas around the edge of Northam that are considered near natural and dominated by indigenous grasses and trees with some alien species present.~~
Degraded (includes areas heavily invaded by alien plants)	10%~~20%~~	There are degraded areas along the existing line and along the access road that runs next to the road that are dominated by weedy and alien species. This is however a relatively narrow strip along the existing line and does not represent a significant proportion of the site. Weedy and alien species present include *Achyranthes aspera*, *Bidens pilosa*, *Tribulis terrestris*, *Zinnia peruviana* and *Alternanthera pungens*. ~~Large tracts of the site are degraded and dominated by alien forbs and trees mixed in with tolerant indigenous trees and grasses. Alien and weedy species present include *Bidens pilosa*, *Phytolacca americana*, *Argemone ochroleuca*, *Tribulis terrestris*, *Datura stramonium*, *Conyza bonariensis*, *Tagetes minuta*, *Alternanthera pungens*, *Zinnia peruviana* and *Schkuhria pinnata*.~~
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	20%~~60%~~	The area immediately adjacent to the line and the surface of the existing service road along the line are transformed with little natural vegetation remaining. This is however a relatively narrow strip and is not large enough to accommodate the development footprint. ~~The majority of the site is within the bounds of Northam and occurs within a heavily impacted, transformed environment. While there are some indigenous trees and grasses present along the servitude of the railway line, it has been heavily impacted and transformed with no species of concern remaining. A significant proportion of the vegetation in this area is~~

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		~~dominated by alien and weedy species adapted to the prevailing disturbance.~~

c) Complete the table to indicate:

(i) the type of vegetation, including its ecosystem status, present on the site; and

(ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		**Aquatic Ecosystems**						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical ✔	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable							
	Least Threatened	YES ✔	NO	UNSURE	YES	NO ✔	YES	NO ✔

d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

A biodiversity specialist study was commissioned and undertaken by Simon Todd of Simon Todd Consulting, the report is attached as Appendix D-2.

The study highlighted that the Thabazimbi loop is located within the Waterberg Mountain Bushveld vegetation type which occurs in Limpopo Province on the Waterberg Mountains, including the foothills, escarpment and tablelands south of the line between Lephalale and Marken and north of Bela-Bela and west of Mokopane, with outliers near the Vlieepoortberge near Thabazimbi. According to Mucina & Rutherford (2006) it generally occurs at an altitude of 1000-1600m characterised by vegetation consisting of *Faurea saligna-Protea caffra bushveld* on higher slopes which grades into broad-leaved deciduous bushveld dominated by *Diplorhychus condylocarpon* on rocky mid- and foot slopes to *Burkea africana-Terminalia sericea savanna* in the lower lying slopes (Mucina & Rutherford 2006). The grass layer is moderately or well-developed.

The Thabazimbi loop is located within intact natural vegetation and as such is significantly more sensitive than the other loops. Although there is some disturbance along the existing line due to the presence of existing access roads, the majority of the loop is within an area of largely natural vegetation. Although the majority of the loop is within relatively low sensitivity areas dominated by *Acacia tortillis*, the western section of the alignment cuts through a small hill and large *Acacia galpinii* were noted at the base of the hill, which should be avoided as these are substantial trees that are ecologically significant. The study highlighted that the primary issues at this site include faunal disturbance and threats to fauna from increased human presence on the site. Although there is disturbed vegetation along the railway, the new loop will result in the expansion of the line footprint into the adjacent intact vegetation.

Dominant and characteristic species present include trees such as *Acacia tortillis*, *Zizyphus mucronata*, *Terminalia sericea*, *Combretum hereroense*, *Combretum imberbe*, *Celtis africana* and *Croton gratissimus*. Shrubs include *Grewia flava* and *Abutilon angulatum* var *angulatum*, *Hibiscus micranthus*, *Pavonia burchellii*, *Solanum delagoense* and Hermbstaedtia odorata. Common and dominant grasses include *Cenchrus ciliaris*, *Aristida bipartita*, *Enneapogon cenchroides*, *Cynodon dactylon*, *Cymbopogon pospischilii*, *Aristida congesta*, *Tragus bertonianus*, *Melinis repens* and *Heteropogon contortus*. Weedy and alien species present include *Achyranthes aspera*, *Bidens pilosa*, *Tribulis terrestris*, *Zinnia peruviana* and *Alternanthera pungens*.

Protected species present at the site include *Boscia albitrunca* on the small hill next to the line as well as a few individuals of *Combretum imberbe*, which are close to the line but not the side of the new loop and as a result should not be affected.

The Thabazimbi loop is situated on the border of a CBA1 and CBA2 area which probably relates to the fact that the site is located within a conservation area and is largely within natural vegetation. The total extent of habitat loss resulting from the development would amount to less than 5ha and is not considered significant. In addition, as the development is an extension of an existing development, as a result thereof there are no new impacts that would result from the development and no novel ecological process that would be affected.

Consequently, the development is not deemed to have a long-term significant impact on the CBAs of the area and is considered acceptable in this regard.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

FERROGATE

Important notes:

4. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A): **2**

Property description/physical address:

Province	Limpopo Province
District Municipality	Waterberg District Municipality
Local Municipality	Thabazimbi Local Municipality
Ward Number(s)	Ward 3
Farm name and number	See attached Appendix J2
Portion number	See attached Appendix J2
SG Code	See attached Appendix J2

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

Agriculture, Residential and Mining

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required?

YES	NO
	✔

10. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1: Ferrogate

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
✔						

Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

11. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

Ferrogate

2.1 Ridgeline		2.4 Closed valley		2.7 Undulating plain / low hills	
2.2 Plateau		2.5 Open valley		2.8 Dune	
2.3 Side slope of hill/mountain		2.6 Plain	✔	2.9 Seafront	
2.10 At sea					

12. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative Ferrogate Site		Alternative S2 (if any):		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)	YES	NO ✔	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	YES	NO ✔	YES	NO	YES	NO

Seasonally wet soils (often close to water bodies)	YES	NO ✔	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil.	YES	NO ✔	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES ✔	NO	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES ✔	NO	YES	NO	YES	NO
Any other unstable soil or geological feature	YES ✔	NO	YES	NO	YES	NO
An area sensitive to erosion	YES	NO ✔	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

13. GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Ferrogate

Natural veld - good condition[E] ✔	Natural veld with scattered aliens[E] ✔	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil ✔

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

The vegetation Studies was undertaken by Simon Todd and the report is attached as Appendix D-2.

14. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	YES✔	NO	UNSURE
Non-Perennial River	YES✔	NO	UNSURE
Permanent Wetland	YES✔	NO	UNSURE
Seasonal Wetland	YES	NO	UNSURE✔
Artificial Wetland	YES	NO✔	UNSURE
Estuarine / Lagoonal wetland	YES	NO✔	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

The wetland assessment undertaken by Delterra indicated that there are two (2) small wetlands associated with the Bierspruit River present on the proposed Ferrogate Loop. The northernmost wetland appears to be as a result of a depression created by the R510 and a culvert under the road connects the depression to the Bierspruit in the west. While the southern wetland is found along the west of the site and is disconnected from the railway by the R510. A culvert allows for water flow from the railway edge in a westerly direction to the Bierspruit River.

Activities associated with the proposed project falls within the medium risk category without mitigation, therefore a Water Use Licence as per the requirements of the National Water Act, 2008 (Act 36 of 2008) must be obtained from the Department of Water and Sanitation before commencement.

15. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

Ferrogate Site		
Natural area	Dam or reservoir	Polo fields
Low density residential ✔	Hospital/medical centre	Filling station [H]
Medium density residential	School	Landfill or waste treatment site

High density residential	Tertiary education facility	Plantation
Informal residential[A]	Church	Agriculture ✔
Retail commercial & warehousing	Old age home	River, stream or wetland ✔
Light industrial	Sewage treatment plant[A]	Nature conservation area
Medium industrial [AN]	Train station or shunting yard [N]	Mountain, koppie or ridge ✔
Heavy industrial [AN]	Railway line N✔	Museum
Power station	Major road (4 lanes or more) [N]	Historical building✔
Office/consulting room	Airport [N]	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam[A]	Sport facilities	Archaeological site✔
Quarry, sand or borrow pit	Golf course	Other land uses (describe) Historical structures

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If any of the boxes marked with an "[N] "are ticked, how this impact will / be impacted upon by the proposed activity? Specify and explain

The proposed development is the expansion of the existing railway line .Therefore, it is not foreseen that the proposed development will have an impact or be impacted by these.

If any of the boxes marked with an "[An]" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

[redacted]

If any of the boxes marked with an "[H]" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

[redacted]

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	YES ✔	NO
Core area of a protected area?	YES ✔	NO
Buffer area of a protected area?	YES	NO

	✔	
Planned expansion area of an existing protected area?	YES	NO ✔
Existing offset area associated with a previous Environmental Authorisation?	YES	NO ✔
Buffer area of the SKA?	YES	NO ✔

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

Sensitivity Map is Attached as Appendix A.

16. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	YES ✔	NO
	Uncertain	

A heritage specialist study was undertaken by Munyadziwa Magoma of Vhubvo Archaeo-Heritage consultants and the report is attached as Appendix D3.

The Archaeological and Cultural Heritage Phase I Impact Assessment for the proposed expansion of Railway Loops at Ferrogate has identified no significant impacts to archaeological or grave resources that will need to be mitigated prior construction. Further no archaeological materials were identified on the proposed sites, however, structures of historical importance were identified. These include a bulk loading structure as well as a historical light pole which are both over 60 years of age, and are thus protected by the National Heritage Resource Act.

The report indicated that the identified structures have medium significance value by virtue of being over 60 years of age and also due to their historical, social, and aesthetic value. These structures are considered to be of local importance (Local Grade III B), and as a heritage situate in the larger history of the region.

The specialist highlighted that none of these resources can be considered to be of such significance that can prevent the proposed development from proceeding.

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

Will any building or structure older than 60 years be affected in any way?	YES ✔	NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES ✔	NO

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

The permit application will be submitted to the provincial authority prior commencement.

17. SOCIO-ECONOMIC CHARACTER

The three loops fall within the jurisdiction of the same Municipality therefore the socioeconomic information is same as above.

18. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult http://bgis.sanbi.org or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category	**If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan**

Critical Biodiversity Area (CBA) ✔	Ecological Support Area (ESA) ✔	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	Sections of the loop are classified as Critical Biodiversity Area 1and 2 and Ecological Support Area 1. Accordingly, these areas are not essential for meeting biodiversity representation targets/thresholds but nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration.

b) Indicate and describe the habitat condition on site

Habitat Condition	**Percentage of habitat condition class (adding up to 100%)**	**Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).**
Natural	20%	It is only the northern extent of the loop that is within natural vegetation. This section consists of somewhat degraded and disturbed savannah. ~~. The footprint would be contained within the existing railway servitude and no sensitive areas would be impacted.~~ The density of protected trees within the affected area is low and it is not likely that any individuals would be lost to the development. There is also a small rocky hill present along the route, south of the existing siding that has a few individuals of the protected tree *Boscia albitrunca* present.
Near Natural (includes areas with low to moderate level of alien invasive plants)	10%	There are some impacted areas, especially around the existing siding that are previously disturbed and are considered near-natural. However, these areas occupy a small proportion of the site.
Degraded (includes areas heavily invaded by alien plants)	20%	Several large sections of the loop are within areas that have been significantly disturbed in the past and are currently considered degraded on account of poor recovery and dominance of alien species. Alien and

		weedy species present include *Bidens pilosa*, *Phytolacca americana*, *Tribulis terrestris*, *Datura stramonium*, *Conyza bonariensis*, *Tagetes minuta, Zinnia peruviana* and *Alternanthera pungens*.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	50%	The affected area around the existing siding at Ferrogate is transformed and dominated by weedy indigenous species and alien species. In addition, the southern section of the loop along the R510 is also mostly transformed.

c) Complete the table to indicate:

(i) the type of vegetation, including its ecosystem status, present on the site; and

(ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		**Aquatic Ecosystems**						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical ✔	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable							
	Least Threatened	YES ✔	NO	UNSURE	YES	NO ✔	YES	NO ✔

d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats

According to the national vegetation map Ferrogate and Northam are located within the Dwaalboom Thornveld vegetation type. This vegetation type is distributed in the Limpopo and North-West Provinces on the flats north of the Dwarsberge and associated ridges west of the Crocodile River in the Dwaalboom area, and includes a patch of vegetation around Sentrum. It extends southwards from the ridges to the Nietverdiend area, north of Pilanesberg to the Northam area at altitudes of 900-1200m (Mucina & Rutherford 2006). The vegetation type is represented by plains with a layer of scattered low to medium high deciduous microphyllous trees and shrubs and an almost continuous herbaceous layer dominated by grass species. Acacia tortilis and A. *nilotica* dominate on medium clay soils, A. *tenuispina* dominates on heavy clays and A. *erubescens* dominates on the sandy clay loams and the alternation of these susbstrate types creates a mosaic of 1-5km wide patches (Mucina & Rutherford 2006).

The southern section of the Ferrogate Loop lies parallel to the R510 and the space between the road and railway line where the loop will be located, has already been largely transformed. There is also a large previously disturbed area around the existing Ferrogate siding which has several alien species present. Areas of natural vegetation that would be affected include a small rocky hill south of the existing Ferrogate siding and the area to the north of the siding. Overall, the majority of the affected area is however transformed and the total extent of habitat loss resulting from the development would be low.

Dominant and typical species present along the Ferrogate loop includes trees such as *Melia azedarach* (Alien), *Searsia lancea*, *Acacia karoo*, *Zizyphus mucronata* and *Dichrostachys cinerea*. Indigenous forbs present include *Hirpicium bechuanense*, *Asparagus cooperi*, *Sesamum capense*, N*idorella hottentotica*, *Hermbstaedtia odorata* and *Clematis brachiata* while grasses present include *Pennisetum setaceum* (alien), *Aristida bipartita*, *Cynodon dactylon*, *Ischaemum afrum*, *Panicum coloratum*, *Aristida congesta*, *Enneapogon cenchroides*, *Tragus bertonianus*, *Cenchrus ciliaris*, *Melinis repens* and *Heteropogon contortus*. Alien and weedy species present include *Bidens pilosa*, *Phytolacca americana*, *Tribulis terrestris*, *Datura stramonium*, *Conyza bonariensis*, *Tagetes minuta, Zinnia peruviana* and *Alternanthera pungens*. Species present on the small rocky hill at the site include *Pavonia burchellii*, *Abutilon austro-africanum*, *Combretum hereroense*, *Boscia albitrunca*.

The Ferrogate Loop's northern end is situated in a CBA1 and runs through a short section of CBA2, while the southern section of the loop is within an ESA (Ecological Support Area). However the majority of the southern section of the loop is along the public road and is already transformed, with the result that there would be little loss of intact vegetation along this section of the loop. There are two sections of the Ferrogate loop where there is some natural vegetation remaining that would be affected by the new loop. Just to the south of the current siding there is a small rocky outcrop that would possibly be affected by the new loop, while to the north of the siding the vegetation is also largely natural and would be impacted by the loop. The total extent of habitat loss at Ferrogate resulting from the new loop would however be very low and would not compromise the affected CBAs.

The Ferrogate loop consists of alternating Medium and Low sensitivity areas. There are disturbed habitats present along the existing siding as well as the southern section adjacent to the R510, while the remaining areas are intact bushveld considered to be of Medium sensitivity.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

NORTHAM

Important notes:

5. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A): **3**

Property description/physical address:

Province	Limpopo Province
District Municipality	Waterberg District Municipality
Local Municipality	Thabazimbi Local Municipality
Ward Number(s)	Wards 3, 5,6 & 7
Farm name and number	See attached Appendix J2
Portion number	See attached Appendix J2
SG Code	See attached Appendix J2

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

Agriculture, Residential and Commercial.

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required?

YES	NO
	✔

19. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1: Northam

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
✔						

Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

20. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

NORTHAM

2.1 Ridgeline		2.4 Closed valley		2.7 Undulating plain / low hills	
2.2 Plateau		2.5 Open valley		2.8 Dune	
2.3 Side slope of hill/mountain		2.6 Plain	✔	2.9 Seafront	
2.10 At sea					

21. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative Northam Site		Alternative S2 (if any):		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)	YES	NO ✔	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	YES	NO ✔	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES	NO ✔	YES	NO	YES	NO

Unstable rocky slopes or steep slopes with loose soil	YES	NO ✔	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO ✔	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	NO ✔	YES	NO	YES	NO
Any other unstable soil or geological feature	YES	NO ✔	YES	NO	YES	NO
An area sensitive to erosion	YES	NO ✔	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

22. GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Northam

Natural veld - good condition[E]	Natural veld with scattered aliens[E] ✔	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil ✔

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

The vegetation Studies was undertaken by Simon Todd and the report is attached as Appendix D-2.

23. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Northam

Perennial River	YES	NO ✔	UNSURE
Non-Perennial River	YES✔	NO	UNSURE
Permanent Wetland	YES	NO✔	UNSURE
Seasonal Wetland	YES	NO✔	UNSURE
Artificial Wetland	YES	NO✔	UNSURE
Estuarine / Lagoonal wetland	YES	NO✔	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

According to the wetland specialist studies undertaken by Lizette Delport of Delterra, no wetlands were found on the proposed Northam Loop. The site is highly developed, therefore natural vegetation is absent or minimal and characterised by invasive species (e.g. kikuyu Grass)

24. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

Northam Site		
Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station [H]
Medium density residential ✔	School ✔	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential[A] ✔	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant[A]	Nature conservation area
Medium industrial [AN]	Train station or shunting yard [N]	Mountain, koppie or ridge
Heavy industrial [AN]	Railway line [N] ✔	Museum
Power station	Major road (4 lanes or more) [N]	Historical building
Office/consulting room ✔	Airport [N]	Protected Area

Military or police base/station/compound	Harbour	Graveyard✔
Spoil heap or slimes dam[A]	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe) Historical structures✔

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If any of the boxes marked with an "[N] "are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

The proposed development which is the expansion of the existing railway line. Therefore, it is not foreseen that the proposed development will have an impact or be impacted by these.

If any of the boxes marked with an "[An]" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

If any of the boxes marked with an "[H]" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	YES	NO ✔
Core area of a protected area?	YES	NO ✔
Buffer area of a protected area?	YES	NO ✔
Planned expansion area of an existing protected area?	YES	NO ✔
Existing offset area associated with a previous Environmental Authorisation?	YES	NO ✔
Buffer area of the SKA?	YES	NO ✔

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

25. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	YES	NO
	Uncertain ✔	

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

A heritage specialist study was undertaken by Munyadziwa Magoma of Vhubvo Archaeo-Heritage consultants and the report is attached as Appendix D3.

The Archaeological and Cultural Heritage Phase I Impact Assessment for the proposed expansion of Railway Loops at Northam has identified no significant impacts to archaeological or grave resources that will need to be mitigated prior construction. However, the existing railway line has been identified as a structure older than 60 years.

	YES	NO
Will any building or structure older than 60 years be affected in any way?	✔	✔
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	✔	✔

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

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26. SOCIO-ECONOMIC CHARACTER

Same as above

27. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult http://bgis.sanbi.org or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR) ✔	

b) Indicate and describe the habitat condition on site

NORTHAM SITE

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	10%~~60%~~	It is only the northern extent of the loop that is within natural vegetation. This section consists of somewhat degraded and disturbed savannah. The footprint would be contained within the existing railway servitude and no sensitive areas would be impacted. The density of protected trees within the affected area is low and it is not likely that any individuals would be lost to the development. Common and dominant species include

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		Grewia flava, *Zizyphus mucronata*, *Acacia tortillis* and *Acacia erubescens*.~~The majority of the loop is within largely intact vegetation in a moderate condition, with some negative impacts relating to bush encroachment and heavy grazing from wildlife. Dominant and characteristic species present include trees such as *Acacia tortillis*, *Zizyphus mucronata*, *Terminalia sericea*, *Combretum hereroense*, *Combretum imberbe*, *Celtis africana* and *Croton gratissimus*. Shrubs include *Grewia flava* and *Abutilon angulatum* var *angulatum*, *Hibiscus micranthus*, *Pavonia burchellii*, *Solanum delagoense* and *Hermbstaedtia odorata*. Protected species present at the site include *Boscia albitrunca* on the small hill next to the line as well as a few individuals of *Combretum imberbe*, which are close to the line but not the side of the new loop and as a result should not be affected.~~
Near Natural (includes areas with low to moderate level of alien invasive plants)	10%~~10%~~	There are some impacted areas around the edge of Northam that are considered near-natural and dominated by indigenous grasses and trees with some alien species present.~~The loop will expand into near-natural areas along the edge of existing line that are previously disturbed and considered near natural, with some tolerant indigenous species present as well as numerous aliens.~~
Degraded (includes areas heavily invaded by alien plants)	20%~~10%~~	Large tracts of the site are degraded and dominated by alien forbs and trees mixed in with tolerant indigenous trees and grasses. Alien and weedy species present include *Bidens pilosa*, *Phytolacca americana*, *Argemone ochroleuca*, *Tribulis terrestris*, *Datura stramonium*, *Conyza bonariensis*, *Tagetes minuta*, *Alternanthera pungens*, *Zinnia peruviana* and *Schkuhria pinnata*. ~~There are degraded areas along the existing line and along the access road that runs next to the road that are dominated by weedy and alien species. This is however a relatively narrow strip along the existing line and does not represent a significant proportion of the site. Weedy and alien species present include *Achyranthes aspera*, *Bidens pilosa*, *Tribulis terrestris*, *Zinnia peruviana* and *Alternanthera pungens*.~~

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Transformed (includes cultivation, dams, urban, plantation, roads, etc)	60%~~20%~~	The majority of the site is within the bounds of Northam and occurs within a heavily impacted, transformed environment. While there are some indigenous trees and grasses present along the servitude of the railway line, it has been heavily impacted and transformed with no species of concern remaining. A significant proportion of the vegetation in this area is dominated by alien and weedy species adapted to the prevailing disturbance. ~~The area immediately adjacent to the line and the surface of the existing service road along the line are transformed with little natural vegetation remaining. This is however a relatively narrow strip and is not large enough to accommodate the development footprint.~~

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c) Complete the table to indicate:

(i) the type of vegetation, including its ecosystem status, present on the site; and

(ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		**Aquatic Ecosystems**						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable ✔							
	Least Threatened	YES	NO ✔	UNSURE	YES	NO ✔	YES	NO ✔

d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

A biodiversity specialist study was commissioned and undertaken by Simon Todd of Simon Todd Consulting, the report is attached as Appendix D-2.

The majority of the area affected by the Northam loop is within an urban or transformed environment. It is only the northern limit of the loop that will have an impact on natural vegetation. The areas in and near Northam are dominated by weedy and alien species with some tolerant indigenous grasses or trees persisting along the sides of the existing track and railway servitude. Dominant and typical species present in this area include trees such as Syringa, *Melia azedarach* (Alien), *Searsia lancea*, *Acacia tortillis*, *Acacia nilotica*, *Acacia caffra*, *Zizyphus mucronata* and *Dichrostachys cinerea*. Indigenous forbs present include *Hirpicium bechuanense*, *Sesamum capense*, *Hermbstaedtia odorata* while grasses present include *Aristida bipartita*, *Cynodon dactylon*, *Ischaemum afrum*, *Panicum coloratum*, *Aristida congesta*, *Enneapogon cenchroides*, *Tragus bertonianus*, *Cenchrus ciliaris*, *Melinis repens* and *Heteropogon contortus*. Alien and weedy species present include *Bidens pilosa*, *Phytolacca americana*, *Argemone ochroleuca*, *Tribulis terrestris*, *Datura stramonium*, *Conyza bonariensis*, *Tagetes minuta*, *Alternanthera pungens*, *Zinnia peruviana* and *Schkuhria pinnata*.

The study indicated that the Northam loop is considered to be of mostly low sensitivity on account of the prevalence of transformed areas at this site. The northern part of the loop is however considered to be Medium sensitivity and is largely natural vegetation with few species of concern present.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Platinum	
Date published	Public announcement of the project and call to register as an I&AP – 24 March 2017	
Site notice position	**Latitude**	**Longitude**
	Along R510 Near Ben Alberts~~Along R510 Near Ben Alberts~~ ~~31°33'35.48"S~~	24° 40' 44.14" S 27° 20' 32.47" E 24° 40 51.67 S 27° 20'08.48" E ~~18°20'29.30"E~~

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	Near the railway line at Ferrogate~~Near the railway line at Ferrogate~~	~~24° 41' 63.29"S 27° 19' 30.27" E~~
	Along R510 at Ferrogate~~Along R510 at Ferrogate~~	24° 42' 56.96" S 27° 16' 15.09" E
	Near the Northam Grave yard ~~Near the railway line~~	24° 56 ' 55.87"S 27° 19' 37.58" E
	Along R510 Near Ben Alberts~~Near the Northam Grave yard~~	24° 40' 44.14" S 27° 20' 32.47" E 24° 40 51.67 S 27° 20'08.48" E
	Northam local tuck shop	
Date placed	Site notices were placed at various sites on 28 March 2017	

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Include proof of the placement of the relevant advertisements and notices in Appendix E1.

Proof is included as Appendix E1.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 733.

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Mr Fouche Sishen Iron Ore Co.Pty.Ltd	Thabazimbi and Ferrogate sites-Land owner	083 268 8867 paul.fouche2@angloamerican.com
Rooidam Familie Trust Mr V.D Merwe	Ferrogate site-Land owner	083 387 3510 cobuslaw@gmail.com'
Boernor Pty Ltd Professor Erasmus	Northam site-Land owner	083 709 9681 prof@thabanet.co.za
Bosveld Diensteraad Mr Piet van Rensburg	Northam site-Land owner	014 784 0347 014 743 22 96 072 137 7937 pietjvr@thabazimbi.gov.za

Provincial Government Department of Public Works Ms Nakisane Mthimkhulu	Northam site-Land owner Ms Nakisane Mthimkhulu	015 284 7593 mthemkhulun@dpw.limpopo.gov.za
Road Agency Limpopo	Responsible for roads in Limpopo including the R510.	015 284 4600
Northam Comprehensive School	Northam Landowner Mrs. S. Masipila	northamcomp@gmail.com 074 455 5410

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or

Proof of notification of stakeholder is attached as Appendix E2.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

Comments and response report is attached as Appendix E3a.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ	Contact	Tel No	Fax No	e-mail	Postal

of State	person (Title, Name and Surname)				address
South African Heritage Resource Agency	Ms Nokumhanya Khumalo	021 462 4502	021 462 4509	nkhumalo@sahra.org.za	P.O. BOX 4637 Cape Town 8000
Limpopo Department Water and Sanitation	Dorris Maumela	015 290 1200		maumelad@dws.gov.za	Azmo Place 49 Joubert Street Polokwane 0700
Limpopo Department of Economic Development, Environment and Tourism,	Mr Victor Mongwe	082 412 5605 015 290 7167		mongwev@ledet.gov.za	Private Bag X9484 Polokwane 0700
Limpopo Department of Public Works	Nakisane Mthemkhulu	015 284 7593		mthemkhulun@dpw.limpopo.gov.za	Private Bag X9490, Polokwane 0700
Thabazimbi Local Municipality	Julian Nkoana Gopolang Cornelius Booysen	079 667 1109 073 215 7102 015 777 1525		Julian@thabazimbi.gov.za	Private Bag X530 Thabazimbi 0380

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

Proof of notification of Organs of State is attached as Appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as appendix E5.

List of Registered I&AP attached as Appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

Refer to Appendix 6. No meetings have been held with stakeholders and I&APs thus far, however, details of the planned meeting(s) are included in the Public Participation Report attached as Appendix E3b.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A (2) of this report.

Activity	Impact summary	Significance	Proposed mitigation
Alternative 1 (preferred alternative)			
Direct Impacts : Pre-Construction			
Planning and design	**Employment Creation** The planning and design of the proposed development requires input from various specialists, resulting in employment opportunities. This additional employment would include both direct (e.g. Environmental Consultants, Engineers, Project Managers, Planners, etc.) and indirect (e.g. reviewing and commenting authorities such as the Local Authority and the Competent Authorities). The extent and magnitude of this impact is relatively low compared to the other economic impacts, and is typically restricted to a limited number of professionals. The identified technical alternatives are likely to result in the same level of significance for	Medium	• No mitigation measures have been identified.

Activity	Impact summary	Significance	Proposed mitigation
	this impact. The impact is definite, short term and of medium significance.		
Direct impacts: Construction			
	Cultural and heritage resources ~~No cultural heritage resources were recorded on the proposed sites. The probability of locating any important archaeological remains during excavations of the railway loops is considered unlikely. The potential impact of the proposed project on cultural heritage sites is considered to be low and therefore insignificant.~~	Low	Should the heritage or archaeological artefacts be discovered during construction ~~or operational~~ phases, all works must be stopped at the affected area and SAHRA must be contacted.
	The existing railway lines are older than 60 years and therefore considered to be a structure of heritage/historic significance. However, no other archaeological materials were identified on the proposed sites. The potential impact of the proposed development on cultural heritage sites is considered to be low in significance.~~The identified 60 year old structures of medium significance with mitigation in place the impact will be of low significance.~~	~~Medium~~	The necessary permits must be applied for and recommendations by the specialist adhered to.
	Flora and Fauna Sections of the proposed development are located within the Ecological Support Area and Thabazimbi and Ferrogate are within 250m from the closest CBA. Site preparation and construction will result in the disturbance of and the loss of vegetation. This impact will be of medium significance if	Medium	• The proposed development area should be demarcated and cordoned off. • Should any protected or listed plant species be discovered on the working area, and this cannot be avoided, they must be trans-located to safe sites

Activity	Impact summary	Significance	Proposed mitigation
	not well managed, however with proper mitigation measures it can be reduced to low.		nearby. • Existing tracks should be used for access where possible. • The vegetation clearance with the proposed development footprint must be kept to a minimum. • Excavations must be barricaded and clearly marked to avoid animals and humans from falling in.
	Surface and Ground Water Surface water resources have been identified at ~~both Thabazimbi and Northam.~~all three sites. The potential impacts will include the following: • Changing the quantity and fluctuation properties of the water course; • Changing the amount of sediment entering the water resources and associated change in turbidity; • Alteration of water quality; • Changing the physical structure within a water resource. It can therefore be deduced that the impact on surface water will be relatively ~~High~~ medium and with proper mitigations the impact can be reduced to ~~medium.~~low.	~~Medium~~Low	• Management of onsite water use to prevent storm water or contaminated water directly entering the water course. • Amount of vegetation removed must be limited to the least amount possible. • ~~Conduct monthly independent water analysis test to ensure the quality of the water is not compromised.~~ • Care must be taken not to spill fuels or oil during service or re-fuelling of construction equipment. • In the event of a spillage of a hazardous substance the requirements, of the EMPr must be implemented. • No activities should occur within a 100m or 1:100m flood line whichever is greatest without approval from the Department of Water and Sanitation. • Care must be taken to avoid destruction of water courses.
	Dust		

Activity	Impact summary	Significance	Proposed mitigation
	Low levels of dust emissions may also be expected from excavations during the construction phase. Appropriate dust control measures ~~such as dampening of surfaces will be~~must be put in place as may be required. Further detail on dust management is provided in the EMPr.	Negligible	• Dampening of surfaces with grey water as may be required or use of alternative methods of dust suppression.~~.~~ • No abstraction of water from any water sources for dust suppression. • Construction of speed humps along the service road.
	Traffic During construction, increase in traffic on R510 is likely to result from delivery of construction material to and from the construction works. The impact of increased traffic can be considered local in extent, short term in duration with the overall impact being negative with low significance. However, with the implementation of proper mitigation measures, it can be reduced to be lower. The proposed Ferrogate site is very close to the R510, will pose a definite impact of high significance during the construction. With proper mitigation in place the impact can be reduced to medium significance.	Low Medium	• The delivery of construction material and equipment should be limited to hours outside peak traffic times (including weekends). • Delivery vehicles must comply with all traffic laws and bylaws. • A speed limit of 40km per hour must be adhered to on construction roads at a~~a~~ll times. • A proper site specific Traffic management plan must be prepared in consultation with the provincial Traffic department, the road agency as well as affected stakeholders before commencement of construction.
	Noise The noise intrusion levels during the Construction phase of the proposed development ~~will be insignificant and~~ will be restricted to the place of activity during the day time.	Low	• Equipment and/or machinery which will be used must comply with the manufacturer's specifications on acceptable noise levels.

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Activity	Impact summary	Significance	Proposed mitigation
	Noise generating activities on site include the following: • Earthworks; • Delivery of building material; • Civil construction activities; • Earth drilling; • TLB activities; • Foundations and pouring of concrete. An increase in noise is expected during construction as these activities will generate noise of medium significance without mitigation. Provided that the mitigations provided are adhered to, the noise impact will be manageable and of low significance. This impact will be low.		• Environmental noise survey to be done on a quarterly basis • Development of noise and vibration management plan must be in place during the construction and operational phases so as to identify any noise increase on a pro-active basis and to address the alleged noise and vibration complaints accordingly.
	Indirect impacts: None Identified		
	Cumulative impacts: **Habitat Destruction** The proposed development is located within CBA and this could result in a loss in broad-scale landscape connectivity and habitat loss.~~None identified~~	Low	• The footprint should be restricted as far as possible to existing transformed areas. • Avoid development within the High sensitivity parts of the site. • The development footprint should be kept to a minimum and natural vegetation should be encouraged to return in disturbed areas. • Avoid impact to potential corridors such as the riparian corridors associated with the larger drainage lines within the area.

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Activity	Impact summary	Significance	Proposed mitigation
	Alien Species Invasion Construction areas within the watercourses along the proposed servitude can experience an increased invasion if mitigation is not implemented or implemented correctly.	Low	• Monitor the establishment of alien invasive species within the areas affected by the construction and maintenance and take immediate corrective action where invasive species are observed to establish • Alien species (including their seedlings and saplings) identified within the study area should be removed (manually preferably) to prevent their spreading.
	Socio-Economic Impact This phase will result in a positive socio-economic impact as the demand for equipment, building material and labour will increase. Secondary service provision such as food supply, toilet hire, equipment maintenance etc. would also stimulate the local economy during the construction phase. This is a positive impact of a short duration.	Medium	• Contractors should by all means practise the localisation matrix while seeking for construction equipment or building materials. • For minimal jobs, the appointed contractor should by all means consider the local residents for jobs that do not need any skill transfer.
Direct Impact: Operational Phase			
Alternative 1			
	Socioeconomic The operational phase of the proposed project will have significant positive socioeconomic impacts that are long term.	High	• A proper maintenance program must be implemented to ensure efficient operation.
	Noise It is expected that increase in capacity thus increasing the train frequency will infer increased noise levels at an increased frequency to the identified receptors.	Medium	• Well serviced equipment to be used on site • ~~Development of noise and vibration management plan must be in place~~

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Activity	Impact summary	Significance	Proposed mitigation
	This impact will be intermittent, long term, local and of medium significance without mitigation.		~~during the construction and operational phases so as to identify any noise increase on a pro-active basis and to address the alleged noise and vibration complaints accordingly.~~
Alternative 2 (Technical)			
	Direct impacts: Impacts will be similar to the above.		
	Indirect impacts:		
	Cumulative impacts:		
Alternative 3	***Direct impacts:*** ***Indirect impacts:*** ***Cumulative impacts:***		
No-go option			
	Direct impacts: **Socioeconomic** On completion of all the packages in the 81mtpa rail expansion program, a stable flow of train traffic to Richards Bay will be maintained which will have significant benefits for the South African economy. Should the proposed project not proceed Transnet will not be able to increase the coal line rail capacity and address operational bottlenecks which impact on the stable flow of train traffic as intended. This impact will be long term,	High	• The proposed development must proceed to allow for the identified benefits to be realised.

Activity	Impact summary	Significance	Proposed mitigation
	negative and of high significance.		
	Indirect impacts: None identified***.***		
	Cumulative impacts: None Identified.		

A complete impact assessment in terms of Regulation 19(3) of GN 733 must be included as Appendix F.

APPENDX F for each site is attached as follows:
APPENDIX F-1 - Thabazimbi
APPENDIX F-2 - Ferrogate
APPENDIX F-3 - Northam

2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative A (preferred alternative)

PLANNING AND DEVELOPMENT PHASE

Impacts associated with the planning and development phase of the proposed activity include the creation of job opportunities for skilled engineers and planning professions. This positive impact will be definite and short term in duration. No significant negative impact has been associated with this phase.

CONSTRUCTION PHASE

The positive impacts identified for this phase include job creation, economic growth and a positive economic outlook for the municipality and the country at large, these impacts will be enhanced in order to maximise the benefits.

Negative impacts associated with the construction phase of the proposed activity can be regarded as being of high to medium significance without mitigation and medium to low with mitigation. These includes impacts on the following:

- Vegetation;
- Water resources;
- Faunal and avifaunal communities;
- Heritage;
- Traffic; and
- Noise and vibration.

With corrective measures in place the identified negative impacts can be reduced to low and can be manageable.

OPERATIONAL PHASE

The operational phase will have positive impacts associated with increased capacity.

The potential negative environmental impacts will impact on fauna and avifauna due to possible collision and electrocution as a result of increased train movement. Other impacts include noise which according to the specialist; can be mitigated. Provided that the proposed mitigation measures are implemented, no factors were determined which should prevent the proposed development from taking place.

DECOMMISSIONING PHASE

No significant impacts have been identified for the decommissioning phase of the proposed activity since decommissioning for the proposed activity will not take place in the foreseeable future. However, if decommissioning were to take place, it would have a negative impact due to potential soil erosion and waste generation.

Alternative 2

[redacted]

Alternative 3

[redacted]

No-go alternative (compulsory)

The no-go alternative was assessed and found not to be a viable option given the economic and social benefits of the proposed project which far outweigh identified negative impacts. If the no-go

alternative is considered none of the identified impacts will be realised.

This option is not preferred for the following reasons:

- Transnet Freight Rail will not be able to increase its volumes to 350Mtpa by 2017; consequently this will have a negative effect on unlocking the Waterberg and eventually the Botswana coal field which are expected to will contribute significantly to the targeted MDS volumes.
- The development of the Waterberg to Gauteng and Richards Bay corridors which are expected to strengthen the favourability of using the Southern route rather than alternative routes to Mozambique will not take place.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?	YES ✔	NO

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

It is recommended that the proposed expansion of the Thabazimbi, Ferrogate and Northam railway loops proceeds at the proposed locations. Further the preferred technical alternative (Alternative 1) is also recommended as it will have no significant bearing on the environment.

The recommendation is based on the following:

- The identified environmental impacts are relatively of low significance given the disturbed nature of the proposed project site;
- The identified positive impacts far outweigh the negative impacts; and
- The proposed development will yield significant socioeconomic benefits for the region and country at large.

Environmental Management Programme (EMPr) has been prepared by the consultant and it will serve as the key reference of the EAPs recommendations jointly with Transnet's policies such as the TCP Construction Environmental Management Plan that is already in place and has been approved by the DEA for several other projects. The EMPr has included measures proposed to mitigate any adverse impacts of the activities and ensure that there is sufficient monitoring. Some of the key recommendations include:

- the recommendations made by wetland specialist and commenting authorities must be adhered to.
- that should any archaeological artefacts be found during excavations, an archaeologist be called for further investigation.
- the requirements of the National Water Act, 1998 (Act 36 of 1998) must be complied with in terms of applying for a Water Use Licence.
- the Storm water Management plan must be implemented to prevent pollution on runoff.
- the attached construction EMPr must be implemented and adhered to in order to minimise all potential negative impacts and to enhance positive impacts where applicable

Is an EMPr attached?	YES ✔	NO

The EMPr must be attached as Appendix G.

EMPR is attached as Appendix G.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

Details of the EAP are included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Specialist Declarations are attached as Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

Munyadziwa Rikhotso
NAME OF EAP

_____ _____

SIGNATURE OF EAP DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)
- C1: Thabazimbi
- C2: Ferrogate
- C3: Northam

Appendix D: Specialist reports (including terms of reference)

- D1: Wetland Impact Assessment
- D2: Biodiversity Assessment
- D3: Heritage Impact Assessment
- D4: Avifauna Study
- D5: Visual Impact Assessment

Appendix E: Public Participation
- E1a: Proof of Placement of Site Notices
- E1b: Newspaper Advertisement
- E2: Proof of Written Notifications to key Stakeholders
- E3a: Comments and Response Report
- E3b: Public Participation Report
- E4: Proof of Written Notices to Organs of State
- E5: I&APs Database
- E6: Copies of Correspondence and minutes of meetings
- E7: Background Information Document

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Confirmation of Municipality

Appendix J1: Specialist's declaration of interest

Appendix J2: Land Owner Information