FINAL BASIC ASSESSMENT REPORT FOR THE DEVELOPMENT AND OPERATION OF A COAL SIDING NEAR BRONKHORSTSPRUIT IN TSHWANE METROPOLITAN MUNICIPALITY, GAUTENG PROVINCE

GAUT: 002/16-17/E0138

Report nr: 493-ZANCR-2016
Report date: 16 February 2017

GENERAL INFORMATION	
Report Name:	Final Basic Assessment Report for the Development and Operation of a Coal Siding near Bronkhorstspruit in Tshwane Metropolitan Municipality, Gauteng Province
Report number	493-ZANCR-2016
Environmental Assessment Practitioner (EAP)	**Zantow Environmental Consulting Services CC** 22 Delius Street, SW 5 Vanderbijlpark PO Box 3858 Vanderbijlpark , 1911 **Contact Person:** Karien Zantow Tel: 083 384 3641 Fax: 016 932 4976 Email: karien@zantow.co.za
Applicant:	**Canyon Resources (Pty) Ltd** Contact Person: Environmental Manager Roelof Letter Tel: 083 562 6455 Fax: 011 783 0816 Email: r.letter@canyoncoal.com
Report compiled by:	Karien Zantow
Status	Final
GDARD Ref Nr	002/16-17/E0138

Executive summary

Background and description of proposed project

Canyon Resources (Pty) Ltd (Canyon) proposes to develop and operate a coal loading and transportation facility within the existing Bronkhorstspruit Rail Siding in the Tshwane Metropolitan Municipality, Gauteng Province. The proposed facility will be used to receive and dispatch coal from the Khanye Colliery, located 6 km east of the siding, for approximately 17 years. The Khanye Colliery has been granted an Environmental Authorisation (EA) from the Gauteng Department of Agriculture and Rural Development (GDARD) on the 27 July 2016 with reference number GAUT 002/14-15/0171. The Mineral Resources (DMR) also granted the mining right to Khanye Colliery to proceed with the extraction of coal mineral resources, on 25 August 2016 with reference GP 30/5/1/2/2 (10027) MR. An appeal has been lodged by RCL Foods Consumer (Pty) Ltd / Evershed Attorneys against GDARD's decision in respect of the proposed Khanye colliery. GDARD decided to uphold the appeal and withdraw/set aside the decision issued by the Head of Department dated 26 July 2016. As the mine is the reason or the need to establish the Coal Siding on the Bronkhorstspruit siding, this does have bearing on the pending coal siding application.

Oakleaf Investment Holdings 95 (Pty) Ltd however is considering their options and intend to take this decision on review. In order to allow for the processes to unfold and all parties be granted their administrative rights in terms of the relevant legislation, the final BAR and application for the Coal siding will be submitted as planned (before 17th February 2017). We will however insert a recommendation into the Final BAR, that GDARD consider the administrative processes regarding the Oakleaf Coal Mine application / appeal and take this into consideration when making their decision on the coal siding.

The coal extracted at the Colliery needs to be transported to the respective markets and rail transportation is identified as the most effective means of transportation. Therefore, the development of a facility such as the proposed coal siding for the receiving and dispatching of coal from the Khanye Colliery is essential to unlock the socio-economic benefits associated with the colliery. The Bronkhorstspruit Siding is therefore of strategic significance to ensure coal material generated at the Colliery is dispatch to relevant markets.

Canyon proposes to convert the current Bronkhorstspruit rail siding by changing current infrastructure to suit the proposed development and will include the following:

- Changes to the rail network;
- Coal siding and stockpile area;
- Gravel haul roads;
- Pollution control dam (PCD); and
- Stormwater management system.

Although the proposed coal siding will be situated on the footprint of the existing Bronkhorstspruit rail siding, the site is located close to a Critical Biodiversity Area (CBA) according to the National Environmental Management Biodiversity Act (No. 10 of 2004). Wetland systems are located adjacent to the site. The site is also located close to existing industries such as the Godrich Flour Mills, to the north-east of the site and AFGRI Grain Silos to the north-west of the site. The potential sensitive recipients should be thoroughly consulted during the application process. The Bronkhorstspruit is situated directly west of the site and 300m south of the site.

Environmental authorisations required for the proposed project

Basic Impact Assessment / Environmental Authorization

In terms of the National Environmental Management Act (No. 107 of 1998), activities that are listed in regulations published under NEMA may not be undertaken without an Environmental Authorization (EA). Activities listed in GNR 983 and 985 require a Basic Assessment (BA) to be conducted prior to commencement and activities listed in GNR 984 require a full Environmental Impact Assessment (EIA) and Scoping prior to commencement. The development and operation of the proposed Bronkhorstspruit coal siding triggers activities 19 and 56 of GNR 983 as well as activities 4, 12 and 14 of GNR 985. Therefore, a BA must be conducted in order to apply for an EA from the Gauteng Department of Agriculture and Rural Development (GDARD) for the proposed project. This BA process is conducted in terms of the EIA regulations (EIA) GNR 982 under NEMA.

Water Use License

Moreover, a Water Use Licence (WUL) must be obtained for activities listed in Section 21 of the National Water Act (No. 36 of 1998) (NWA). The following water uses will be undertaken as part of the proposed development project and will be applied for in accordance with NWA Section 21 (refer to Appendix L for a map of the proposed water uses at the site):

Section 21 Water Use in the NWA	Proposed activities triggering water use
Section 21 (a) – Taking water from a watercourse	Abstraction of water from boreholes for potable use and abstraction of water from the wetland North of the siding
Section 21 (c) – Impeding or diverting the flow of water in a watercourse	Location of infrastructure within 500 m from a wetland. These include: Pollution Control Dams (PCDs); Offices and Buildings; Berms and Trenches; Powerlines
Section 21 (g) – Disposing of waste in a manner which may detrimentally impact on a water resource	Coal Product stockpile; Dust suppression; and Pollution Control Dam (PCD)
Section 21 (i) – Altering the bed, banks, course or characteristics of a watercourse	Location of infrastructure such as the diversion canal in a water course

Therefore, a WUL will have to be obtained from the Department of Water and Sanitation (DWS) prior to the commencement of the proposed development. The WUL application process was conducted in terms of Section 41 of the NWA and was undertaken simultaneously with the BA process under NEMA. The WUL application was submitted to DWS on the 6th of February 2017. Refer to Appendix E13 for proof of submission.

Zantow Environmental Consulting Services cc (Zantow Environmental) has been appointed as an independent Environmental Assessment Practitioner (EAP) in terms of Regulation 12 of the EIA regulations (GNR 982) to facilitate the BA process for the proposed project. Zantow Environmental fulfills the requirements of Regulation 12 for an EAP in terms of independence, experience and other obligations. The EAP's function is to facilitate the BA process in order to assess potential environmental impacts associated with the proposed project and propose mitigation to manage the impacts. The EAP's function is also to facilitate a public participation process, to allow sufficient consultation with theI&AP's and to provide them with all relevant documentation to allow them to comment on the proposed project. All comments and concerns will be captured and timeous response will be given.

- **Specialist studies and Environmental Impact Assessment**

The following specialist studies have been conducted in support of the BA process to assess potential environmental impacts and also provide specific mitigation measures:

- Archaeological Impact Assessment,
- Avifaunal Habitat Assessment,
- Baseline Hydrogeological Study,
- Integrated Water and Waste Management Plan,
- Desktop Paleontological Heritage Impact Assessment Report,
- Environmental Noise Impact Assessment,
- Flora assessment,
- Herpetofaunal Habititat Assessment,
- Mammals Habitat Assessment,
- Traffic Impact Assessment as part of the EIA conducted for the Khanye Colliery;
- Wetland Delineation and Impact Assessment Report, and
- Risk Assessment of Coal Stockpiles
- Environmental Geohydrological Report Risk Assessment of the Coal Stockpiles
- Air Quality Report as part of the EIA conducted for the Khanye Colliery.

(The study included the potential impacts of the coal siding. Refer to Appendix J for a summary of the Air Quality Assessment for the proposed project. The summary contains the methodology used for the impacts assessment, the results of the study and also mitigation measures to prevent or mitigate potential impacts)

The EIA and associated specialist studies revealed that the environmental impacts associated with the proposed project will be of a low to medium significance prior to the application of mitigation, with the exception of potential dust generation, impact on wetlands and potential surface water discharge during the operational phase which scored a high significance prior to the application of mitigation measures.

The application of the proposed mitigation measures contained in the Environmental Management Programme (EMPr) and specialist studies will lower the significance ratings and the vast majority of the impacts will be low after

mitigation measures have been applied. Dust generation during the operational phase is the only impact that remains medium after the application of mitigation measures. The environmental aspects (activities) and potential impacts associated with the construction, operational and decommissioning phases of the proposed project are summarised in the Tables below:

Table 1: Summary of aspects and impacts (construction phase)

Environmental impacts category	Aspects/activities associated with the project	Significance rating before mitigation	Significance rating after mitigation
Air quality	Dust generation from earth works and vehicle movement	Medium	Low
	Vehicle/machine exhaust emissions	Low	Low
	Spontaneous combustion of coal	Low	Low
Surface water contamination	Hydrocarbon (oil and diesel) spillages from vehicles and other construction equipment - contamination of runoff water	Medium	Low
	Storage of diesel on-site	Medium	Low
	Handling and use of cement during construction	Low	Low
Soil erosion and deterioration	Soil erosion due to soil disturbance and increased runoff volumes and velocity	Medium	Low
	Loss of topsoil	Medium	Low
Waste management	Storage and handling of general waste - litter leading to nuisance conditions	Low	Low
	Storage and handling of hazardous waste - water and soil pollution, harm to surrounding communities	Low	Low
Hazardous substances management	Storage and handling of hazardous substances such as diesel and oil - spillages leading to stormwater contamination	Low	Low
Biodiversity impacts	Reduction in general floral biodiversity	Low	Low
	Reduction in general faunal biodiversity	Low	Low
	Decline in Threatened and red data species	Medium	Low
	Destruction of terrestrial faunal habitat	Low	Low
	Destruction of aquatic habitats	Medium	Low
	Deduction in natural migratory and faunal dispersal routes (corridors wetlands)	Low	Low
	Encroachment of alien and invasive species as a result of disturbance	Medium	Low
Wetlands impact	Loss of wetlands due to construction activities	Medium	Low
	increased runoff, erosion and sedimentation	Medium	Low
	Construction impacts related to water quality	Medium	Low
Heritage impacts	Destruction of heritage resources associated with the black concentratio camp	Low	Low
	Construction activities resulting in the destruction of heritage resources older than 60 years	Low	Low
Noise impacts	Groundworks	Medium	Low
	Foundations	Medium	Low
	Building activities	Medium	Low
	Transportation of building material to and from the site	Medium	Low
	Assembly of equipment/machinery	Medium	Low
Traffic impacts	Increased traffic volumes due to construction activities	Low	Low
Social impacts	Employment opportunities for local and regional residents	Medium positive	
	Use of local suppliers - contribution to local economic development	Medium positive	

Table 2: Summary of aspects and impacts (operational phase)

Environmental impacts category	Aspects/activities associated with the project	Significance rating before mitigation	Significance rating after mitigation
Air quality	Dust generation from the transportation of coal to the siding via trucks on existing haul roads	High	Medium
	Dust generation from the stockpiling and loading of coal at the siding	Medium	Medium
	Vehicle/machine exhaust emissions	Low	Low
	Spontaneous combustion of coal - safety and air quality issue	Low	Low
Groundwater	Seepage from pollution control dam leading to groundwater contamination	Medium	Low
	Seepage from coal stockpiles leading to groundwater contamination	Low	Low
	Abstraction of groundwater - depletion of water resource	Medium	Low
Waste management	Storage and handling of general waste - litter leading to nuisance conditions	Low	Low
	Storage and handling of hazardous waste - water and soil pollution, harm to surrounding communities	Medium	Low

Surface water pollution	Effluent discharge into the environment (water resources) from the coal stockpiles, coal spillages and other contaminated areas	High	Low
	Increased sediment loads in the wetlands and subsequently the Bronkhorstspruit due to: • Clearing of vegetation and erosion of the bare side slopes of the stockpiles; • Reduced infiltration due to compacted soils and other impermeable surfaces associated with infrastructure increasing runoff volumes and velocities with subsequent increase in erosion at discharge points.	Medium	Low
	Deterioration of water quality due to possible release of dirty storm water: Storm water typically contains various pollutants that could contribute to deteriorating the water quality in the wetlands where stormwater is released into the valley bottoms. In addition, stormwater runoff will carry pollutants from accidental spills, dust or eroded materials.	Medium	Low
	Flooding of infrastructure and operations will occur if there are inadequate stormwater controls.	Medium	Low
	Abstraction of surface water - Impact on the quantity of water resource	Medium	Low
Hazardous substances management	Storage and handling of hazardous substances such as diesel and oil - spillages leading to stormwater contamination	Medium	Low
Biodiversity impacts	Reduction in general floral biodiversity	Low	Low
	Reduction in general faunal biodiversity	Low	Low
	Decline in threatened and red data species	Medium	Low
	Destruction of terrestrial faunal habitat	Low	Low
	Destruction of aquatic habitats	Medium	Low
	Deduction in natural migratory and faunal dispersal routes (corridors wetlands)	Low	Low
	Encroachment of alien and invasive species as a result of disturbance	Medium	Low
Wetlands impact	Water quality impacts emanating from the proposed facility	High	Low
	Flooding and erosion - loss of wetland function Destruction of adjacent wetland habitat in all phases may occur if operation activities are not properly controlled as activities could lead to destruction of wetland vegetation and compaction of wetland soils adjacent to the operational area infrastructure footprint.	Medium	Low
	Loss of biodiversity and habitat in the Wetland: Sedimentation from erosion or windblown dust from exposed soil will modify the substrate and increase turbidity, thus affecting habitat and food availability	Medium	Low
Traffic impact	Hauling coal to the existing Bronkhorstspruit rail siding may generate traffic.	Medium	Low
Noise impacts	Increase in the traffic noise from the additional traffic along the existing roads	Low	Low
	Loading activities	Medium	Low
	Emergency generator	Medium	Low
Visual impacts	Dust generation	Medium	Low
	Footprint of the facility	Medium	Low
Impact on natural resources	Wasteful use and resources like water and electricity leads to unnecessary impacts to the national resources.	Low	Low
	Use of water from the PCD for dust suppression - reduce dependency on water resources	High positive	
Social impacts	Employment opportunities for local and regional residents	High positive	
	Use of local suppliers - contribution to local economic development	High positive	

Table 3: Summary of aspects and impacts (decommissioning phase)

Environmental impacts category	Aspects/activities associated with the project	Significance rating before mitigation	Significance rating after mitigation
Dust generation	Dust generation from vehicle movement on unprepared soil - increased dust generation and nuisance conditions	Medium	Low
	Vehicle exhaust emissions - air pollution	Low	Low
	Generation of dust from demolition activities	Medium	Low
	Decommissioning and rehabilitation of the site will prevent further generation of air emissions	High positive	
Groundwater contamination	Seepage from pollution control dam leading to groundwater contamination	Medium	Low

	Seepage from coal stockpiles leading to groundwater contamination	Low	Low
Surface water discharge	Surface water contamination due to on-site spillages or loss of containment	Medium	Low
Waste management	Storage and handling of general waste and decommissioning rubble - litter leading to nuisance conditions	Low	Low
	Storage and handling of hazardous waste - water and soil pollution, harm to surrounding communities	Low	Low
Noise	Noise impact on employees and surrounding communities during decommissioning	Low	Low
Rehabilitation	Decommissioning and rehabilitation of the site will prevent further environmental impacts and improve the visual appearance of the site	High positive	
Wetlands impact	Loss of wetlands due to decommissioning activities	Medium	
	Increased runoff, erosion and sedimentation	Medium	Low
	Decommissioning impacts related to water quality	Medium	Low
Social	Loss of employment opportunities due to closure of the site	High	Medium

Alternatives Considered

1. No-go alternative

The no go alternative entails the non-continuation of the proposed development. The site is entirely disturbed by the footprint of the existing Bronkhorstspruit rail siding, except for the area on which the footprint of the siding will be slightly extended to establish the stormwater culverts beneath the site. The existing land use will continue if the project does not proceed and the natural vegetation/wetland will not be disturbed. Other potential negative environmental impacts associated with the project will not come into effect if the no-go alternative proceeds.

However, the substantial socio-economic benefits of the project and the Khanye Colliery will be negated if the project does not proceed which will have a highly negative effect on the local communities and the South African economy as a whole. The Khanye Colliery has obtained a mining right for the project and the proposed coal siding is necessary for the dispatch of the coal from the colliery to the respective markets. The proposed Bronkhorstspruit coal siding is essential from a strategic point of view for Canyon to unlock the socio-economic benefits of the Khanye Colliery. The employment opportunities associated with the proposed project will not benefit local economic development and potential skills development opportunities will be lost if the project does not proceed. Therefore, the no-go alternative is not preferable and a rail siding is recommended to be established for the transportation of coal.

2. Coal siding location alternatives

During the EIA conducted by Digby Wells Environmental for the Khanye Colliery (Digby Wells Environmental, 2015), the different location alternatives for the coal siding have been assessed. The following was the findings that were made during this assessment:

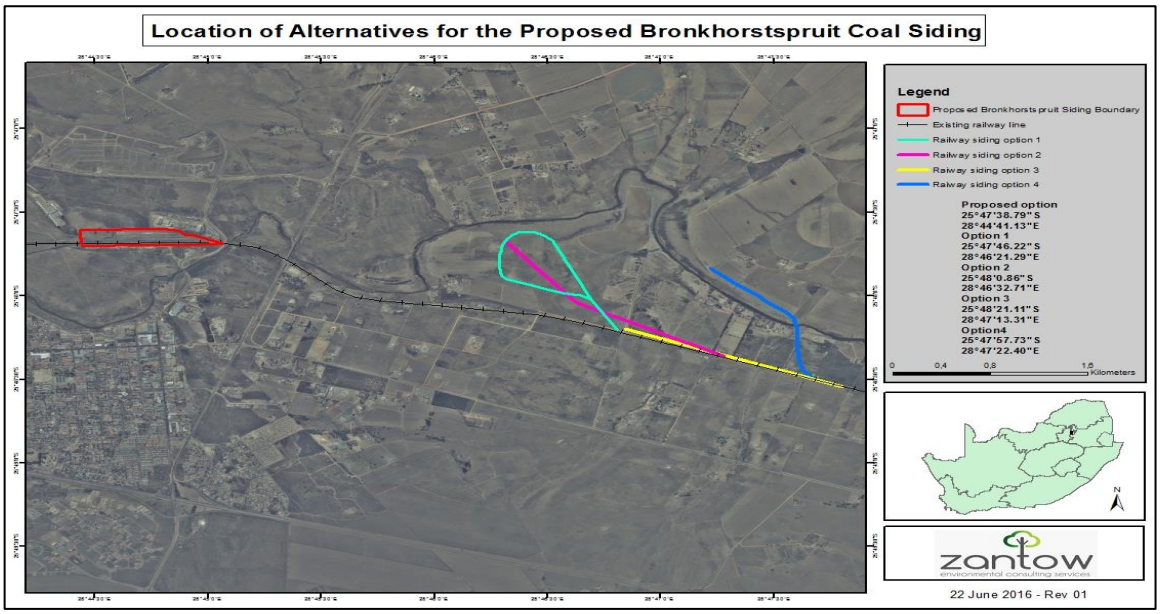


Figure 1: Location of alternative sites

- The impact assessment revealed that the proposed alternative (conversion of the existing Bronkhorstspruit siding) will result in less significant environmental impacts from a biophysical perspective compared to the other alternatives.
- Rail siding alternative 1 and 2 will result in the destruction/removal of graves/burial grounds which will have a high impact on heritage resources. The proposed alternative will only result in the destruction of insignificant heritage resources (power line pylons and rail way tracks) and will result in a negligible impact on heritage resources.
- Rail siding alternatives 1, 2 and 4 all intersect sensitive areas such as wetlands and rivers. These rail siding alternatives are not feasible as they pose a significant threat to the watercourses. The most feasible alternative from an environmental perspective is the proposed alternative which entails the conversion of the existing Bronkhorstspruit rail siding to accommodate the proposed facility and the hauling of coal on the existing road network. Only a small section of the existing siding area will be extended to accommodate the stormwater culverts. The stormwater culverts will prevent runoff from a 1 in 50 year flooding event to flow into the proposed development area and prevent/control contamination. Therefore, the stormwater infrastructure will have an insignificant impact on wetlands but will prevent significant surface water contamination.
- Noise and visual impacts associated with alternatives 1,2 and 3 are also predicted to be higher compared to that of the proposed alternative. This is due to the fact that the hauling distance from the proposed site will be shorter compared to the other alternatives except for alternative 4 which can only utilise conveyor belts to transfer coal to the Colliery. The proposed alternative is also situated further away from residential areas which will lower the impact significance of noise generating activities. The other alternatives will also involve more extensive construction which will increase noise generation. The increased visual impact will be due to the fact that the other alternatives will be established on relatively undisturbed land and the proposed alternative on an existing siding. Therefore, the other alternatives will have a greater visual appearance that the proposed alternative.
- Moreover, soil impacts associated with the proposed alternative will be less significant compared to the other alternatives. This is due to the fact that that the proposed conversion of the existing siding not entail significant soil removal to accommodate the required infrastructure, compared to all the other alternatives.
- The proposed site is zoned as Industrial 1/S.A.R. (railway purposes) which is in line with the proposed facility and falls within the City of Tshwane Zoning Scheme. The other alternative sites are not suitably zoned for the proposed land use. The site has been completely transformed by the footprint of the existing siding and provides an ideal basis to establish the proposed coal loading facility.
- The adjacent landowners however needs to be consulted in the EIA phase to understand their concerns and specific requirements.

3. Coal hauling alternatives

The following provides a description of the alternative that has been considered for the transportation of coal to the proposed facility.

The utilisation of the existing road network to transport the coal to the siding compared to the establishment of a conveyor system to transfer the coal to the other alternative sites. Both conveyor system alternatives will transverse the Bronkhorstspruit and result in significant impacts on wetland as well as riparian biodiversity. Moreover, conveying coal across the Bronkhorstspruit may severely affect the water quality of the river. Although the transportation of coal via the road network will result in traffic and visual impacts, it is the preferred and most feasible alternative.

Hauling the coal via the existing road network to the Bronkhorstspruit siding from the Eastern side of the siding is the preferred method to transport coal to the site. This alternative will involve haul trucks travelling along the existing roads. Relevant authorisations will be obtained to gain access from the Eastern section.

4. Stormwater management alternatives

The following stormwater alternatives have been considered to manage runoff from a 1 in 50 year flooding event.

The existing 825 mm diameter and 600 mm diameter concrete pipe culverts under the railway siding are inadequate to convey the 1:50 year flood without storm water flooding the siding itself. Therefore, other means of preventing the siding area to be flooded is required.

As the available space between the Siding and the boundary of the Mill is not sufficient for a berm to be constructed, a berm on the upstream side of the siding platform will need to be constructed to increase the capacity of the natural channel between the Mill and the Siding sufficiently. This is not feasible, as a similar berm would need to be constructed between the Mill and the natural channel to prevent flooding of the Mill area. Unless the owners of the Mill will allow using a strip of land inside their southern boundary, this option is ruled out. This option will still require the same covered culvert sections under the rail spur access road, under/at the Auction yard-access road and main tarred road. A channel between the Mill and Siding with full flow level lower than the Mill and Siding platforms, with a berm on the siding platform and a berm outside of the western boundary of the Mill but right in the Wetland is another possibility but a large portion of the wetland will be destroyed and it is unlikely that it will be allowed. This option will result in a smaller Southern Canal but the construction cost of a berm in the wetland will most likely out-rule this option further.

Three other possibly feasible options exist:

Southern Channel: A channel between the Mill and Siding with full flow level lower than the Mill and Siding platforms. The construction of this channel will slightly disrupt the operation of the auction yard in the southern corner. A small portion of the siding platform will have to be sacrificed between the wetland and the railway spur to the Mill. Little work will be required in the wetland. The main tarred road needs to be crossed and a river inlet structure erected. This option should however lower the flood level at the vehicle bridge to the town and to a lessor extend, the flood level at the railway bridge.

Northern Channel: A channel on the northern side of the Mill with a diversion weir in the stream. Relatively significant work will be required at the upstream portion of the wetland. Private land would need to be crossed requiring permission and servitudes to be registered. The main tarred road needs to be crossed and a river inlet structure erected. This option should however lower the flood level at the railway bridge and the vehicle bridge to the town.

New culverts under the railway siding: This will entail the establishment of a culvert underneath the railway siding. Permission for pipe jacking under the live railway portion will need to be obtained from Transnet. Very little work will be required in the wetland on the upstream side and a very simple structure on the downstream side to prevent erosion. Flood levels along the Bronkhorstspruit River will basically remain as before the construction of the siding and mill. With the original construction of the siding some of the floodwater has been diverted to below the railway bridge and with the construction of the Mill this diversion capacity has been reduced. With the rerouting of the total flood to upstream of the vehicle bridge, the flood levels upstream of the vehicle bridge will increase and must be considered during the selection process of the best option.

It is clear from the comparison conducted that stormwater management system Alternative 3 is the best alternative from an environmental and practical perspective. Alternative 3 will be less intrusive in terms of environmental features and will not affect adjacent properties. The Applicant will obtain the required authorisations from Transnet to jack the railway lines for the establishment of the culverts.

Refer to Appendix K for a summary of the proposed stormwater system that will be established at the site.

- **Public Participation**

A comprehensive public participation process was conducted in terms of the EIA regulations (GN 982) and relevant guidelines as part of the BA and WULA process to inform the identified Interested and or Affected Parties (I&APs) of the proposed project and allow them to raise comments and concerns. The public participation process was conducted concurrent with the circulation of the Draft BAR. A request for extension to the BA time frames was submitted to GDARD on the 25th of November 2016 to allow additional time for the I&APs to review the updated BAR and Air Quality Impact Assessment. GDARD granted permission on the 7 of December 2016 to extend the time frame. All the I&APs were informed of the extension to the timeframe and were provided access to the updated documents. Refer to Appendix E12 for the communication regarding the extension to the timeframes and the availability of the updated documents for review. The Department indicated that the final BAR must be submitted before the 17 of February 2017. Please refer to Appendix M for the request for extension of the time frames as well as the GDARD approval.

The following steps have been taken to inform the relevant I&APs of the proposed project and BA process:

- Placement of an advertisement in one local newspaper,

An advertisement have been placed in the Bronkhorstspruit Streek News on the 26th of October 2016. Refer to Appendix E3 for proof of placement.

- Written notices,

Written notices along with a Background Information Document (BID) were provided to all the identified I&APs on the 26th of October 2016 by means of the following methods:

- E-mails;
- Registered post;
- Hand delivered; and
- Site notices

Refer to Appendix E2 for proof of circulation to I&APs.

- A Public meeting

Two engagement sessions (public meetings) was conducted for the 16th of November 2016 at 12:00-14:00 and 16:00-18:00 (respectively) to allow I&APs to raise comments and concerns regarding the proposed project. Two time frames have been allocated for the day to accommodate the schedule of a range of stakeholders. Moreover, a focus group session was conducted with Godrich Flour Mills to allow them to raise specific concerns regarding the proposed Coal Siding. The minutes of the meeting with Godrich and the attendance register for the other meetings are included as Appendix A5.

- Circulation of the Basic Assessment Report (BAR) and WUL documents for comment to registered I&APs

The BAR and WUL documents was circulated to the identified I&APs from the 26th of October to the 25th of November 2016. The comments received regarding the draft BAR and the responses thereto have been incorporated in a comments and response report (Appendix E6). The draft BAR was available for review for 30 days and the WUL documents for 60 days. The respective I&APs were provided access to the updated BAR during the extension period. Refer to Appendix E12 for the communication regarding the extension to the timeframes and the availability of the updated documents for review.

- I&AP database

A database have been generated of potential I&APs relevant to the proposed project and was updated as the BA process proceeds as additional interest was shown (refer to Appendix 9)

Contents

GAUTENG PROVINCE
AGRICULTURE AND RURAL DEVELOPMENT
REPUBLIC OF SOUTH AFRICA

Basic Assessment Report in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014 (Version 1)

Kindly note that:

1. This **Basic Assessment Report** is the standard report required by GDARD in terms of the EIA Regulations, 2014.
2. This application form is current as of 8 December 2014. It is the responsibility of the EAP to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
3. **A draft Basic Assessment Report must be submitted, for purposes of comments within a period of thirty (30) days, to all State Departments administering a law relating to a matter likely to be affected by the activity to be undertaken.**
4. **A draft Basic Assessment Report (1 hard copy and two CD's) must be submitted, for purposes of comments within a period of thirty (30) days, to a Competent Authority empowered in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended to consider and decide on the application.**
5. Five (5) copies (3 hard copies and 2 CDs-PDF) of the final report and attachments must be handed in at offices of the relevant competent authority, as detailed below.
6. 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.
7. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.
8. An incomplete report may lead to an application for environmental authorisation being refused.
9. **Any report that does not contain a titled and dated full colour large scale layout plan of the proposed activities including a coherent legend, overlain with the sensitivities found on site may lead to an application for environmental authorisation being refused.**
10. 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 application for environmental authorisation being refused.
11. No faxed or e-mailed reports will be accepted. Only hand delivered or posted applications will be accepted.
12. Unless protected by law, and clearly indicated as such, all information filled in on this application will become public information on receipt by the competent authority. The applicant/EAP must provide any interested and affected party with the information contained in this application on request, during any stage of the application process.
13. Although pre-application meeting with the Competent Authority is optional, applicants are advised to have these meetings prior to submission of application to seek guidance from the Competent Authority.

DEPARTMENTAL DETAILS

Gauteng Department of Agriculture and Rural Development
Attention: Administrative Unit of the of the Environmental Affairs Branch
P.O. Box 8769
Johannesburg
2000

Administrative Unit of the of the Environmental Affairs Branch
Ground floor Diamond Building
11 Diagonal Street, Johannesburg

Administrative Unit telephone number: (011) 240 3377
Department central telephone number: (011) 240 2500

(For official use only)

NEAS Reference Number:						
File Reference Number:						
Application Number:						
Date Received:						

If this BAR has not been submitted within 90 days of receipt of the application by the competent authority and permission was not requested to submit within 140 days, please indicate the reasons for not submitting within time frame.

A request for extension of the time frames was submitted to GDARD on the 25th of November 2016 to allow additional time for the I&APs to review the updated BAR and Air Quality Impact Assessment. GDARD granted permission on the 7th of December 2016 to extend the time frame. GDARD granted permission on the 7 of December 2016 to extend the time frame. The Department indicated that the final BAR must be submitted on the 17 of February 2017. Please refer to Appendix M for the request for extension of the time frames as well as the GDARD approval.

Is a closure plan applicable for this application and has it been included in this report?

No

if not, state reasons for not including the closure plan.

The precise date on which the proposed facility will be decommissioned has not been determined. A closure plan will be generated timeously once a closure date has been established and adequate resources will be allocated for effective closure and rehabilitation of the facility.

Has a draft report for this application been submitted to a competent authority and all State Departments administering a law relating to a matter likely to be affected as a result of this activity?

Yes. The draft BAR has been submitted to all state departments

Is a list of the State Departments referred to above attached to this report including their full contact details and contact person?

Yes

Refer to **Appendix E9**

If no, state reasons for not attaching the list.

N/A

Have State Departments including the competent authority commented?

Yes

If no, why?

N/A

SECTION A: ACTIVITY INFORMATION

1. PROPOSAL OR DEVELOPMENT DESCRIPTION

Project title (must be the same name as per application form):

Application for Environmental Authorisation: Proposed Development and Operation of a Coal Siding near Bronkhorstspruit in Tshwane Metropolitan Municipality, Gauteng Province

Select the appropriate box

The application is for an upgrade of an existing development		The application is for a new development	X	Other, specify	

Does the activity also require any authorisation other than NEMA EIA authorisation?

YES X	NO

If yes, describe the legislation and the Competent Authority administering such legislation

- **National Water Act (No. 36 of 1998)**

A Water Use Licence (WUL) must be obtained for activities listed in Section 21 of the National Water Act (No. 36 of 1998) (NWA). The following water uses will be undertaken as part of the proposed development project and will be applied for in accordance with the NWA Section 21:

Section 21 Water Use in the NWA	Proposed activities triggering water use
Section 21 (a) – Taking water from a watercourse	Abstraction of water from boreholes for potable use and abstraction of water from the wetland North of the siding
Section 21 (c) – Impeding or diverting the flow of water in a watercourse	Location of infrastructure within 500 m from a wetland. These include: • Pollution Control Dams (PCDs); • Offices and Buildings; • Berms and Trenches; and • Powerlines
Section 21 (g) – Disposing of waste in a manner which may detrimentally impact on a water resource	Coal Product stockpile; Dust suppression; and Pollution Control Dam (PCD)
Section 21 (i) – Altering the bed, banks, course or characteristics of a watercourse	Location of infrastructure in a water course (wetland)

Therefore, a WUL will have to be obtained from the Department of Water and Sanitation (DWS) prior to the commencement of the proposed development. The WUL application process was conducted in terms of Section 41 of the NWA and will run simultaneously with the BA process under NEMA. An Integrated Water and Waste Management Plan has been developed as part of the WUL application in order to evaluate the potential impacts that the coal siding may have on water resources and propose management measures to prevent/mitigate potential impacts. Refer to Appendix H8 for the final IWWMP. The WUL application was submitted to DWS on the 6th of February 2017. Refer to Appendix E13 for proof of submission.

- **National Heritage Resources Act (No 25 of 1999) (NHRA)**

Section 34. (1) states that 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.

The railway line and historical power pylons are protected by the NHRA under the 60 year clause. Although these features are of low heritage significance as several hundred km of the same railway track is preserved in the wider landscape, a destruction permit of these features from the South African Heritage Resources Agency (SAHRA) must be obtained prior to development as these features are subject to the Act. An application has been submitted to SAHRA, but no response has been received.

If yes, have you applied for the authorisation(s)? (refer to **Appendix E13** for proof of submission)	YES X	NO
If yes, have you received approval(s)? (attach in appropriate appendix) (N/A)	YES	NO X

2. 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:

Title of legislation, policy or guideline:	Administering authority:	Promulgation Date:
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended 2014) and regulations	National & Provincial	27 November 1998
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	National and Provincial	1 July 2009
National Water Act (No. 36 of 1998)	National and Provincial	20 August 1998
National Water Act (No. 36 of 1998) Regulations on Use of Water for Mining and Related Activities Aimed at the Protection of Water Resources	National and Provincial	4 June 1999
National Waste Classification and Management Regulations (GN. 634)	National and Provincial	23 August 2013
National Waste Management Strategy	National	November 2011
Hazardous Substances Act and Regulations	National	4 April 1973
National Environmental Management: Air Quality Amended Act (No. 20 of 2014)	National/Provincial/Regional	19 May 2014
National Environmental Management: Air Quality Amended Act (No. 20 of 2014)	National/Provincial/Municipal	19 May 2014
National Dust Control Regulations	National/Provincial/Municipal	1 November 2013
National Environmental Management: Biodiversity Act (No. 10 of 2004)	National/Provincial	7 June 2004
Mineral and Petroleum Resource Development Act (No 28 of 2002)	National	1 May 2004
National Heritage Resources Act (No 25 of 1999)	National	14 April 1999
City of Tshwane Metropolitan Municipality Solid Waste By-Laws	District	2016
Air Quality Management Plan for the City of Tshwane Metropolitan Municipality	District	2006-2008
City of Tshwane Integrated Development Plan	District	
City of Tshwane Regional Spatial Development Framework	District	2013
Gauteng Conservation Plan Version 3.3	Provincial	2011
Gauteng Environmental Management Framework	Provincial	2014
GDARD Requirements for Biodiversity Assessments Version 3	Provincial	2014

Description of compliance with the relevant legislation, policy or guideline:

Legislation, policy of guideline	Description of compliance
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).	**Section 1** prescribes a set of environmental management principles that guide sound environmental practices. By following these principles, Canyon can ensure that the facility's's operations is managed to prevent harm to the environment.
	Section 28 states that every person must take reasonable steps to prevent harm to the environment and implement strategies to mitigate harm that has taken place.
	Section 30: Control of emergency incidents
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	**Section 16:** General duty in respect of waste management **Section 17:** Reduction, re-use, recycling and recovery of waste **Section 21:** General requirements for storage of waste **Section 22:** Storage of general waste **Section 25:** Duties of persons transporting waste **Section 27:** Littering
National Water Act (No. 36 of 1998)	**Section 21:** List of water use activities that require a Water Use Licence
National Heritage Resources Act (No 25 of 1999)	**Section 34:** A permit must be obtained for the destruction of buildings older than 60 years
Hazardous Substances Act and Regulations	Sets out measures to ensure that hazardous substances are managed in a sound manner to prevent detrimental environmental impacts.
National Dust Control Regulations	**Section 4:** Dust fall monitoring programme **Section 5:** Dust fall reporting
National Water Act (No. 36 of 1998) Regulations on Use of Water for Mining and Related Activities Aimed at the Protection of	**Section 4:** Restrictions on locality **Section 6:** Capacity requirements of clean and dirty water systems

Water Resources	**Section 7:** Protection of water resources
City of Tshwane Regional Spatial Development Framework	**Part 4:** Bronkhorstspruit has been identified as one of the metropolitan nodes and the economy is not very diversified and hence there are limited economic activities and industrial activities. The proposed development may contribute to the diversification of the local economy.
Gauteng Environmental Management Framework	The site falls within a Zone 4 in terms of the Gauteng EMF, which is not compatible for the proposed land use. The zones allocated in the EMF have been designed to provide a generic guideline for development in the Gauteng province and site specific conditions should be taken into account when assessing the EMF. Although the site is situated in Zone 4 in terms of the EMF and the proposed activities are not compatible with the zone, the site has been completely been transformed by the footprint of the existing siding.

3. ALTERNATIVES

Describe the proposal and alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. The determination of whether the 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.

The no-go option must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. **Do not** include the no go option into the alternative table below.

Note: 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.

Please describe the process followed to reach (decide on) the list of alternatives below

No-go alternative

The no-go alternative entails the non-continuation of the proposed development. The site is entirely disturbed by the footprint of the existing Bronkhorstspruit rail siding, except for the area on which the footprint of the siding will be slightly extended to establish the stormwater culverts beneath the site. The existing land use will continue if the project does not proceed and the natural vegetation/wetland will not be disturbed. Other potential negative environmental impacts associated with the project will not come into effect if the no-go alternative proceeds. However, the substantial socio-economic benefits of the project and the Khanye Colliery will be negated if the project does not proceed which will have a highly negative effect on the local communities and the South African economy as a whole. The Khanye Coliery has obtained EA for the project and the proposed coal siding is necessary for the dispatch of the coal from the colliery to the respective markets. The proposed Bronkhorstspruit coal siding is essential from a strategic point of view to unlock the socio-economic benefits of the Khanye Colliery. The employment opportunities associated with the proposed project will not benefit local economic development and potential skills development opportunities will be lost if the project does not proceed. Therefore, the no-go alternative is not preferable compared to the proposed project.

Location alternatives

Four location alternatives, other than the preferred alternative, have been included in the assessment. The following map illustrates the site location and layout of the four alternatives and the proposed alternative.

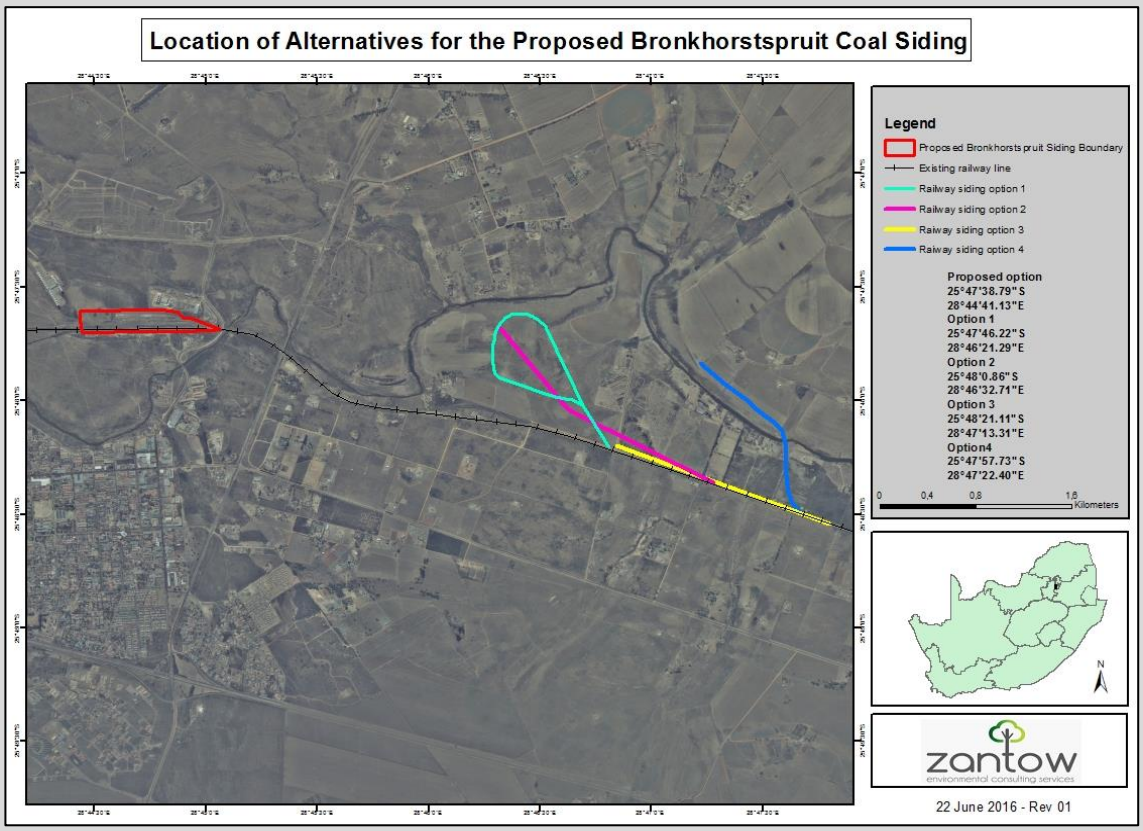


Figure 2: Location of alternative sites

Coal siding location alternatives

During the EIA conducted by Digby Wells Environmental for the Khanye Colliery (Digby Wells Environmental, 2015), the different alternatives for the coal siding were assessed. The following was the findings that were made during this assessment:

- The impact assessment revealed that the proposed alternative (conversion of the existing Bronkhorstspruit siding) will result in less significant environmental impacts from a biophysical perspective compared to the other alternatives.
- Rail siding alternative 1 and 2 will result in the destruction/removal of graves/burial grounds which will have a high impact on heritage resources. The proposed alternative will only result in the destruction of insignificant heritage resources (power line pylons and rail way tracks) and will result in a negligible impact on heritage resources.
- Rail siding alternatives 1, 2 and 4 all intersect sensitive areas such as wetlands and rivers. These rail siding alternatives are not feasible as they pose a significant threat to the watercourses. The most feasible alternative from an environmental perspective the proposed alternative which entails the conversion of the existing Bronkhorstspruit rail siding to accommodate the proposed facility and the hauling of coal on the existing road network. Only a small section of the existing siding area will be extended to accommodate the stormwater culverts. The stormwater culverts will prevent runoff from a 1 in 50 year flooding event to flow into the proposed development area and prevent contamination. Therefore, the stormwater infrastructure will have an insignificant impact on wetlands but will prevent significant surface water contamination.
- Noise and visual impacts associated with alternatives 1,2 and 3 are also predicted to be higher compared to that of

the proposed alternative. This is due to the fact that the hauling distance from the proposed site will be shorter compared to the other alternatives except for alternative 4 which can only utilise conveyor belts to transfer coal to the Colliery. The proposed alternative is also situated further away from residential areas which will lower the impact significance of noise generating activities. The other alternatives will also involve more extensive construction which will increase noise generation. The increased visual impact will be due to the fact that the other alternatives will be established on relatively undisturbed land and the proposed alternative on an existing siding. Therefore, the other alternatives will have a greater visual appearance that the proposed alternative.

- Moreover, soil impacts associated with the proposed alternative will be less significant compared to the other alternatives. This is due to the fact that that the proposed conversion of the existing siding not entail significant soil removal to accommodate the required infrastructure, compared to all the other alternatives.
- The proposed site is zoned as Industrial 1/S.A.R. (railway purposes) which is in line with the proposed facility and falls within the City of Tshwane Zoning Scheme. The other alternative sites are not suitably zoned for the proposed land use. The site has been completely transformed by the footprint of the existing siding and provides an ideal basis to establish the proposed coal loading facility.

Refer to the Table 4 for a comparison of the 4 alternatives for the coal siding.

Table 4: Comparison of the alternatives for the proposed project

Environmental consideration	Proposed alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Type of baseline environment	Brownfield	Greenfield	Greenfield	Brownfield and greenfield	Greenfield
Wetlands	The proposed alternative will be situated on the footprint of an existing site and will have minor impacts on the wetland due to the establishment of the stormwater culverts.	The proposed location of this alternative is within an extensive seep wetland connected to and within the Bronkhorstspruit River. The development of the rail loop siding will have negative impacts on the wetland. Coal transfer in wetland areas will also pose a risk to the wetland health and functionality.	Rail siding alternative 2 is located in the same wetland as rail siding alternative 1. Therefore, similar impacts are envisioned for this alternative however to a slightly lesser extent.	This alternative cuts through a wetland associated with a tributary of the Bronkhorstspruit which has been delineated as a Channeled Valley Bottom wetland. This wetland is already compromised as the existing railway traverses through it.	The siding and loading area falls outside the 100m buffer of the Bronkhorstspruit River Riparian wetland and Seep wetlands. This alternative however crosses over the Bronkhorstspruit River as well as the wetlands on the southern bank to reach the existing rail line and may result in negative impacts to the wetlands.
Dust generation	The proposed site is zoned as industrial 1 and is surrounded by industries. Although dust generation has been identified as the most significant environmental aspect, the site is not situated in close proximity to residential areas compared to the other site alternatives. Transportation of coal from the site will not pass closely to residential areas – if the preferred route is followed.	The site is relatively close to residential units, especially from surrounding small holdings. The transportation of coal from the site will also pass close to residential areas and potentially cause significant impacts.	The site is relatively close to residential units, especially from surrounding small holdings. The transportation of coal from the site will also pass close to residential areas and potentially cause significant impacts.	The site is relatively close to residential units, especially from surrounding small holdings. The transportation of coal from the site will also pass close to residential areas and potentially cause significant impacts.	The site is relatively close to residential units, especially from surrounding small holdings. The transportation of coal from the site will also pass close to residential areas and potentially cause significant impacts.
Surface water	The siding falls within the 1:50 year flood line.	This rail siding alternative falls within the 100 m buffer of the Bronkhorstspruit.	This rail siding alternative falls within the 100 m buffer of the Bronkhorstspruit.	Railway siding alternative 3, running directly parallel to the existing railway is suitable for the development; however, it must be ensured that it is elevated above the 1:100 year flood at an approximate height of 1375.	This rail siding alternative will cross the Bronkhorstspruit and may cause significant impacts on surface water

Environmental consideration	Proposed alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Aquatics	The aquatic ecology associated with wetlands in this area will not be affected by the footprint of the development.	The aquatic ecology associated with wetlands in this area will be impacted.	The aquatic ecology associated with wetlands in this area will be impacted.	The aquatic ecology associated with the tributary of the Bronkhorstspruit has already been impacted by the existing railway line.	The construction of rail infrastructure as well as coal stockpiles may alter the aquatic habitat and further degrade water quality as this alternative crosses the Bronkhorstspruit River.
Fauna and flora	The ecology associated with wetlands in this area will be insignificantly impacted by the footprint of the development.	The aquatic ecology associated with wetlands in this area will be impacted.	The aquatic ecology associated with wetlands in this area will be impacted.	The aquatic ecology associated with the tributary of the Bronkhorstspruit has already been impacted on by the existing railway line. No further impacts	The construction of rail infrastructure as well as coal stockpiles may alter the aquatic habitat and further degrade water quality as this alternative crosses the Bronkhorstspruit River.
Existing infrastructure	Existing infrastructure such as access roads and offices etc. exist at the site.	All additional infrastructure will have to established at the site.	All additional infrastructure will have to established at the site.	All additional infrastructure will have to established at the site.	All additional infrastructure will have to established at the site.
Hauling distance via trucks	+/6 km	+/10 km	+/10 km	+/10 km	Only option is conveyor belts
Adjacent land uses	The following industries are situated adjacent to the site: Godrich Flour mill, Afgri Silos and Russelstone Protein.	The surrounding land uses are mainly agricultural small holdings and natural veld, as well as the existing railway.	The surrounding land uses are mainly agricultural small holdings and natural veld, as well as the existing railway.	The surrounding land uses are mainly agricultural small holdings and natural veld, as well as the existing railway.	The surrounding land uses are mainly agricultural small holdings, natural veld and the Bronkhorstspruit, as well as the existing railway.
Gauteng Environmental Management Framework	Situated in Zone 4 - Normal control zone This zone is dominated by agricultural uses outside the urban development zone as defined in the Gauteng Spatial Development Framework. No listed activities may be excluded from environmental assessment requirements in this zone.	Partly situated in Zone 3 - High control zone Special control zones are sensitive areas outside the urban development zone. These areas are sensitive to development activities and in several cases also have specific values that need to be protected.	Partly situated in Zone 3 - High control zone Special control zones are sensitive areas outside the urban development zone. These areas are sensitive to development activities and in several cases also have specific values that need to be protected.	Partly situated in Zone 3 - High control zone Special control zones are sensitive areas outside the urban development zone. These areas are sensitive to development activities and in several cases also have specific values that need to be protected.	Mostly situated in Zone 3 - High control zone Special control zones are sensitive areas outside the urban development zone. These areas are sensitive to development activities and in several cases also have specific values that need to be protected.
Tshwane Spatial Development Framework	Situated close to Bronkhorstspruit. Bronkhorstspruit has been identified by the City of Tshwane Regional Spatial Development Framework as one of the metropolitan nodes and the economy is not very diversified and hence there are limited economic activities and industrial activities. The proposed development may contribute to the diversification of the local economy.				

From the above comparison, it is clear that the proposed alternative is the preferred alternative from environmental and feasibility perspective. The proposed alternative will be situated on the footprint of the existing Bronkhorstspruit siding. Impact on the adjacent natural environment will be avoided, except for the establishment of the stormwater culverts beneath the siding.

Transportation alternatives

Coal will be transported to the proposed coal siding from the Khanye Colliery from where it will be dispatched to the respective markets. Two transportation Alternatives have been considered including transportation via the existing road networks and transportation via conveyor belts.

Table 5: Comparison of methods to transport coal to the siding

From the above comparison, it is clear that the transportation of coal via the existing road network on hauling trucks is the best alternative, compared to conveyor belts. The establishment of conveyor belts will cause severe impacts on the Bronkhorstspruit river and other natural environmental features. Moreover, the hauling of coal via the existing road network will be more cost effective and will not require rehabilitation.

Environmental consideration	Transportation of coal via existing road network	Transportation of coal via conveyor belts
Impacts on sensitive habitat	No new roads will have to constructed for the hauling of coal outside the boundary of the proposed site. No virgin land will have to be transformed.	This alternative traverses the Bronkhorstspruit River and wetlands on the southern side of the mining site. Transporting coal through these areas poses a risk to the wetlands and the Bronkhorstspruit River.
		The conveyor falls within 1:100 year flood lines or within 100 m buffer of the Bronkhorstspruit.
		The conveyor routes will cross immediately upstream of sensitive aquatic habitat, namely shallow water with cobbled substrate or into pasture Field and then into Grassland and agricultural fields
		The conveyor option may result in the loss of rocky grassland and agricultural land.
Rehabilitation	No rehabilitation required	The footprint of the conveyor belt will require rehabilitation
Air emissions	Dust and exhaust emissions from the transportation of coal on hauling trucks	Dust generation due from the transportation of coal on trucks. No exhaust emissions.
Noise generation	Medium noise impacts associated with hauling trucks	Minimum noise generation
Financial considerations	High cost for fuel consumption of hauling trucks	Very high initial costs to establish infrastructure
Visual impact	Moderate visual impact	High visual impact
Traffic	Increased traffic may cause disruption	No additional traffic

Stormwater management alternatives

The existing 825 mm diameter and 600 mm diameter concrete pipe culverts under the railway siding are inadequate to convey the 1:50 year flood without storm water flooding the siding itself. Therefore, other means of preventing the siding area to be flooded is required. The following stormwater alternatives have been considered to manage runoff from a 1 in 50 year flooding event.

The following Tables provide an assessment of the advantages and disadvantages of the different stormwater alternatives.

Table 6: Advantages associated with the stormwater management alternatives

Advantages associated with the stormwater management options		
Alternative 1 (Southern Channel)	**Alternative 2 (Northern Channel)**	**Alternative 3 (New culverts under the railway siding)**
Provides an effective manner to manage runoff from a 1 in 50 flooding event.	Provides an effective manner to manage runoff from a 1 in 50 flooding event.	Provides an effective manner to manage runoff from a 1 in 50 flooding event.
Prevent flooding of the proposed coal siding and prevent pollution	Prevent flooding of the proposed coal siding and prevent pollution	Prevent flooding of the proposed coal siding and prevent pollution
None	None	Prevent disruption of riparian habitat

None	None	Prevent disturbance of adjacent properties
None	None	Less significant impact on wetland system and biodiversity
None	None	Less maintenance

Table 7: Disadvantages associated with the stormwater management alternatives

Disadvantages associated with the stormwater management options		
Alternative 1 (Southern Channel)	**Alternative 2 (Northern Channel)**	**Alternative 3 (New culverts under the railway siding) - preferred**
Disruption of the riparian zone at the outlet section into the Bronkhorstspruit	Disruption of the riparian zone at the outlet section into the Bronkhorstspruit	None
Moderate disturbance of wetland system	Moderate disturbance of wetland system	Minor disturbance of wetlands
Affect adjacent properties	Affect adjacent properties	None
Limited space available to establish channel	None	None
Potential disruption of R513 regional road if the road has to be jacked during construction	Potential disruption of R513 regional road if the road has to be jacked during construction	None
Moderate disturbance of biodiversity associated with the wetland and riparian zone	Moderate disturbance of biodiversity associated with the wetland and riparian zone	Minor disturbance of biodiversity associated with the wetland
Increased visual impact	Increased visual impact	Minor visual impact
Increased potential for erosion in the riparian zone at the stormwater outlet and associated sedimentation of the Bronkhorstspruit	Increased potential for erosion in the riparian zone at the stormwater outlet and associated sedimentation of the Bronkhorstspruit	Increased potential for erosion in the unchanneled valley wetland South of the site at the outlet point
Disruption of operations of auction yard due to limited space available	None	None
High maintenance cost due to open nature	High maintenance cost due to open nature	Minor maintenance cost

It is clear from the abovementioned comparison that stormwater management system Alternative 3 is the best alternative from an environmental and practical perspective. Alternative 3 will be less intrusive in terms of environmental features and will not affect adjacent properties. The Applicant will obtain the required authorisations from Transnet to jack the railway lines for the establishment of the culverts.

Provide a description of the alternatives considered

No.	**Alternative type**, either alternative: site on property, properties, activity, design, technology, energy, operational or (provide details of "other")	**Description**
1	Proposal (within the existing Bronkhorstspruit siding)	**The following infrastructure currently exists at the siding:** • Railway tracks; • Locomotives and wagons; • Overhead traction equipment (OHTE); • Loading area; • Access roads; and • Supportive buildings. Canyon proposes to convert the current siding and install the following infrastructure: • **Rail operations** Transnet Freight Rail (TFR) Operations prescribes specifically that the following two criteria will have to be adhered to after/during construction of the new siding facility: 1. The siding must accommodate a 100 truck train. 2. Shunting to and from the TFR Main Line will not be allowed. The placing of wagons by the TFR locomotives must only incorporate one shunt. The southern track of the proposed loading area can accommodate 60 wagons. The northern track can accommodate 50 wagons. Therefore the siding has the capacity to ensure the above requirements will be adhered to. Some of the existing rail roads will be removed that is no longer in use in order to establish the coal stockpile and other infrastructure. • **Coal siding and stockpile area** Existing tracks will be upgraded to TFR specifications for the loading of coal product. No additional tracks will be constructed during this process. The coal stockpiling area will be designed to accommodate a maximum 12 000 tons of coal product. To prevent any contamination of groundwater, an appropriate barrier will be installed at the stockpile area and runoff will be diverted to a silt trap and pollution control dam (PCD). The proposed loading area where the coal will be stockpiled is 21 m wide and is therefore 9m wide, assuming that the coal will not be stockpiled higher than 2m. The volume of coal that the loading area can accommodate is less than 12 000 tons. From the Geohydrological Report Risk Assessment model results it was shown that the potential groundwater contamination plume will not reach the (100 m) down-gradient wetland at concentrations significantly higher than background concentration when a bitumen seal is placed on top of a compacted soil layer. As a conservative measure the compacted clay could be replaced with a cementitious barrier layer with a bitumen seal on top. The cementitious barrier layer will also eliminate the impact of moving machinery on the liner (Geostratum Groundwater And Geochemistry Consult (Pty) Ltd, 2017). Refer to Appendix A2 for the engineer drawings for the proposed liner system at the coal stockpile area. • **Gravel haul roads** Access roads and internal gravel haul roads will be upgraded and constructed for the movement of material to and from the coal loading facility. • **Pollution Control Dam (PCD)** To ensure that all potential contaminated runoff is collected and contained, Canyon Service proposes to construct a PCD. The PCD will be designed to accommodate a 1 in 50 year flood event.

		• **Stormwater management system** A stormwater management system for the management of stormwater and contaminated runoff around the coal stockpile and siding will be constructed. Surface water from the stockpile will be collected in concrete lined drains located within the stockpile area. The contaminated water diverted to the lined drains will pass through a silt trap located at the inlet of the PCD. During the planning phase, it was found that the existing Stormwater infrastructure will not be able to accommodate a 1 in 50 year flood event. It was therefore decided to investigate alternatives to manage water runoff from such a flood event. **Loading area** A loading area will be established at the site where the coal will be loaded onto the train trucks.
2	Alternative 1	**Alternative 1** is located entirely on the Remaining Extent (RE) of the farm Resurgam 515-IR, located south of the project site. This rail siding alternative is located outside the boundary of the Khanye Colliery mining right area. This alternative is approximately 3 100 m in length and will include a loop design. To ensure access to the RE of the Farm Resurgam 515-IR, a link road will have to be constructed from the main road to the existing farm access road.
3	Alternative 2	**Alternative 2** is located along Portions 113, 139, 140 and 141 of Farm Wachtenbietjeskop 506 JR and the RE of the farm Resurgam 515-IR. This alternative is similar to new rail siding alternative 1 except it excludes the loop design. Alternative 2 rail siding is located south of the Khanye Colliery and also falls outside the mining right area. This proposed rail siding is about 2 217 m in length and runs in parallel to the existing railway line.
4	Alternative 3	**Alternative 3** is located along Portions 113, 140, 141, 142, 143, 144, 145, 150, 113, 122, 123, 124 and 139 of Farm Wachtenbietjeskop 506 JR. This alternative is located south of the Bronkhorstspruit River and the Khanye Colliery. This proposed rail siding is about 2 516 m in length and runs in parallel to the existing railway line.
5	Alternative 4	**Alternative 4** is located within the mining right area on the southern end of the Khanye Colliery. It is located north of the Bronkhorstspruit River on Portions 76, 87 and 143 of Farm Wachtenbietjeskop 506 JR. This alternative is about 1 122 m in length and would require the construction of a rail bridge over the Bronkhorstspruit River.
Methods to transport coal to the siding – alternatives The following provides a description of the alternative that have been considered for the transportation of coal to the proposed facility. The utilisation of the existing road network to transport the coal to the siding compared to the establishment of a conveyor system to transfer the coal to the other alternative sites. Both conveyor system alternatives will transverse the Bronkhorstspruit and result in significant impacts on wetland as well as riparian biodiversity. Moreover, conveying coal across the Bronkhorstspruit may severely affect the water quality of the river. Although the transportation of coal via the road network will result in traffic and visual impacts, it is the preferred and most feasible alternative. Please refer to the Figure below for the route alternatives to haul coal to the siding via conveyor belt to the siding.		

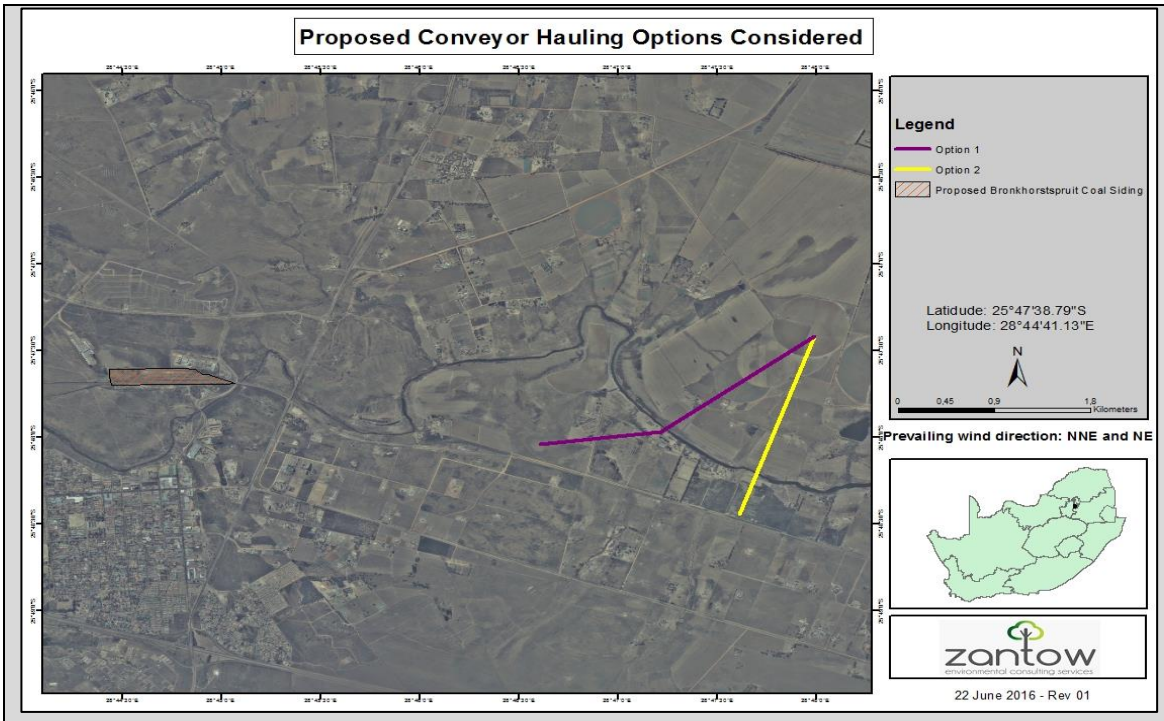


Figure 3: Location of proposed conveyor hauling alternatives

Hauling the coal via the existing road network to the existing Bronkhorstspruit siding is the preferred method to transport coal to the site. This alternative will involve haul trucks travelling along the existing roads. The access alternative will be dependent on approval from the relevant departments.

Please refer to the Figure below for the route alternatives to haul coal to the siding via the existing road network. Option 1 from the East is the preferred alternative route.

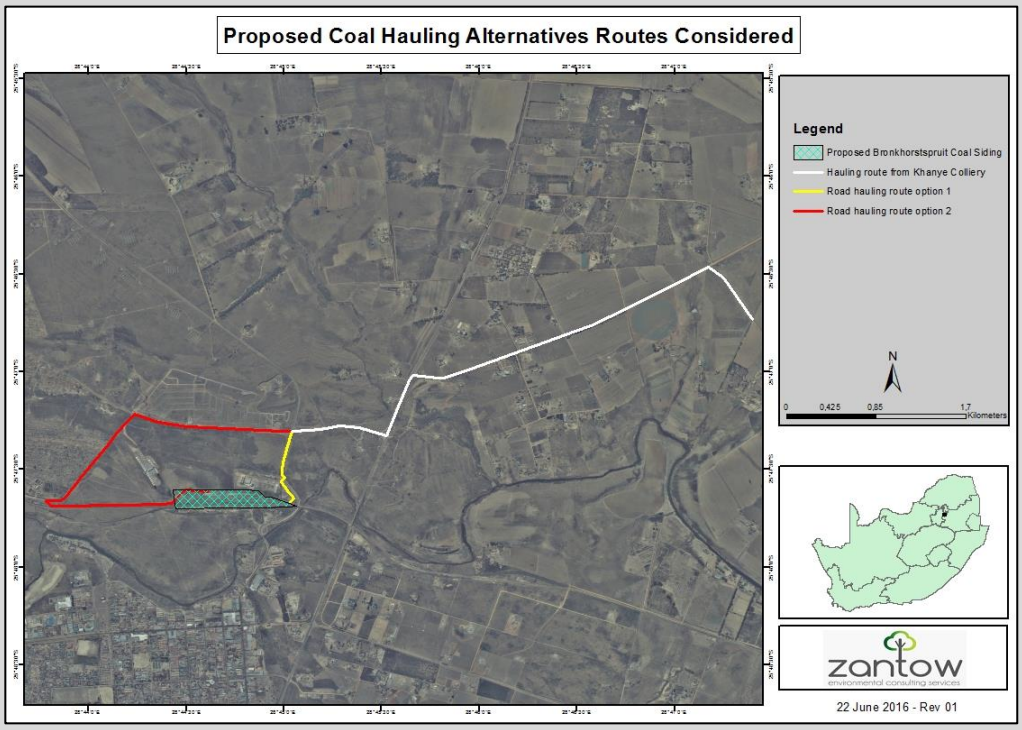


Figure 4: Location of proposed road hauling alternatives

1	Alternative 1 (preferred)	**Road hauling alternative 1 (access from the Eastern side)** The coal will be transported from the Khanye Colliery along the R907, R25 and access will be gained from the R513 on the eastern side of the site. The trucks will drive pass the Flour mill on the eastern side of the site. This alternative is the most feasible in terms of distance and associated financial benefits.

2	Alternative 2	**Road hauling alternative 2 (access from the Western side)** The coal will be transported from the Khanye Colliery along the R907, R25, the secondary road to the north of the site and access will be gained from Sibanyoni Drive on the Western side of the site. The trucks will drive Zithobeni settlement on the western side of the site and enter next to the Afgri Silos within Transnet service road.
3	Alternative 3	**Conveyor alternative 1** This proposed conveyor route is about 2 674 m in length and is aligned in a south west direction towards the proposed rail siding alternatives 1 and 2 which fall outside of the proposed mine area. Conveyor alternative 1 crosses over the Bronkhorstspruit River and also traverses 5 properties, namely Portions 139, 138, 113 of the farm Wachtenbietjeskop 506 JR and Portion 1 and the RE of the farm Rhenosterfontein 515 JR.
4	Alternative 4	**Conveyor alternative 2** The proposed conveyor route is about 1 993 m in length and is aligned in a southerly direction towards the proposed rail siding alternative 3 which falls outside of the proposed mine area. This proposed route also crosses over the Bronkhorstspruit River, however only traverses 1 property, namely Portion 144 of the farm Wachtenbietjeskop 506 JR. This proposed conveyor would essentially divide this farm as the proposed route traverses the entire length of the farm from north to south in the middle.

The following stormwater alternatives have been considered to manage runoff from a 1 in 50 year flooding event.

The existing 825 mm diameter and 600 mm diameter concrete pipe culverts under the railway siding are inadequate to convey the 1:50 year flood without storm water flooding the siding itself. Therefore, other means of preventing the siding area to be flooded is required.

As the available space between the Siding and the boundary of the Mill is not sufficient for a berm to be constructed, a berm on the upstream side of the siding platform will need to be constructed to increase the capacity of the natural channel between the Mill and the Siding sufficiently. This is not feasible, as a similar berm would need to be constructed between the Mill and the natural channel to prevent flooding of the Mill area. Unless the owners of the Mill will allow using a strip of land inside their southern boundary, this option is ruled out. This option will still require the same covered culvert sections under the rail spur access road, under/at the Auction yard-access road and main tarred road. A channel between the Mill and Siding with full flow level lower than the Mill and Siding platforms, with a berm on the siding platform and a berm outside of the western boundary of the Mill but right in the Wetland is another possibility but a large portion of the wetland will be destroyed and it is unlikely that it will be allowed. This option will result in a smaller Southern Canal but the construction cost of a berm in the wetland will most likely out-rule this option further.

Three other possibly feasible options exist:

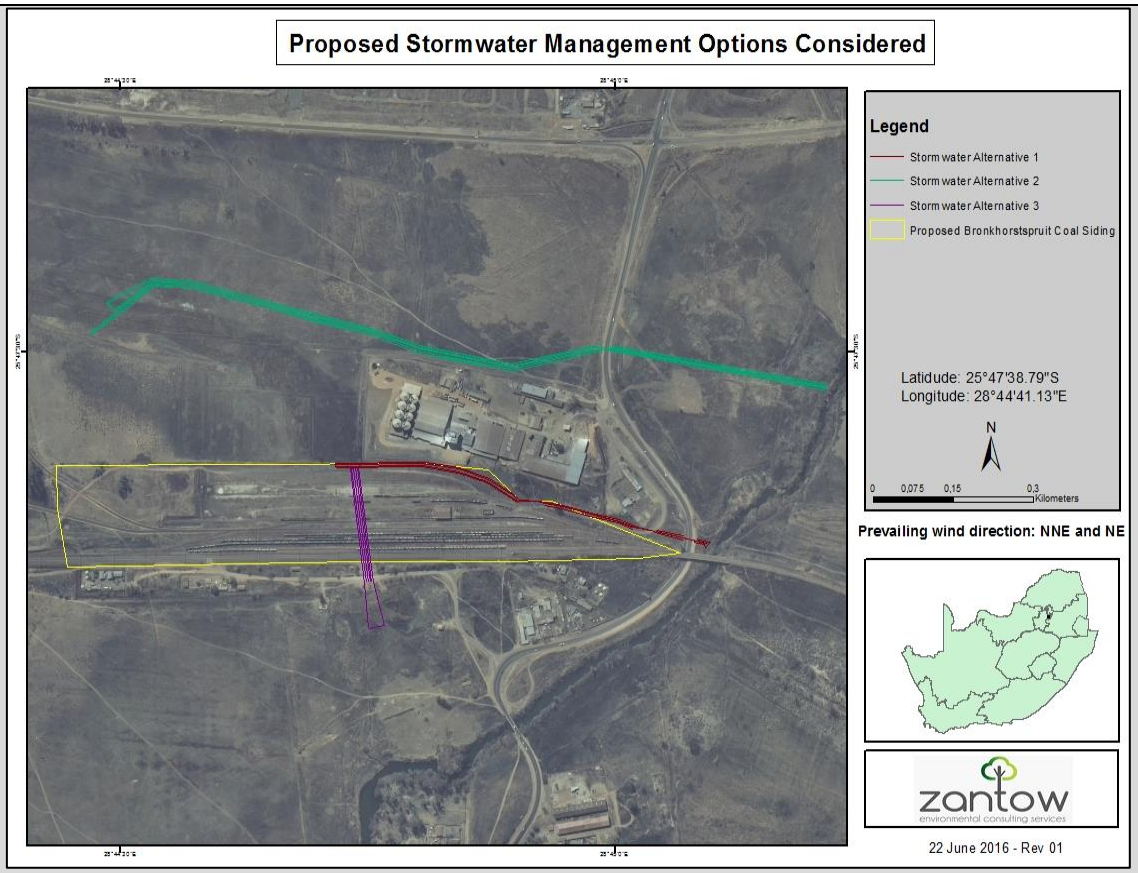


Figure 5: Proposed Stormwater Management Considered

1	Alternative 1	**Southern Channel:** A channel between the Mill and Siding with full flow level lower than the Mill and Siding platforms. The construction of this channel will slightly disrupt the operation of the auction yard in the southern corner. A small portion of the siding platform will have to be sacrificed between the wetland and the railway spur to the Mill. Little work will be required in the wetland. The main tarred road needs to be crossed and a river inlet structure erected. This option should however lower the flood level at the vehicle bridge to the town and to a lessor extend, the flood level at the railway bridge.
2	Alternative 2	**Northern Channel:** A channel on the northern side of the Mill with a diversion weir in the stream. Relatively significant work will be required at the upstream portion of the wetland. Private land would need to be crossed requiring permission and servitudes to be registered. The main tarred road needs to be crossed and a river inlet structure erected. This option should however lower the flood level at the railway bridge and the vehicle bridge to the town.
3	Alternative 3 (preferred alternative)	**New culverts under the railway siding:** Establishment of a culvert underneath the railway siding. Permission for pipe jacking under the live railway portion will need to be obtained from Transnet. Very little work will be required in the wetland on the upstream side and a very simple structure on the downstream side to prevent erosion. However, flood levels along the Bronkhorstspruit River will basically remain as before the construction of the siding and mill. With the construction of the siding some of the floodwater has been diverted to below the railway bridge. With the construction of the Mill this diversion capacity has been reduced. With the rerouting of the total flood to upstream of the vehicle bridge, the flood levels upstream of the vehicle bridge will increase and must be considered during the selection process of the best option. Refer to Appendix K for a summary of the proposed stormwater management system for the site.

In the event that no alternative(s) has/have been provided, a motivation must be included in the table below.

N/A

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the total physical size (footprint) of the proposal as well as alternatives. Footprints are to include all new infrastructure (roads, services etc.), impermeable surfaces and landscaped areas:

	Size of the activity:
Proposed activity ***(Total environmental (landscaping, parking, etc.) and the building footprint)***	+/- 16 hectares
Alternatives:	
Alternative 1 (if any)	28 Hectares
Alternative 2 (if any)	12.85 Hectares
Alternative 3 (if any)	15 Hectares
Alternative 4 (if any)	30 Hectares
	Ha/ m^2

or, for linear activities:

	Length of the activity:
Proposed activity	N/A
Alternatives:	
Alternative 1 (if any)	N/A
Alternative 2 (if any)	N/A
	m/km

Indicate the size of the site(s) or servitudes (within which the above footprints will occur):

	Size of the site/servitude:
Proposed activity	None
Alternatives:	
Alternative 1 (if any)	N/A
Alternative 2 (if any)	N/A
	Ha/m^2

5. SITE ACCESS

Proposal

Does ready access to the site exist, or is access directly from an existing road? **(see Figure 1 below)**	YES X	NO
If NO, what is the distance over which a new access road will be built	N/A	

Describe the type of access road planned:

Access to the site will be gained from the Eastern side of the site from the R513 regional road and will be the preferred route to be followed. If primary access from the eastern site cannot be obtained, a secondary access route will be established from the western side of the site.

Include the position of the access road on the site plan **(Appendix A)** (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 1

Does ready access to the site exist, or is access directly from an existing road?	YES	NO X
If NO, what is the distance over which a new access road will be built	1km	

Describe the type of access road planned:

Dirt road to accommodate the hauling vehicles or the widening of the existing road

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 2

Does ready access to the site exist, or is access directly from an existing road?	YES	NO X
If NO, what is the distance over which a new access road will be built	1km	

Describe the type of access road planned:

Existing dirt road to accommodate the hauling vehicles or the widening of the existing road

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 3

Does ready access to the site exist, or is access directly from an existing road?	YES	NO X
If NO, what is the distance over which a new access road will be built	1km	

Describe the type of access road planned:

Existing dirt road to accommodate the hauling vehicles or the widening of the existing road

Include the position of the access road on the site plan. (If the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 4

Does ready access to the site exist, or is access directly from an existing road?	YES	NO X
If NO, what is the distance over which a new access road will be built		1km

Describe the type of access road planned:

Existing dirt road to accommodate the hauling vehicles or the widening of the existing road

Include the position of the access road on the site plan. (If the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

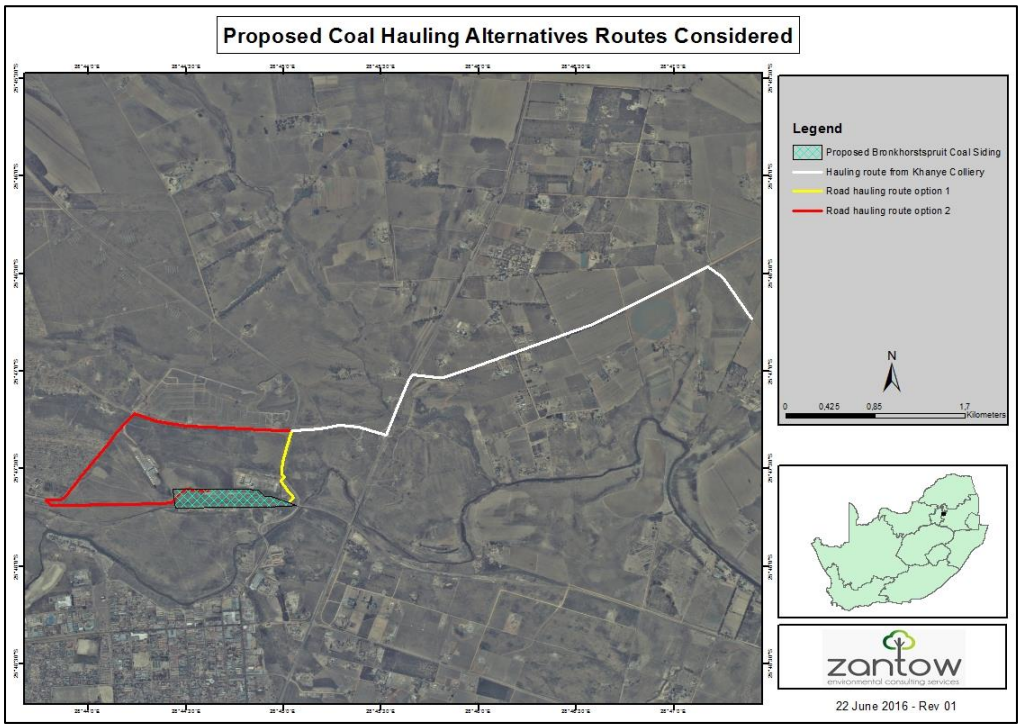


Figure 6: Location of proposed access roads

PLEASE NOTE: Points 6 to 8 of Section A must be duplicated where relevant for alternatives

(The alternative site locations and the layout of each has been included in Appendix A0 – detailed site layouts for the alternatives have not been developed – only for the proposed alternative)

Section A 6-8 has been duplicated | None | Number of times

(only complete when applicable)

6. LAYOUT OR ROUTE PLAN

A detailed site or route (for linear activities) plan(s) must be prepared for each alternative site or alternative activity. It must be attached to this document. The site or route plans must indicate the following: **(Appendix A1)**

- the layout plan is printed in colour and is overlaid with a sensitivity map (if applicable);
- layout plan is of acceptable paper size and scale, e.g.
  - A4 size for activities with development footprint of 10sqm to 5 hectares;
  - A3 size for activities with development footprint of > 5 hectares to 20 hectares;
  - A2 size for activities with development footprint of >20 hectares to 50 hectares);
  - **A1 size for activities with development footprint of >50 hectares);**

- The following should serve as a guide for scale issues on the layout plan:
  - A0 = 1: 500
  - A1 = 1: 1000
  - A2 = 1: 2000

- A3 = 1: 4000
- A4 = 1: 8000 (±10 000)

- shapefiles of the activity must be included in the electronic submission on the CD's;
- the property boundaries and Surveyor General numbers of all the properties within 50m of the site;
- the exact position of each element of the activity as well as any other structures on the site; the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, septic tanks, storm water infrastructure;
- servitudes indicating the purpose of the servitude;
- sensitive environmental elements on and within 100m of the site or sites (including the relevant buffers as prescribed by the competent authority) including (but not limited thereto):
  - Rivers and wetlands;
  - the 1:100 and 1:50 year flood line;
  - ridges;
  - cultural and historical features;
  - areas with indigenous vegetation (even if it is degraded or infested with alien species);
- Where a watercourse is located on the site at least one cross section of the water course must be included (to allow the position of the relevant buffer from the bank to be clearly indicated)

Refer to **Appendix A** for the following attachments;

A1: Site layout plans for the Proposal.

FOR LOCALITY MAP (NOTE THIS IS ALSO INCLUDED IN THE APPLICATION FORM REQUIREMENTS) APPENDIX B

- the scale of locality map must be 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 locality map and all other maps must be in colour;
- locality map must show property boundaries and numbers within 100m of the site, and for poultry and/or piggery, locality map must show properties within 500m and prevailing or predominant wind direction;
- for gentle slopes the 1m contour intervals must be indicated on the map and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the map;
- areas with indigenous vegetation (even if it is degraded or infested with alien species);
- locality map must show exact position of development site or sites;
- locality map showing and identifying (if possible) public and access roads; and
- the current land use as well as the land use zoning of each of the properties adjoining the site or sites

Refer to Appendix B for the following attachments;

B1: 1:50 000 topo-cadastral map
B2: The location of the site within a 5km radius, 2km radius and 500m radius
B3: Map indicating 1m contours
B4: Properties within 100m of the site

7. SITE PHOTOGRAPHS

Colour photographs from the center 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 the appropriate Appendix**.** It should be supplemented with additional photographs of relevant features on the site, where applicable.

Refer to **Appendix C.**

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 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 to be attached in the appropriate Appendix.

Refer to **Appendix D.**

SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT (PROPOSAL)

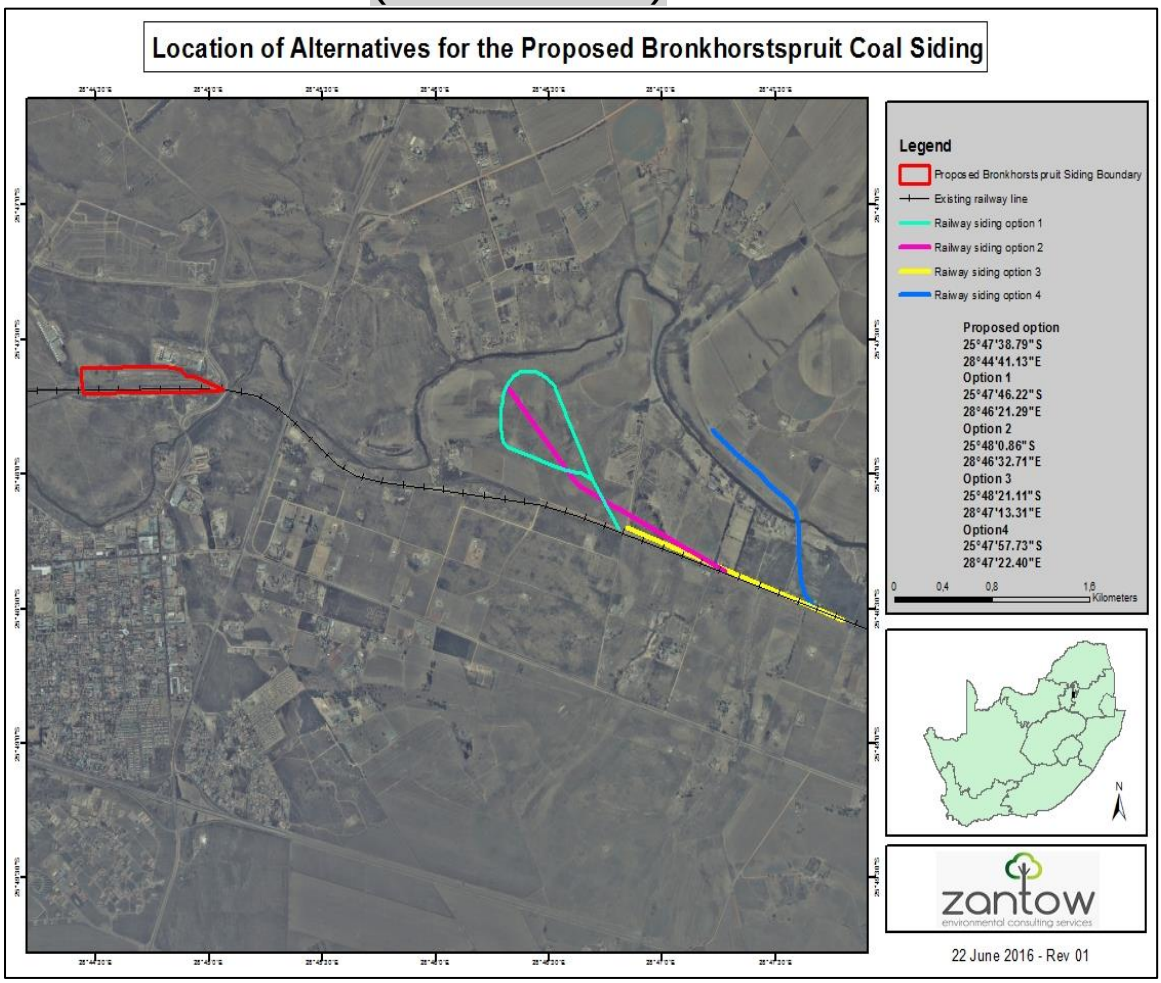


Figure 7: Location of alternative sites

Note: Complete Section B for the proposal and alternative(s) (if necessary)

Instructions for completion of Section B for linear activities

1) For linear activities (pipelines etc.) it may be necessary to complete Section B for each section of the site that has a significantly different environment.
2) Indicate on a plan(s) the different environments identified
3) Complete Section B for each of the above areas identified
4) Attach to this form in a chronological order
5) Each copy of Section B must clearly indicate the corresponding sections of the route at the top of the next page.

Section B has been duplicated for sections of the route [0] times

Instructions for completion of Section B for location/route alternatives

1) For each location/route alternative identified the entire Section B needs to be completed
2) Each alterative location/route needs to be clearly indicated at the top of the next page
3) Attach the above documents in a chronological order

Section B has been duplicated for location/route alternatives [4] times (complete only when appropriate)

Instructions for completion of Section B when both location/route alternatives and linear activities are applicable for the application

Section B is to be completed and attachments order in the following way

- All significantly different environments identified for Alternative 1 is to be completed and attached in a chronological order; then
- All significantly different environments identified for Alternative 2 is to be completed and attached chronological order, etc.

Section B - Section of Route | N/A | (complete only when appropriate for above)

Section B – Location/route Alternative No. | N/A | (complete only when appropriate for above)

1. PROPERTY DESCRIPTION

Property description: (Including Physical Address and Farm name, portion etc.)

Address:
1 km North of the town of Bronkhorstspruit traveling on the R513 provincial road, Gauteng Province

Properties
Portion 0, 2, 3 and 4 of Farm Die Schlosberg 505 JR
Portion 1 and 3 of Farm Carverdale 535 JR
Portion 2 and 209 of the farm Roodepoort 504 JR
Portion 13, 24, 25, 64, 65, 66 and 98 of farm Hondsrivier 508 JR

2. ACTIVITY POSITION

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 decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Alternative (proposal):	**Latitude (S):**	**Longitude (E):**
	26.64404°	27.84129°

In the case of linear activities

Alternative:	**Latitude (S):**	**Longitude (E):**
Starting point of the activity	N/A	N/A
Middle point of the activity	N/A	N/A
End point of the activity	N/A	N/A

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Addendum of route alternatives attached | N/A

The 21 digit Surveyor General code of each cadastral land parcel

PROPOSAL	T0JR00000000050500003
	T0JR00000000053500003
	T0JR00000000050500000
	T0JR00000000050500004
	T0JR00000000050800098
	T0JR00000000050400209
	T0JR00000000053500001
	T0JR00000000050400002
	T0JR00000000050500002
	T0JR00000000050800013
	T0JR00000000050800013
	T0JR00000000050800024
	T0JR00000000050800025
	T0JR00000000050800064

	T0JR00000000050800065
	T0JR00000000050800066

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

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

4. LOCATION IN LANDSCAPE

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

Ridgeline	Plateau	Side slope of hill/ridge	Valley	Plain X	Undulating plain/low hills	River front

5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

a) Is the site located on any of the following?

Shallow water table (less than 1.5m deep)	YES X	NO
Dolomite, sinkhole or doline areas	YES	NO X
Seasonally wet soils (often close to water bodies)	YES	NO X
Unstable rocky slopes or steep slopes with loose soil	YES	NO X
Dispersive soils (soils that dissolve in water)	YES	NO X
Soils with high clay content (clay fraction more than 40%)	YES X	NO
Any other unstable soil or geological feature	YES	NO X
An area sensitive to erosion	YES	NO X

This section has been duplicated for all alternatives

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s) YES | NO X
If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

c) are any caves located within a 300m radius of the site(s) YES | NO X
If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

d) are any sinkholes located within a 300m radius of the site(s) YES | NO X
If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

If any of the answers to the above are “YES” or “unsure”, specialist input may be requested by the Department

6. AGRICULTURE

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)?

YES	NO X The site will be situated within the existing footprint of the Bronkhorstspruit rail siding

Please note: The Department may request specialist input/studies in respect of the above.

7. GROUNDCOVER

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

Natural veld - good condition % =	Natural veld with scattered aliens % = 5	Natural veld with heavy alien infestation % =	Veld dominated by alien species % = 5	Landscaped (vegetation) % =
Sport field % =	Cultivated land % =	Paved surface (hard landscaping) % = 100	Building or other structure % = 90	Bare soil % =

Please note: The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site	YES	NO X

If YES, specify and explain:

The biodiversity specialist studies (flora, faunal, avifaunal and herpetofaunal) confirmed that no rare or endangered flora or faunal species were observed during the surveys. The only Red Data avifaunal species for which suitable foraging, breeding and/or roosting habitat were observed from the study site include the Half-collared Kingfisher and the African Grass-Owl. The proposed development may affect a very small portion of the riparian habitat (South-East of the site) and the Hillslope seep wetland (North-West of the site) which provides habitat for the abovementioned species. The impact assessment conducted by the specialist also found that the project will have a very low significant impact on avifaunal habitat (Galago Environmental Biodiversity and Aquatic Specialists 2016).

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m **(if within urban area as defined in the Regulations)** or within 600m (if outside the urban area as defined in the Regulations) radius of the site.	YES	NO X

If YES, specify and explain:

The biodiversity specialist studies (flora, faunal, avifaunal and herpetofaunal) confirmed that no rare or endangered flora or faunal species were observed within 200m of the site during the surveys. The only Red Data avifaunal species for which suitable foraging, breeding and/or roosting habitat were observed from the area include the Half-collared Kingfisher and the African Grass-Owl. The impact assessment conducted by the specialist also found that the project will have a very low significant impact on avifaunal habitat (Galago Environmental Biodiversity and Aquatic Specialists 2016).

Are there any special or sensitive habitats or other natural features present on the site?	YES X	NO

If YES, specify and explain:

The entire existing Bronkhorstspruit siding has been disturbed and is characterised by alien invasive vegetation and disturbed grassland. A Hillslope seep wetland is located North-West of the site and the riparian zone of the Bronkhorstspruit is located South East of the site and these habitats are regarded as sensitive environmental features according to the biodiversity studies. The only component of the proposed development that will potentially affect these features is the construction of the stormwater infrastructure which will extend slightly into the adjacent wetland (Sivest 2016)

Was a specialist consulted to assist with completing this section	YES X	NO

If yes complete specialist details

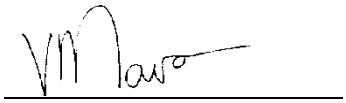
Name of the specialist:	• Galago Environmental ○ Flora Assessment - Mrs. P. Lemmer ○ Mammal Assessment - I.L. Rautenbach ○ Avifaunal Habitat Assessment - Mr. Rihann F. Geyser, Pier Reviewed by Dr. A.C. Kemp ○ Herpetofaunal Habitat Assessment - Mr. J.C.P van Wyk			
Qualification(s) of the specialist:	• Mrs. P. Lemmer – B.Sc. Degree; • I.L. Rautenbach – PhD, • Mr. Rihann F. Geyser; • A.C. Kemp – PhD, and • Mr. J.C.P van Wyk – M.Sc.			
Postal address:	638 Turf Street, Wingate Park			
Postal code:	0180			
Telephone:	012 345 4974	Cell:	082 322 5688	
E-mail:	vanessam@lantic.net	Fax:	086 675 6136	

Are any further specialist studies recommended by the specialist?	YES	NO X

If YES, specify:	N/A	
If YES, is such a report(s) attached?	YES	NO X

If YES list the specialist reports attached below

N/A

Signature of specialist:  Date: N/A

Was a specialist consulted to assist with completing this section			YES X	NO
If yes complete specialist details				
Name of the specialist:	• Geo Pollution Technologies – Gauteng (Pty) Ltd ○ Baseline Hydrogeological Study - G. J. du Toit			
Qualification(s) of the specialist:	• G. J. du Toit – D.Sc.			
Postal address:	• Geo Pollution Technologies – Gauteng (Pty) Ltd 81 Rauch Avenue, Val de Grace, Pretoria			
Postal code:	0184			
Telephone:	012 804 8120	Cell:		
E-mail:	N/A	Fax:	012 804 8140	
Are any further specialist studies recommended by the specialist?			YES	NO X
If YES, specify:	N/A			
If YES, is such a report(s) attached?			YES	NO X

If YES list the specialist reports attached below

N/A

Signature of specialist: _____ Date: N/A

Was a specialist consulted to assist with completing this section			YES X	NO
If yes complete specialist details				
Name of the specialist:	• Sivest ○ Wetland Delineation and Impact Assessment Report			
Qualification(s) of the specialist:	• **Author:** Shaun Taylor (MSc in Aquatic health) • **Reviewed by:** Dr. Martin Ferreira (Pr.Sci Nat. Reg No.: 400265/11)			
Postal address:	P O Box 1899, Umhlanga Rocks.			
Postal code:	4320			
Telephone:	031 581 1500	Cell:	0727794899	
E-mail:	shaunt@sivest.co.za	Fax:	031 566 2371	
Are any further specialist studies recommended by the specialist?			YES	NO X
If YES, specify:	N/A			
If YES, is such a report(s) attached?			YES	NO X

If YES list the specialist reports attached below

N/A

Signature of specialist: _____ Date: N/A

Please note; If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

1. Vacant land	2. River, stream, wetland	3. Nature conservation area	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	9. Medium to high density residential	10. Informal residential
11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial[AN]	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport[N]	23. Train station or shunting yard[N]	24. Railway line[N]	25. Major road (4 lanes or more)[N]
26. Sewage treatment plant[A]	27. Landfill or waste treatment site[A]	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33.Spoil heap or slimes dam[A]	34. Small Holdings	
Other land uses (describe):				

NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks

North

15	16	1	1	1,2
1,15	2,15	2	2,15	1,2
1,24	1,2,24		2, 24	2, 24
1	1,24	1,24	1,2	1
1	1	1,2,15	1,15	1

WEST EAST

SOUTH

Note: More than one (1) Land-use may be indicated in a block

Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "[A]" and with an "[N]" respectively.

Have specialist reports been attached	YES X	NO X
If yes indicate the type of reports below		

The following specialist studies have been undertaken to support the BA for the proposed Bronkhorstspruit coal siding project (Appendix H)

- Galago Environmental
  - Flora Assessment
  - Mammal Assessment
  - Avifaunal Habitat Assessment
  - Herpetofaunal Habitat Assessment
- Geo Pollution Technologies – Gauteng (Pty) Ltd
  - Baseline Hydrogeological Study
- dBAcoustics
  - Environmental Noise Impact Assessment
- HCAC - Heritage Consultants
  - Archaeological Impact Assessment
- BM Geological Services
  - Desktop Paleontological Heritage Impact Assessment
- Ilke Nel
  - Integrated Water and Waste Management Plan
- Sivest
  - Wetland Delineation and Impact Assessment Report
- Digby Wells Environmental (Attached as Appendix I)
  - Proposed Development of an Open Pit Coal Mine and Associated Infrastructure near Bronkhorstspruit, Gauteng Final Environmental Impact Assessment Report

During the EIA for the Khanye Colliery, several specialist studies were undertaken to support the EIA findings and also included the different alternatives for a coal siding; including some quantification of impact on the Bronkhorstspruit siding.

- Air Quality Assessment
- Aquatic Ecological Assessment
- Fauna and Flora Assessment
- Groundwater Assessment
- Heritage Assessment
- Social Impact Assessment
- Soil Impact Assessment
- Surface Water Assessment
- Topography and Visual Impact Assessment Report
- Traffic Impacts Assessment
- Wetland Ecological Assessment

9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

The following baseline description of the socio-economic context has been extracted from the Social Impact Assessment conducted by (Digby Wells Environmental 2015) for the Khanye Colliery:

Population growth and distribution

The population within the local study area grew considerably during the last decade to reach just less than 110 000 people in 2011. This population comprised 31 000 households, which equates to an average household size of 3.5 individuals.

Human settlements within the local study area is characterised by two contrasting settlement patterns. The vast majority of land is sparsely populated with an average occupation rate of 1 person per km^2, significantly lower than the regional average (464 people per km^2). Residential uses within these areas are limited to commercial farms and small holdings. In contrast, high density areas (e.g. Ekangala, Bronkhorstspruit, Zithobeni, Rethabiseng, and Vlakfontein) comprise less than 10% of the surface land in the local study area, but accounts for more than 90% of its population.

Age and gender distribution

The gender distribution among households heads indicate that just more than a third of all households (36%) in the local study area are headed by females. The age distribution shows that the majority of the local study area's population falls within the 15-64 year bracket. This trend is similar to the regional study area and indicates a potentially large labour force.

Education

Education levels among the local population indicates that more than two thirds of individuals not completing secondary schooling, irrespective of their gender grouping. This trend is lower compared to the regional study area.

Economic Profile

The manufacturing sector is the largest contributor (30%) to the local study area's economy in terms of GDP, followed by the services, (28%), financial (17%) and trade (12%) sectors. Mining activities within the local study area are relatively limited, with the closest mining operations being Hosken Consolidated Investment's (HCI) Palesa and Phalandwa Collieries, respectively located 18km north-west and 40km south of the proposed project.

Agriculture only contributes 3% to the local economy. The bulk of agricultural produce is derived from commercial farms around the Bronkhorstspruit town, primarily producing maize, vegetables beef, groundnuts, cotton, sunflower and sorghum. Given the current low contributions by the agricultural sector to the local economy and the high agricultural potential, this sector has significant potential for growth.

The Godrich Flour mill is immediately North-East and AFGRI silos North-West of the site which is also included in the economic profile of the area.

10. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of a site-

- *(i) exceeding 5 000 m2 in extent; or*
- *(ii) involving three or more existing erven or subdivisions thereof; or*
- *(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or*
- *(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;*

(d) the re-zoning of a site exceeding 10 000 m2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) 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 X

According to the Archaeological Impact Assessment, no significant cultural landscapes or viewscapes were noted during the fieldwork **(HCAC - Heritage Consultants 2016)**.

According to the Desktop Palaeontological Impact Assessment Report no Palaeontological resources will be affected by the proposed development **(BM Geological Services 2016)**.

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

- HCAC was appointed to assess the study area in terms of the archaeological component of Section 35 of the NHRA. The study area has been transformed by the existing railway siding and no raw material suitable for stone tool manufacture occurs in the study area and no ceramics or stone walls attributed to the Iron Age were recorded within the study area. No further mitigation is recommended in terms of Section 35 for the proposed development to proceed.

- In terms of the built environment of the area (Section 34), two standing structures occur in the study area. Based on archival maps these structures are not older than 60 years or of architectural significance. In addition to the buildings the existing railway lines and historical power pylons also occur within the study area. The railway line and historical power pylons are protected by the NHRA under the 60 year clause. Although these features are of low heritage significance as several hundred km of the same railway track is preserved in the wider landscape, it is recommended that the developer should apply for a destruction permit of these features from the SAHRA prior to development as these features are subject to the Act.

- In terms of Section 36 of the Act no burial sites were recorded. However if any graves are located in future they should ideally be preserved in-situ or alternatively relocated according to existing legislation.

- From the archival study it was highlighted that a black concentration camp was located next to the railway station at Bronkhorstspruit during the Anglo-Boer War (1901). The exact location of the camp is unknown and is possibly located outside of the development footprint and during the survey no visible remains of the concentration camp were identified. If the camp is located within the study area below the existing surface infrastructure it is recommended that a chance find procedure is implemented for the project as part of the EMP

Will any building or structure older than 60 years be affected in any way?	YES X / NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES X / NO
If yes, please attached the comments from SAHRA in the appropriate Appendix	No comments have been received thus far.

SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT (ALTERNATIVE 1)

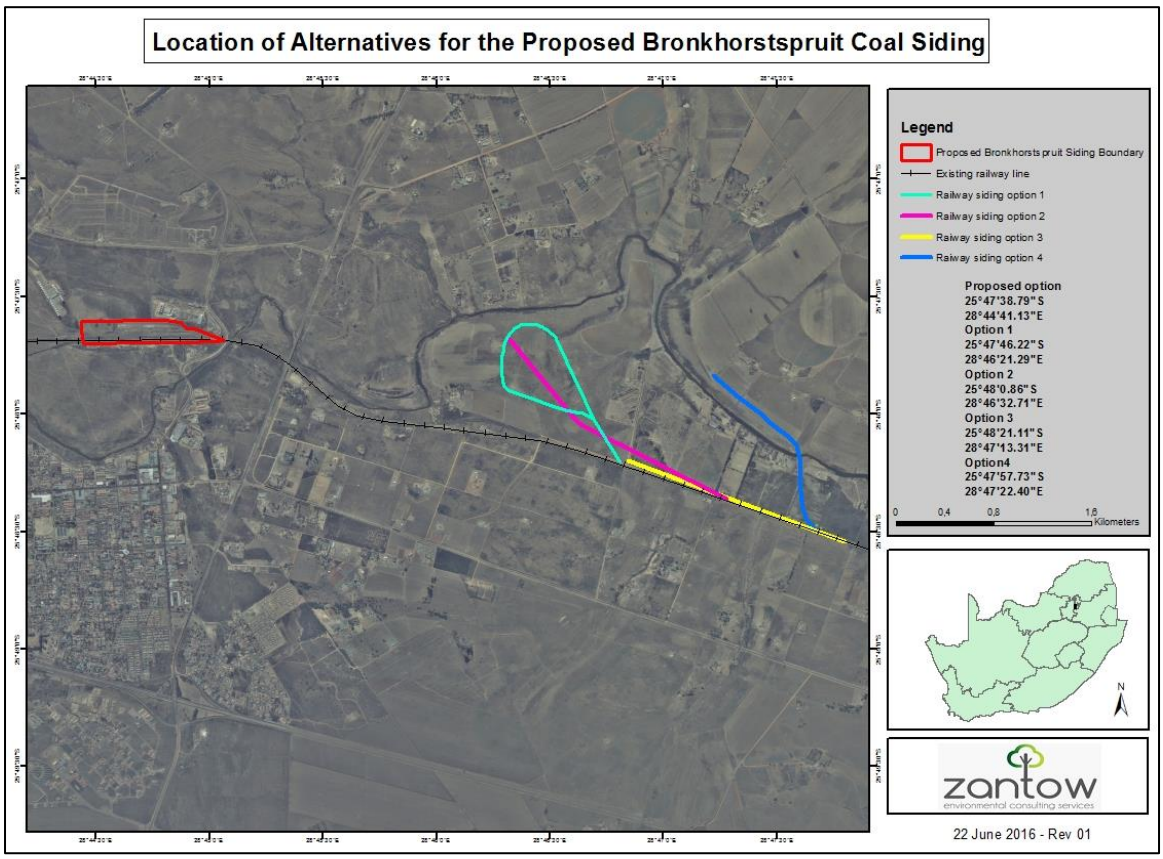


Figure 8: Location of alternative sites

Note: Complete Section B for the proposal and alternative(s) (if necessary)

Instructions for completion of Section B for linear activities

1) For linear activities (pipelines etc) it may be necessary to complete Section B for each section of the site that has a significantly different environment.
2) Indicate on a plan(s) the different environments identified
3) Complete Section B for each of the above areas identified
4) Attach to this form in a chronological order
5) Each copy of Section B must clearly indicate the corresponding sections of the route at the top of the next page.

Section B has been duplicated for sections of the route | 4 | times

Instructions for completion of Section B for location/route alternatives

1) For each location/route alternative identified the entire Section B needs to be completed
2) Each alterative location/route needs to be clearly indicated at the top of the next page
3) Attach the above documents in a chronological order

Section B has been duplicated for location/route alternatives | None | times (complete only when appropriate)

Instructions for completion of Section B when both location/route alternatives and linear activities are applicable for the application

Section B is to be completed and attachments order in the following way

- All significantly different environments identified for Alternative 1 is to be completed and attached in a chronological order; then
- All significantly different environments identified for Alternative 2 is to be completed and attached chronological order, etc.

Section B - Section of Route	N/A	(complete only when appropriate for above)
Section B – Location/route Alternative No.	N/A	(complete only when appropriate for above)

1. PROPERTY DESCRIPTION

Property description: (Including Physical Address and Farm name, portion etc.)	**Address:** 2.7 km North East of the town of Bronkhorstspruit traveling on the R104 provincial road, Gauteng Province **Properties** Remaining Extent (RE) of the farm Resurgam 515-IR

2. ACTIVITY POSITION

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 decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Alternative (proposal):	**Latitude (S):**	**Longitude (E):**
	25.79689°	28.77415°

In the case of linear activities (not applicable):

Alternative:	**Latitude (S):**	**Longitude (E):**
□ Starting point of the activity	N/A	N/A
□ Middle point of the activity	N/A	N/A
□ End point of the activity	N/A	N/A

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Addendum of route alternatives attached N/A

The 21 digit Surveyor General code of each cadastral land parcel

ALT. 1	T0JR00000000051500000

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

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

4. LOCATION IN LANDSCAPE

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

Ridgeline	Plateau	Side slope of hill/ridge	Valley	Plain X	Undulating plain/low hills	River front

5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

a) Is the site located on any of the following?

The specific site conditions were not assessed, but due to the nature of the receiving environment, especially in terms of the occurrence of wetland conditions, the following can be assumed:

Shallow water table (less than 1.5m deep)	YES X	NO
Dolomite, sinkhole or doline areas	YES	NO X
Seasonally wet soils (often close to water bodies)	YES X	NO
Unstable rocky slopes or steep slopes with loose soil	YES	NO X
Dispersive soils (soils that dissolve in water)	YES X	NO
Soils with high clay content (clay fraction more than 40%)	YES X	NO

Any other unstable soil or geological feature	YES	NO X
An area sensitive to erosion	YES	NO X

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s) YES | NO X

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

c) are any caves located within a 300m radius of the site(s) YES | NO X

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

d) are any sinkholes located within a 300m radius of the site(s) YES | NO X

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

If any of the answers to the above are "YES" or "unsure", specialist input may be requested by the Department

6. AGRICULTURE

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)?	YES X	NO

Please note: The Department may request specialist input/studies in respect of the above.

7. GROUNDCOVER

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

Natural veld - good condition % = 100	Natural veld with scattered aliens % =	Natural veld with heavy alien infestation % =	Veld dominated by alien species % =	Landscaped (vegetation) % =
Sport field % =	Cultivated land % =	Paved surface (hard landscaping) % = 100	Building or other structure % =	Bare soil % =

Please note: The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site	YES	NO X

If YES, specify and explain:

N/A

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m **(if within urban area as defined in the Regulations)** or within 600m (if outside the urban area as defined in the Regulations) radius of the site.	YES	NO X

If YES, specify and explain:

N/A

Are there any special or sensitive habitats or other natural features present on the site? YES | NO X

If YES, specify and explain:

N/A

Refer to section 8 below for the specialist studies undertaken

Was a specialist consulted to assist with completing this section	YES	NO X

If yes complete specialist details

Name of the specialist:	N/A		
Qualification(s) of the specialist:	N/A		
Postal address:	N/A		
Postal code:	N/A		
Telephone:	N/A	Cell:	N/A
E-mail:	N/A	Fax:	N/A

Are any further specialist studies recommended by the specialist?	YES	NO
If YES, specify: N/A		
If YES, is such a report(s) attached?	YES	NO

If YES list the specialist reports attached below

N/A

Signature of specialist: _____ Date: N/A

Please note; If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

1. Vacant land	2. River, stream, wetland	3. Nature conservation area	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	9. Medium to high density residential	10. Informal residential
11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial[AN]	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport[N]	23. Train station or shunting yard[N]	24. Railway line[N]	25. Major road (4 lanes or more)[N]
26. Sewage treatment plant[A]	27. Landfill or waste treatment site[A]	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33.Spoil heap or slimes dam[A]	34. Small Holdings	
Other land uses (describe):				

NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks

NORTH

	2,7	2,7	34	7	7
	2,7	2,7	2	2,7	2,7
WEST	7,34	7		2,34	2,34
	7,34	1,24	1,2,24	7,1,24	7
	16	1,24	1,7,24	1	7,1

EAST

SOUTH

Note: More than one (1) Land-use may be indicated in a block

Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "A" and with an "N" respectively.

Have specialist reports been attached If yes indicate the type of reports below	YES X	NO X

- Digby Wells Environmental (Attached as Appendix I)
  - Proposed Development of an Open Pit Coal Mine and Associated Infrastructure near Bronkhorstspruit, Gauteng Final Environmental Impact Assessment Report

During the EIA for the Khanye Colliery, several specialist studies were undertaken to support the EIA findings and also included the different alternatives for a coal siding

- Air Quality Assessment
- Aquatic Ecological Assessment
- Fauna and Flora Assessment
- Groundwater Assessment
- Heritage Assessment
- Social Impact Assessment
- Soil Impact Assessment
- Surface Water Assessment
- Topography and Visual Impact Assessment Report
- Traffic Impacts Assessment
- Wetland Ecological Assessment

9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

Refer to the description of the socio-economic context for the proposal.

10. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-
(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50m in length;
(c) any development or other activity which will change the character of a site-
(i) exceeding 5 000 m2 in extent; or

(ii) involving three or more existing erven or subdivisions thereof; or
(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) 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?	YES X	NO

If YES, explain:

The Heritage Impact Assessment indicated that the establishment of rail siding alternatives 1 and 2 may result in the degradation of cultural significance through loss of access to burial ground **(Digby Wells Environmental 2015)**

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

The Heritage Impact Assessment indicated that the establishment of rail siding alternatives 1 and 2 may result in the degradation of cultural significance through loss of access to burial ground **(Digby Wells Environmental 2015)**

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

If yes, please attached the comments from SAHRA in the appropriate Appendix

SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT (ALTERNATIVE 2)

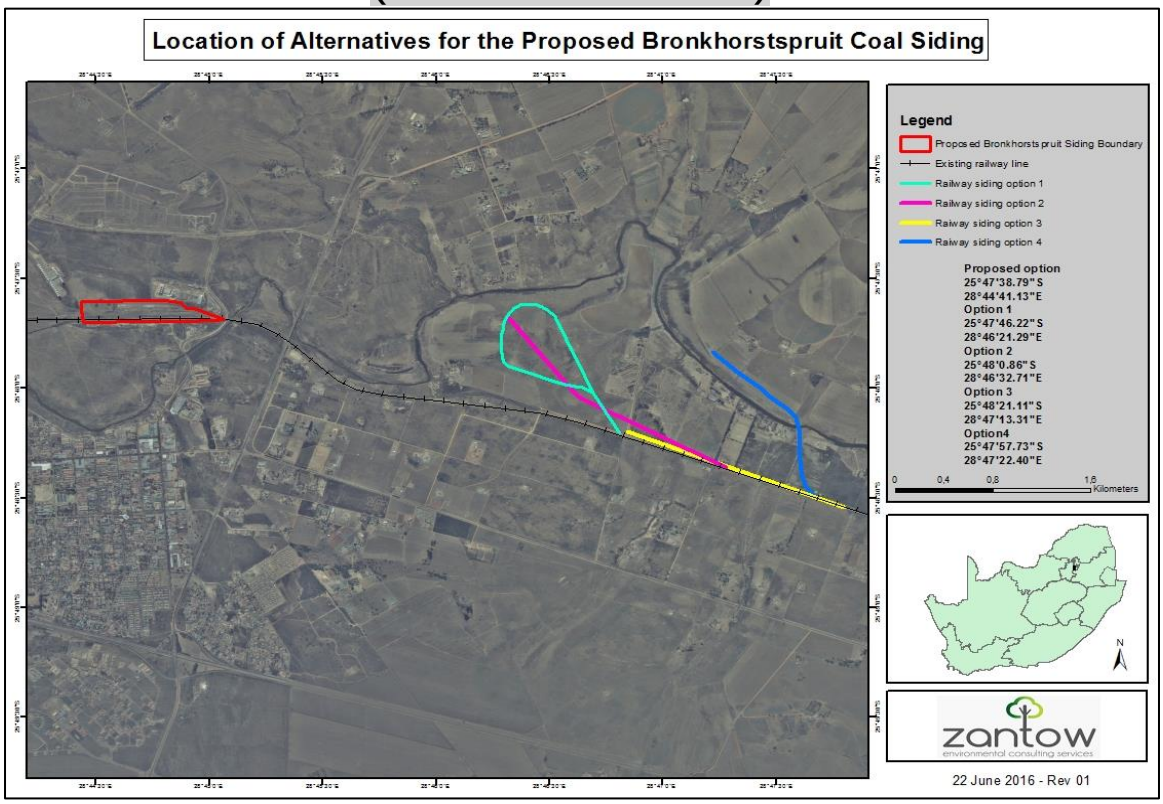


Figure 9: Location of alternative sites

Note: Complete Section B for the proposal and alternative(s) (if necessary)

Instructions for completion of Section B for linear activities

1) For linear activities (pipelines etc) it may be necessary to complete Section B for each section of the site that has a significantly different environment.
2) Indicate on a plan(s) the different environments identified
3) Complete Section B for each of the above areas identified
4) Attach to this form in a chronological order
5) Each copy of Section B must clearly indicate the corresponding sections of the route at the top of the next page.

Section B has been duplicated for sections of the route | 4 | times

Instructions for completion of Section B for location/route alternatives

1) For each location/route alternative identified the entire Section B needs to be completed
2) Each alterative location/route needs to be clearly indicated at the top of the next page
3) Attach the above documents in a chronological order

Section B has been duplicated for location/route alternatives | None | times (complete only when appropriate)

Instructions for completion of Section B when both location/route alternatives and linear activities are applicable for the application

Section B is to be completed and attachments order in the following way

- All significantly different environments identified for Alternative 1 is to be completed and attached in a chronological order; then
- All significantly different environments identified for Alternative 2 is to be completed and attached chronological order, etc.

Section B - Section of Route | N/A | (complete only when appropriate for above)

Section B – Location/route Alternative No. | N/A | (complete only when appropriate for above)

1. PROPERTY DESCRIPTION

Property description: (Including Physical Address and Farm name, portion etc.)	**Address:** 2.7 km North East of the town of Bronkhorstspruit traveling on the R104 provincial road, Gauteng Province **Properties** Portions 113, 139, 140 and 141 of Farm Wachtenbietjeskop 506 JR and the RE of the farm Resurgam 515-IR

2. ACTIVITY POSITION

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 decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Alternative (proposal):	**Latitude (S):**	**Longitude (E):**
	25.79689°	28.77415°

In the case of linear activities (not applicable):

Alternative:	**Latitude (S):**	**Longitude (E):**
□ Starting point of the activity	N/A	N/A
□ Middle point of the activity	N/A	N/A
□ End point of the activity	N/A	N/A

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Addendum of route alternatives attached N/A

The 21 digit Surveyor General code of each cadastral land parcel

ALT. 2	T0JR00000000051500000 T0JR00000000050600139 T0JR00000000050600140 T0JR00000000050600141

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

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

4. LOCATION IN LANDSCAPE

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

Ridgeline	Plateau	Side slope of hill/ridge	Valley	Plain X	Undulating plain/low hills	River front

5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

a) Is the site located on any of the following?

The specific site conditions were not assessed, but due to the nature of the receiving environment, especially in terms of the occurrence of wetland conditions, the following can be assumed:

Shallow water table (less than 1.5m deep)	YES X	NO
Dolomite, sinkhole or doline areas	YES	NO X
Seasonally wet soils (often close to water bodies)	YES X	NO
Unstable rocky slopes or steep slopes with loose soil	YES	NO X

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

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s) YES | NO X

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

c) are any caves located within a 300m radius of the site(s) YES | NO X

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

d) are any sinkholes located within a 300m radius of the site(s) YES | NO X

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

If any of the answers to the above are "YES" or "unsure", specialist input may be requested by the Department

6. AGRICULTURE

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)? YES X | NO

Please note: The Department may request specialist input/studies in respect of the above.

7. GROUNDCOVER

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

Natural veld - good condition % = 100	Natural veld with scattered aliens % =	Natural veld with heavy alien infestation % =	Veld dominated by alien species % =	Landscaped (vegetation) % =
Sport field % =	Cultivated land % =	Paved surface (hard landscaping) % = 100	Building or other structure % =	Bare soil % =

Please note: The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site YES | NO X

If YES, specify and explain:

N/A

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m **(if within urban area as defined in the Regulations)** or within 600m (if outside the urban area as defined in the Regulations) radius of the site. YES | NO X

If YES, specify and explain:

N/A

Are there any special or sensitive habitats or other natural features present on the site? YES | NO X

If YES, specify and explain:

N/A

Refer to section 8 below for the specialist studies undertaken

Was a specialist consulted to assist with completing this section	YES	NO X

If yes complete specialist details

Name of the specialist:	N/A		
Qualification(s) of the specialist:	N/A		
Postal address:	N/A		
Postal code:	N/A		
Telephone:	N/A	Cell:	N/A
E-mail:	N/A	Fax:	N/A

Are any further specialist studies recommended by the specialist?	YES	NO
If YES, specify: N/A		
If YES, is such a report(s) attached?	YES	NO

If YES list the specialist reports attached below

N/A

Signature of specialist: _____ Date: N/A

Please note; If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

1. Vacant land	2. River, stream, wetland	3. Nature conservation area	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	9. Medium to high density residential	10. Informal residential
11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial[AN]	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport[N]	23. Train station or shunting yard[N]	24. Railway line[N]	25. Major road (4 lanes or more)[N]
26. Sewage treatment plant[A]	27. Landfill or waste treatment site[A]	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33.Spoil heap or slimes dam[A]	34. Small Holdings	
Other land uses (describe):				

NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks

NORTH

2,7	2,7	34	7	7
2,7	2,7	2	2,7	2,7
7,34	7		2,34	2,34
7,34	1,24	1,2,24	7,1,24	7
16	1,24	1,7,24	1	7,1

WEST EAST

SOUTH

Note: More than one (1) Land-use may be indicated in a block

Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "A" and with an "N" respectively.

Have specialist reports been attached If yes indicate the type of reports below	YES X	NO X

- Digby Wells Environmental (Attached as Appendix I)
  - Proposed Development of an Open Pit Coal Mine and Associated Infrastructure near Bronkhorstspruit, Gauteng Final Environmental Impact Assessment Report

During the EIA for the Khanye Colliery, several specialist studies were undertaken to support the EIA findings and also included the different alternatives for a coal siding

- Air Quality Assessment
- Aquatic Ecological Assessment
- Fauna and Flora Assessment
- Groundwater Assessment
- Heritage Assessment
- Social Impact Assessment
- Soil Impact Assessment
- Surface Water Assessment
- Topography and Visual Impact Assessment Report
- Traffic Impacts Assessment
- Wetland Ecological Assessment

9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

Refer to the description of the socio-economic context for the proposal.

10. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of a site-

(i) exceeding 5 000 m2 in extent; or

(ii) involving three or more existing erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) 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?	YES X	NO

If YES, explain:

The Heritage Impact Assessment indicated that the establishment of rail siding alternatives 1 and 2 may result in the degradation of cultural significance through loss of access to burial ground **(Digby Wells Environmental 2015)**

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

The Heritage Impact Assessment indicated that the establishment of rail siding alternatives 1 and 2 may result in the degradation of cultural significance through loss of access to burial ground **(Digby Wells Environmental 2015)**

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

SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT (ALTERNATIVE 3)

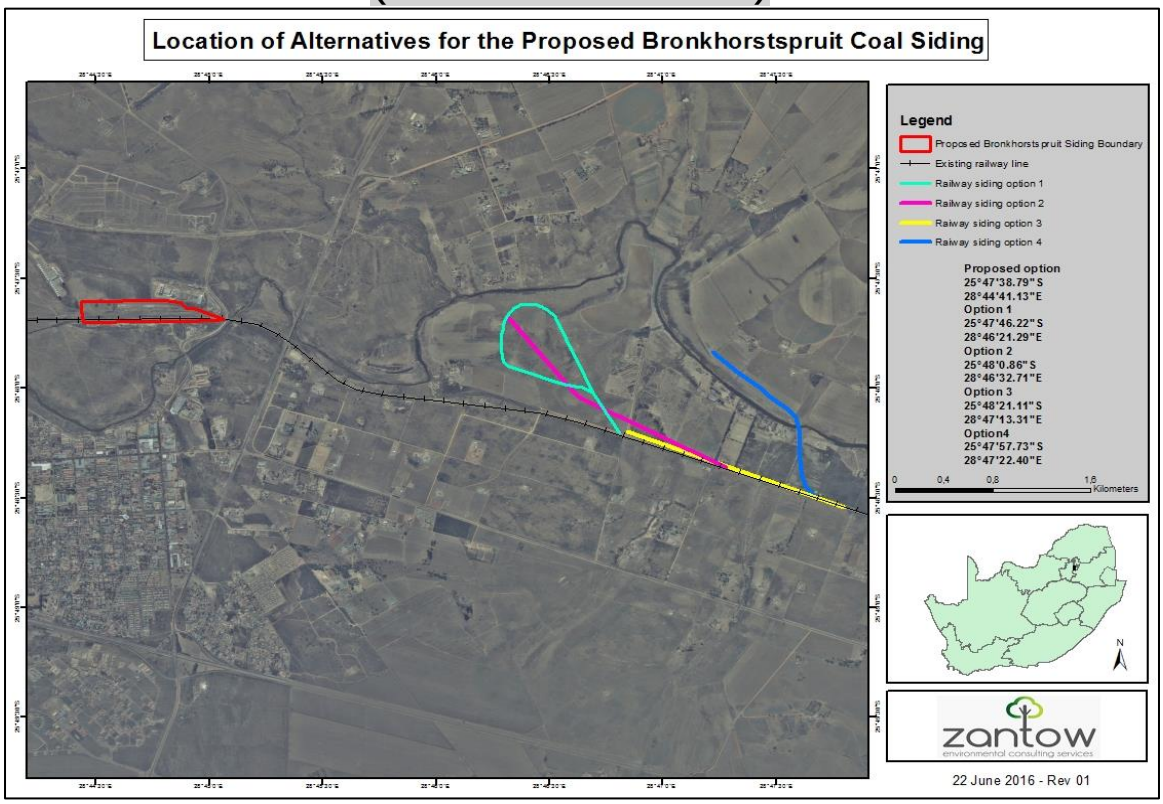


Figure 10: Location of alternative sites

Note: Complete Section B for the proposal and alternative(s) (if necessary)

Instructions for completion of Section B for linear activities

1) For linear activities (pipelines etc) it may be necessary to complete Section B for each section of the site that has a significantly different environment.
2) Indicate on a plan(s) the different environments identified
3) Complete Section B for each of the above areas identified
4) Attach to this form in a chronological order
5) Each copy of Section B must clearly indicate the corresponding sections of the route at the top of the next page.

Section B has been duplicated for sections of the route | 4 | times

Instructions for completion of Section B for location/route alternatives

1) For each location/route alternative identified the entire Section B needs to be completed
2) Each alterative location/route needs to be clearly indicated at the top of the next page
3) Attach the above documents in a chronological order

Section B has been duplicated for location/route alternatives | None | times (complete only when appropriate)

Instructions for completion of Section B when both location/route alternatives and linear activities are applicable for the application

Section B is to be completed and attachments order in the following way

- All significantly different environments identified for Alternative 1 is to be completed and attached in a chronological order; then
- All significantly different environments identified for Alternative 2 is to be completed and attached chronological order, etc.

Section B - Section of Route | N/A | (complete only when appropriate for above)

Section B – Location/route Alternative No. N/A (complete only when appropriate for above)

1. PROPERTY DESCRIPTION

Property description: (Including Physical Address and Farm name, portion etc.)	**Address:** 2.9 km North East of the town of Bronkhorstspruit traveling on the R513 provincial road, Gauteng Province **Properties** Portions 113, 140, 141, 142, 143, 144, 145, 150, 113, 122, 123, 124 and 139 of Farm Wachtenbietjeskop 506 JR

2. ACTIVITY POSITION

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 decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Alternative (proposal):	**Latitude (S):**	**Longitude (E):**
	25.80551°	28.78663°

In the case of linear activities (not applicable):

Alternative:	**Latitude (S):**	**Longitude (E):**
□ Starting point of the activity	N/A	N/A
□ Middle point of the activity	N/A	N/A
□ End point of the activity	N/A	N/A

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Addendum of route alternatives attached N/A

The 21 digit Surveyor General code of each cadastral land parcel

ALT. 3	T0JR00000000050600113 T0JR00000000050600122 T0JR00000000050600123 T0JR00000000050600124 T0JR00000000050600139 T0JR00000000050600140 T0JR00000000050600141 T0JR00000000050600142 T0JR00000000050600143 T0JR00000000050600144 T0JR00000000050600145 T0JR00000000050600150

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

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

4. LOCATION IN LANDSCAPE

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

Ridgeline	Plateau	Side slope of hill/ridge	Valley	Plain X	Undulating plain/low hills	River front

5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

a) Is the site located on any of the following?

The specific site conditions were not assessed, but due to the nature of the receiving environment, especially in terms of the occurrence of wetland conditions, the following can be assumed:

Shallow water table (less than 1.5m deep)	YES	NO X
Dolomite, sinkhole or doline areas	YES	NO X
Seasonally wet soils (often close to water bodies)	YES X	NO
Unstable rocky slopes or steep slopes with loose soil	YES	NO X
Dispersive soils (soils that dissolve in water)	YES X	NO
Soils with high clay content (clay fraction more than 40%)	YES X	NO
Any other unstable soil or geological feature	YES	NO X
An area sensitive to erosion	YES	NO X

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s) YES | NO X
If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

c) are any caves located within a 300m radius of the site(s) YES | NO X
If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

d) are any sinkholes located within a 300m radius of the site(s) YES | NO X
If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

If any of the answers to the above are "YES" or "unsure", specialist input may be requested by the Department

6. AGRICULTURE (HAVE NOT BEEN ASSESSED)

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)? [redacted]

Please note: The Department may request specialist input/studies in respect of the above.

7. GROUNDCOVER

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

Natural veld - good condition % = 50	Natural veld with scattered aliens % =	Natural veld with heavy alien infestation % =	Veld dominated by alien species % =	Landscaped (vegetation) % =
Sport field % =	Cultivated land % =	Paved surface (hard landscaping) % = 100	Building or other structure % = 50	Bare soil % =

Please note: The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site YES | NO X

If YES, specify and explain:

N/A

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m **(if within urban area as defined in the Regulations)** or within 600m (if outside the urban area as defined in the Regulations) radius of the site.	YES	NO X

If YES, specify and explain:

N/A

Are there any special or sensitive habitats or other natural features present on the site?	YES	NO X

If YES, specify and explain:

N/A

Refer to section 8 below for the specialist studies undertaken

Was a specialist consulted to assist with completing this section	YES	NO X

If yes complete specialist details

Name of the specialist:	N/A		
Qualification(s) of the specialist:	N/A		
Postal address:	N/A		
Postal code:	N/A		
Telephone:	N/A	Cell:	N/A
E-mail:	N/A	Fax:	N/A

Are any further specialist studies recommended by the specialist?	YES	NO
If YES, specify: N/A		
If YES, is such a report(s) attached?	YES	NO

If YES list the specialist reports attached below

N/A

Signature of specialist: _____ Date: N/A

Please note; If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

1. Vacant land	2. River, stream, wetland	3. Nature conservation area	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	9. Medium to high density residential	10. Informal residential
11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial[AN]	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport[N]	23. Train station or shunting yard[N]	24. Railway line[N]	25. Major road (4 lanes or more)[N]
26. Sewage treatment plant[A]	27. Landfill or waste treatment site[A]	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33.Spoil heap or slimes dam[A]	34. Small Holdings	
Other land uses (describe):				

NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks

NORTH

	2,7	2,7	2,7,34	2,7,34	2,7,34
	1	1	7,34	7,34	7,34
WEST	1,24	1,24		7,24,34	7,24,34	EAST
	7,34	7,34	2,7	7,34	7,34
	7,34	7,34	2,7	7,34	7,34

SOUTH

Note: More than one (1) Land-use may be indicated in a block

Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "A" and with an "N" respectively.

Have specialist reports been attached If yes indicate the type of reports below	YES X	NO X

- Digby Wells Environmental (Attached as Appendix I)

  - Proposed Development of an Open Pit Coal Mine and Associated Infrastructure near Bronkhorstspruit, Gauteng Final Environmental Impact Assessment Report

During the EIA for the Khanye Colliery, several specialist studies were undertaken to support the EIA findings and also included the different alternatives for a coal siding

- Air Quality Assessment
- Aquatic Ecological Assessment
- Fauna and Flora Assessment
- Groundwater Assessment
- Heritage Assessment
- Social Impact Assessment
- Soil Impact Assessment
- Surface Water Assessment
- Topography and Visual Impact Assessment Report
- Traffic Impacts Assessment
- Wetland Ecological Assessment

9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

Refer to the description of the socio-economic context for the proposal.

10. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of a site-

(i) exceeding 5 000 m2 in extent; or

(ii) involving three or more existing erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources

authority;
(d) the re-zoning of a site exceeding 10 000 m2 in extent; or
(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) 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 X

N/A

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

N/A

Will any building or structure older than 60 years be affected in any way?	YES X	NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)? If yes, please attached the comments from SAHRA in the appropriate Appendix	YES	NO X

SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT (ALTERNATIVE 4)

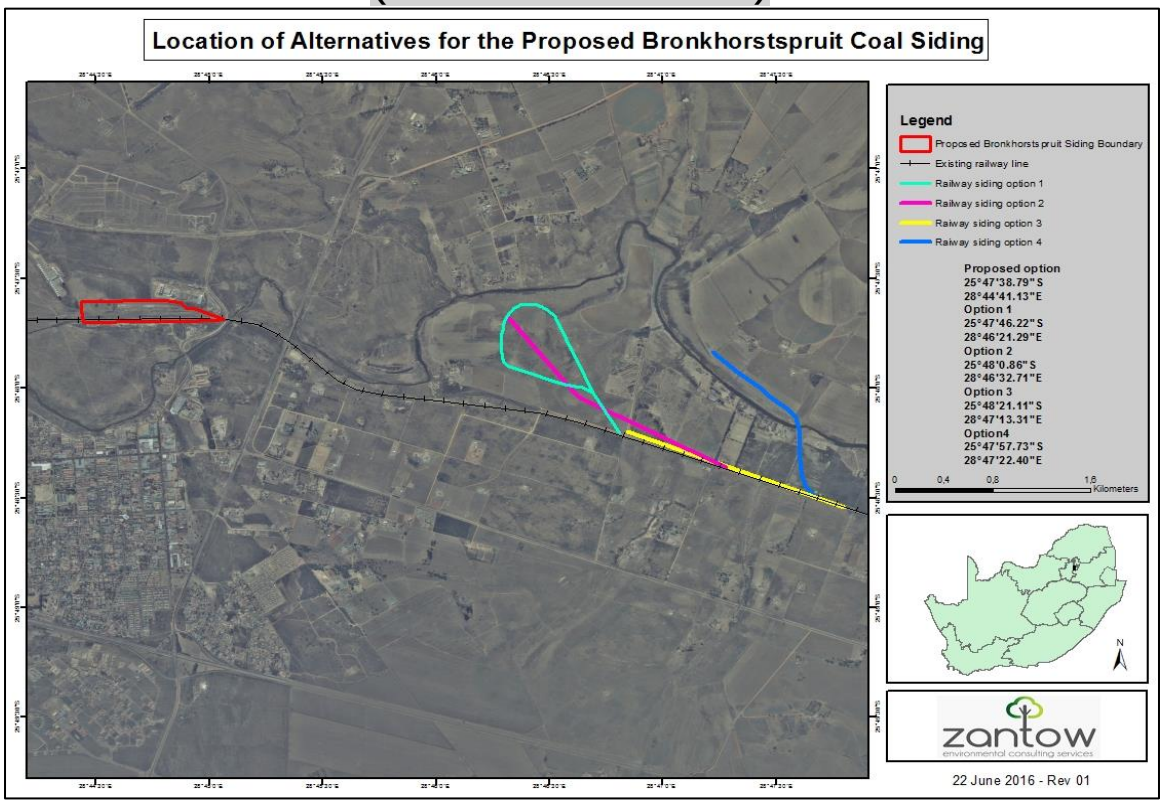


Figure 11: Location of alternative sites

Note: Complete Section B for the proposal and alternative(s) (if necessary)

Instructions for completion of Section B for linear activities

1) For linear activities (pipelines etc) it may be necessary to complete Section B for each section of the site that has a significantly different environment.
2) Indicate on a plan(s) the different environments identified
3) Complete Section B for each of the above areas identified
4) Attach to this form in a chronological order
5) Each copy of Section B must clearly indicate the corresponding sections of the route at the top of the next page.

Section B has been duplicated for sections of the route | 4 | times

Instructions for completion of Section B for location/route alternatives

1) For each location/route alternative identified the entire Section B needs to be completed
2) Each alterative location/route needs to be clearly indicated at the top of the next page
3) Attach the above documents in a chronological order

Section B has been duplicated for location/route alternatives | None | times (complete only when appropriate)

Instructions for completion of Section B when both location/route alternatives and linear activities are applicable for the application

Section B is to be completed and attachments order in the following way

- All significantly different environments identified for Alternative 1 is to be completed and attached in a chronological order; then
- All significantly different environments identified for Alternative 2 is to be completed and attached chronological order, etc.

Section B - Section of Route | N/A | (complete only when appropriate for above)

Section B – Location/route Alternative No. | N/A | (complete only when appropriate for above)

1. PROPERTY DESCRIPTION

Property description: (Including Physical Address and Farm name, portion etc.)	**Address:** 3.4 km North East of the town of Bronkhorstspruit traveling on the R513 provincial road, Gauteng Province **Properties** Portions 76, 87 and 143 of Farm Wachtenbietjeskop 506 JR

2. ACTIVITY POSITION

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 decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Alternative (proposal):

Latitude (S):	Longitude (E):
25.80454°	28.79819°

In the case of linear activities (not applicable):

Alternative:	Latitude (S):	Longitude (E):
□ Starting point of the activity	N/A	N/A
□ Middle point of the activity	N/A	N/A
□ End point of the activity	N/A	N/A

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Addendum of route alternatives attached N/A

The 21 digit Surveyor General code of each cadastral land parcel

ALT. 4	T0JR00000000050600076 T0JR00000000050600087 T0JR00000000050600143

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

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

4. LOCATION IN LANDSCAPE

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

Ridgeline	Plateau	Side slope of hill/ridge X	Valley	Plain	Undulating plain/low hills	River front

5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

a) Is the site located on any of the following?

The specific site conditions were not assessed, but due to the nature of the receiving environment, especially in terms of the occurrence of wetland conditions, the following can be assumed:

Shallow water table (less than 1.5m deep)	YES X	NO
Dolomite, sinkhole or doline areas	YES	NO X
Seasonally wet soils (often close to water bodies)	YES X	NO

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

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s) YES | NO X

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

c) are any caves located within a 300m radius of the site(s) YES | NO X

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

d) are any sinkholes located within a 300m radius of the site(s) YES | NO X

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

If any of the answers to the above are "YES" or "unsure", specialist input may be requested by the Department

6. AGRICULTURE

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)? YES X | NO

Please note: The Department may request specialist input/studies in respect of the above.

7. GROUNDCOVER

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

Natural veld - good condition % = 100	Natural veld with scattered aliens % =	Natural veld with heavy alien infestation % =	Veld dominated by alien species % =	Landscaped (vegetation) % =
Sport field % =	Cultivated land % =	Paved surface (hard landscaping) % = 100	Building or other structure % =	Bare soil % =

Please note: The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site YES | NO X

If YES, specify and explain:

N/A

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m **(if within urban area as defined in the Regulations)** or within 600m (if outside the urban area as defined in the Regulations) radius of the site. YES | NO X

If YES, specify and explain:

N/A

Are there any special or sensitive habitats or other natural features present on the site?	YES	NO X

If YES, specify and explain:

N/A

Refer to section 8 below for the specialist studies undertaken

Was a specialist consulted to assist with completing this section	YES	NO X

If yes complete specialist details

Name of the specialist:	N/A		
Qualification(s) of the specialist:	N/A		
Postal address:	N/A		
Postal code:	N/A		
Telephone:	N/A	Cell:	N/A
E-mail:	N/A	Fax:	N/A

Are any further specialist studies recommended by the specialist?	YES	NO
If YES, specify: N/A		
If YES, is such a report(s) attached?	YES	NO

If YES list the specialist reports attached below

N/A

Signature of specialist: _____ Date: N/A

Please note; If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

1. Vacant land	2. River, stream, wetland	3. Nature conservation area	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	9. Medium to high density residential	10. Informal residential
11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial[AN]	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport[N]	23. Train station or shunting yard[N]	24. Railway line[N]	25. Major road (4 lanes or more)[N]
26. Sewage treatment plant[A]	27. Landfill or waste treatment site[A]	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33.Spoil heap or slimes dam[A]	34. Small Holdings	
Other land uses (describe):				

NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks

NORTH

7	7	7,34	2,6,34	2
2	7	2,7	2	2
2,7	2,7		2,7	2,7
7,34	7,34	7,34	7	7
7,34	7,34	7,34	7,34	7,34

WEST EAST

SOUTH

Note: More than one (1) Land-use may be indicated in a block

Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "A" and with an "N" respectively.

Have specialist reports been attached If yes indicate the type of reports below	YES X	NO X

- Digby Wells Environmental (Attached as Appendix I)

  - Proposed Development of an Open Pit Coal Mine and Associated Infrastructure near Bronkhorstspruit, Gauteng Final Environmental Impact Assessment Report

During the EIA for the Khanye Colliery, several specialist studies were undertaken to support the EIA findings and also included the different alternatives for a coal siding

- Air Quality Assessment
- Aquatic Ecological Assessment
- Fauna and Flora Assessment
- Groundwater Assessment
- Heritage Assessment
- Social Impact Assessment
- Soil Impact Assessment
- Surface Water Assessment
- Topography and Visual Impact Assessment Report
- Traffic Impacts Assessment
- Wetland Ecological Assessment

9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

Refer to the description of the socio-economic context for the proposal.

10. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of a site-

(i) exceeding 5 000 m2 in extent; or

(ii) involving three or more existing erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) 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 X

N/A

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

N/A

Will any building or structure older than 60 years be affected in any way?	YES	NO X
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES	NO X
If yes, please attached the comments from SAHRA in the appropriate Appendix		

SECTION C: PUBLIC PARTICIPATION (SECTION 41)

The Environmental Assessment Practitioner must conduct public participation process in accordance with the requirement of the EIA Regulations, 2014.

1. LOCAL AUTHORITY PARTICIPATION

Local authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least thirty (30) calendar days before the submission of the application to the competent authority.

Was the draft report submitted to the local authority for comment?	YES X	NO
If yes, has any comments been received from the local authority?	YES	NO X

If "YES", briefly describe the comment below (also attach any correspondence to and from the local authority to this application):

Only the P.R. Councillor has submitted comments on the draft BAR and was included in the comments and response report.

If "NO" briefly explain why no comments have been received or why the report was not submitted if that is the case.

Only the P.R. Councillor has submitted comments on the draft BAR. The draft BAR was submitted to the Tshwane Metropolitan Municipality Environmental Department, however no comments were received (refer to Appendix E10 for proof of submission).

2. CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the activity, site or property, such as servitude holders and service providers, should be informed of the application at least **thirty (30) calendar days** before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?	YES X	NO

A comprehensive comments and response report have been generated to incorporate all the comments received during the public participation period and responses thereto. Refer to Appendix E6.

If "NO" briefly explain why no comments have been received

N/A

3. GENERAL PUBLIC PARTICIPATION REQUIREMENTS

The Environmental Assessment Practitioner must ensure that the public participation process is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees and ratepayers associations. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was flawed.

The EAP must record all comments and respond to each comment of the public / interested and affected party before the application report is submitted. The comments and responses must be captured in a Comments and Responses Report as prescribed in the regulations and be attached to this application.

– Comments and Response report is attached in Appendix E-6

4. APPENDICES FOR PUBLIC PARTICIPATION

All public participation information is to be attached in the appropriate Appendix. The information in this Appendix is to be ordered as detailed below

Appendix E1 – Proof of site notice (placed on the 26th of October 2016)
Appendix E2 – Written notices issued as required in terms of the regulations (provided on the 26th of October 2016)
Appendix E3 – Proof of newspaper advertisements (placed on the 26th of October 2016)
Appendix E4 –Communications to and from interested and affected parties
Appendix E5 – Minutes of any public and/or stakeholder meetings (meeting was on the 16th of November)
Appendix E6 - Comments and Responses Report
Appendix E7 – Comments from I&APs on Basic Assessment (BA) Report
Appendix E8 –Comments from I&APs on amendments to the BA Report (N/A) (will be included in the final BAR)
Appendix E9 – Copy of the register of I&APs (see Attached)
Appendix E10 – Proof of submission of draft BAR to Tshwane Metropolitan Municipality

SECTION D: RESOURCE USE AND PROCESS DETAILS

Note: Section D is to be completed for the proposal and alternative(s) (if necessary)

Instructions for completion of Section D for alternatives

1) For each alternative under investigation, where such alternatives will have different resource and process details (e.g. technology alternative), the entire Section D needs to be completed

no resource and process alternatives have been considered for the project)

4) Each alterative needs to be clearly indicated in the box below
5) Attach the above documents in a chronological order

Section D has been duplicated for alternatives | None | times (complete only when appropriate)

Section D Alternative No. | None | (complete only when appropriate for above)

1. WASTE, EFFLUENT, AND EMISSION MANAGEMENT

Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	YES X	NO X
If yes, what estimated quantity will be produced per month?	72 m^3	

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

- The construction solid waste will be stored on-site in a demarcated area and taken to a licensed landfill site for disposal or recycled where possible
- Building rubble to be disposed at an appropriate landfill site
- Scrap metal to be provided to a licenced contractor for recycling

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

At the Bronkhorstspruit landfill disposal site.

Will the activity produce solid waste during its operational phase?	YES X	NO X
If yes, what estimated quantity will be produced per month?	General domestic waste 12 m^3 Coal sweepings will be cleaned and disposed at an appropriate landfill site	

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

The solid waste will be stored on-site in a demarcated area and taken to a licensed landfill site for disposal or recycled

Has the municipality or relevant service provider confirmed that sufficient air space exists for treating/disposing of the solid waste to be generated by this activity?	YES X	NO

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

N/A

Note: 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, 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 relevant legislation?	YES	NO X

If yes, inform the competent authority and request a change to an application for scoping and EIA.

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

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.

N/A

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

It is recommended that the facility develops and implements a waste management procedure which identifies potential re-use and recycling options

Liquid effluent (other than domestic sewage)

Note: Water from the PCD will be used for dust suppression only and no effluent is anticipated. Potentially contaminated runoff from the coal stockpile area will be directed to the PCD. The runoff water will not be treated or disposed. The runoff water from the PCD will be used for dust suppression purposes and evaporated. Clean stormwater from the low risk areas will be diverted away from the operational areas.

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	YES	NO X
If yes, what estimated quantity will be produced per month?		m^3
If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the liquid effluent to be generated by this activity(ies)?	YES	NO

Will the activity produce any effluent that will be treated and/or disposed of on-site?	YES	NO X
If yes, what estimated quantity will be produced per month?		m^3

If yes describe the nature of the effluent and how it will be disposed.

Note that if effluent is to be treated or disposed on site 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	NOX

If yes, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:			
E-mail:		Fax:	

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

N/A

Liquid effluent (domestic sewage)

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system?	YES Ongoing	NO
If yes, what estimated quantity will be produced per month?	1	m^3
If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity(ies)?	YES X	NO

Will the activity produce any effluent that will be treated and/or disposed of on site?	YES	NO X

If yes describe how it will be treated and disposed off.

N/A – refer to note above

Emissions into the atmosphere

Will the activity release emissions into the atmosphere?	YES X	NO
If yes, is it controlled by any legislation of any sphere of government?	YES	NO X

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.

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

The generation of dust as a result of the Khanye Colliery has been identified as a potential significant environmental impact. Therefore, an Air Quality Impact Assessment (Digby Wells Environmental, 2015) was undertaken as part of the Khanye Colliery EIA to identify potential sources of air emissions and how to mitigate potential impacts. The Air Quality Impact Assessment included an assessment of the potential air quality impacts associated with the proposed Bronkhorstspruit Coal Siding as associated infrastructure to the overall mining project.

The original Air Quality Dispersion model generated as part of the Air Quality Impact Assessment for the Khanye Colliery (as summarised in Appendix J2) included the proposed coal siding as part of the assessment. However, the dispersion model did not incorporate the mitigation measures that will be implemented at the coal siding to indicate how the mitigation measures will reduce/affect the emissions from the coal siding. Therefore, an updated Air Quality Impact Assessment was generated to model the emissions from the proposed coal siding before and after mitigation measures have been applied.

The updated Air Quality Impact Assessment report (Appendix J1) predicted that the dust fall at the Godrich mills and Russelstone protein, as a result of the operations at the coal siding after mitigation measures have been applied, will be well below industrial limits and near residential limits as set out in the National Dust Control Regulations. Dust fall monitoring will also be conducted prior to commencement and also during operations to evaluate the dust fall at the facility and implement additional mitigation measures if needed.

Moreover, the predicted emissions (PM2.5, PM10 and Dust Fall) associated with the proposed siding development will be well below the National Standards and Regulations for such constituents at Bronkhorstspruit town, Zithobeni and Sizanani. This is especially the case after the mitigation measures have been applied. Refer to Table 4.1 on page 16 of the of the updated Air Quality Impact Assessment report for a comparison of the predicted emissions at specific receptors compared to the National Standards and Regulations. The limits contained in the relevant standards, especially related to PM2.5 and PM10 relates to health exposure. If the limits of the standards are not exceeded, the health of the people will theoretically not be affected. Therefore, the operations at the proposed facility will not likely affect the health of the communities at the aforesaid sensitive receptors.

During the public participation process, the specific needs of Godrich have been incorporated in the EIA. As a result of the consultation with Godrich and other stakeholders, additional mitigation measures were proposed for the management of potential dust generation at the facility.

The controls proposed by the EAP and considered by the applicant include the use of a series of fog cannons around the coal stockpile area. Other potential control measures will include the erection of wield shields in respect to the surrounding receptors, watering of dirt roads, covering of coal trucks, maintaining speed limits, cleaning of coal spillages, etc. Canyon is committed to allocate sufficient resources to address potential dust generation at the proposed coal siding. The mitigation measures are, according to the air quality impact assessment specialist study, sufficient to manage emissions from the proposed facility to be below the national standards/regulations.

2. WATER USE

Indicate the source(s) of water that will be used for the activity

Municipal	Directly from water board	groundwater	river, stream, dam or lake	other	the activity will not use water

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: 11 000 m^3

If Yes, please attach proof of assurance of water supply, e.g. yield of borehole, in the appropriate Appendix

Does the activity require a water use permit from the Department of Water Affairs?	YES X	NO

If yes, list the permits required

A Water Use Licence in terms of the National Water Act (Section 21) will have to be obtained for the following activities, which include the abstraction of groundwater as a supplementary source of water:

- Section 21 (a) – Taking water from a watercourse;
- Section 21 (c) – Impeding or diverting the flow of water in a watercourse;
- Section 21 (g) – Disposing of waste in a manner which may detrimentally impact on a water resource
- Section 21 (i) – Altering the bed, banks, course or characteristics of a watercourse.

The WUL application is running concurrent with the BA process and will be submitted simultaneously. The majority of the water used per month will be to ensure the effective dust suppression through the utilizing fog cannons.

If yes, have you applied for the water use permit(s)? **(in progress)**	YES	NO X
If yes, have you received approval(s)? (attached in appropriate appendix)	YES	NO X

3. POWER SUPPLY

Please indicate the source of power supply eg. Municipality / Eskom / Renewable energy source

Municipality and/or Transnet

If power supply is not available, where will power be sourced from?

N/A

4. ENERGY EFFICIENCY

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

Very little power would be required to operate the siding; however excluding the requirements for the electrical railway which is owned and managed by Transnet. Only the security office and lighting is required to be electrified. The fog cannons that will be installed around the coal stockpile will be powered by solar panels.

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

None at this stage

SECTION E: 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 as well as the impacts of not implementing the activity (Section 24(4)(b)(i).

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summarise the issues raised by interested and affected parties.

The following only provides a summary of the pertinent comments and responses thereto. A comprehensive comments and response report have been generated in which all the comments have been addresses. All the I&APs have been issued a specific response on the 13th of December 2016. Refer to the comments and response for all the comments and the responses.

1. Initial comments

Several comments have been received initially and mostly relate to the procedural requirements for the authorization process.

2. Comments on draft BAR

The draft BAR was provided to all the identified I&APs for a period of 30 day to comment on the content and response to the comments were provided along with the update draft BAR and supporting information. A comprehensive comments and response report (Appendix E6) was generated to include the comments received and the responses thereto. Most of the comments/concerns related to the following:

2.1 Potential of dust generation affecting the adjacent Godrich Flour Mill and affecting the health of Zithobeni and Bronkhorstspruit Town. The main reason of concern was the potential for coal dust to contaminate the flour milling process at Godrich Flour Mill and therefore affecting the quality of the flour. The flour milling industry is subjected to high quality standards and the potential contamination from coal dust may affect the quality of the flour. Moreover, the proposed haulage route runs past a chicken farm and the concern is that the dust generated from coal haulage may affect the day old chickens transported to the facility.
2.2 Potential impacts related to increased traffic due to the hauling of coal, including traffic congestions and the deterioration of the road network. Coal will be hauled from the Khanye Colliery to the site and the increased volume of traffic may disrupt traffic on the hauling route and cause deterioration of the road network.
2.3 Potential for the proposed coal siding to cause groundwater contamination due leaching of contaminated water to the underground aquifer from the coal stockpile and pollution control dam.
2.4 Potential for the proposed coal siding to cause contamination of the adjacent wetland system and Bronkhorstspruit river due to contaminated runoff flowing from the proposed coal siding.
2.5 Concerns were raised regarding the insignificant socio-economic benefits associated with the proposed coal siding. The I&APs indicated that the minor socio-economic gain does not justify the establishment of the coal siding
2.6 The sensitivity of the surrounding habitats, including the wetland and riparian zone, and the potential impact that the proposed coal siding will have on these habitats have been raised as a concern.
2.7 The consideration of alternatives during the EIA.

Please note that the abovementioned comments are not the only comments/concerns received, but only a summary of the pertinent comments.

Summary of response from the practitioner to the issues raised by the interested and affected parties (including the manner in which the public comments are incorporated or why they were not included)
(A full response must be provided in the Comments and Response Report that must be attached to this report):

Initial responses

The initial comments have been addressed as per the comments and response report

2.1 Air quality

The original Air Quality Dispersion model generated as part of the Air Quality Impact Assessment for the Khanye Colliery (as summarised in Appendix J2) included the proposed coal siding as part of the assessment. However, the dispersion model did not incorporate the mitigation measures that will be implemented at the siding to indicate how the mitigation measures will reduce/affect the emissions from the coal siding. Therefore, an updated Air Quality Impact Assessment was generated to model the emissions from the proposed coal siding before and after mitigation measures have been applied.

The updated Air Quality Impact Assessment report (Appendix J1) predicted that the dust fall at the Godrich mills and Russelstone protein, as a result of the operations at the coal siding after mitigation measures have been applied, will be well below industrial limits and near residential limits as set out in the National Dust Control Regulations. Dust fall monitoring will also be conducted prior to commencement and also during operations to evaluate the dust fall at the facility and implement additional mitigation measures if needed.

Moreover, the predicted emissions (PM2.5, PM10 and Dust Fall) associated with the proposed siding development will be well below the National Standards and Regulations for such constituents at Bronkhorstspruit town, Zithobeni and Sizanani. This is especially the case after the mitigation measures have been applied. Refer to Table 4.1 on page 16 of the of the updated Air Quality Impact Assessment report for a comparison of the predicted emissions at specific receptors compared to the National Standards and Regulations. The limits contained in the relevant standards, especially related to PM2.5 and PM10 relates to health exposure. If the limits of the standards are not exceeded, the health of the people will theoretically not be affected. Therefore, the operations at the proposed facility will not likely affect the health of the communities at the aforesaid sensitive receptors.

During the public participation process, the specific needs of Godrich have been incorporated in the EIA. As a result of the consultation with Godrich and other stakeholders, additional mitigation measures were proposed for the management of potential dust generation at the facility.

The controls proposed by the EAP and considered by the applicant include the use of a series of fog cannons around the coal stockpile area. Other control measures will include the erection of wind shields in respect to the surrounding receptors, watering of dirt roads, covering of coal trucks, maintaining speed limits, cleaning of coal spillages, etc. Canyon is committed to allocate sufficient resources to address potential dust generation at the proposed coal siding. The mitigation measures are, according to the air quality impact assessment specialist study, sufficient to manage emissions from the proposed facility to be below the national standards/regulations.

Day old chickens:

An Air Quality Impact Assessment was conducted for the Oakleaf Open Pit Project. The Air Quality specialists considered the surrounding receptors when selecting monitoring sites, including RCL (dust monitoring was conducted at OAK 02 in the Air Quality report).
The actual dust deposition rate at RCL and the cumulative impact (actual + modelled) was assessed. The main outcome of the air quality impact assessment in section 5.3.9 with relevance to RCL, was the concerns that trucks will generate dust and create delays resulting in stress for birds, loss of productivity and death. The main contributing source to the dust impacts on RCL was found to be haul trucks and the results were presented in the Air Quality report. The findings show that once the use of dust suppressants are applied, emissions from this source can be curtailed.
No delays in the transportation of chickens are anticipated.

2.2 Traffic

The Applicant is aware of the potential for hauling trucks to deteriorate the road network. As per our calculations, 255 trucks will haul coal to the facility. A Traffic Impact Assessment was conducted as part of the Khanye Colliery EIA to determine the potential impacts that the haulage of coal will have on the existing road infrastructure as well as traffic volumes. The following recommendations have been made in the Traffic Impact Assessment and EMPr to mitigate the potential impacts:

- Determine the pavement design requirements for Road R907, to accommodate the hauling trucks;
- Determine the condition of the roads along the haul route, near the Bronkhorstspruit Rail Siding and confirm whether the roads can accommodate the hauling trucks. Parameters Spatial Duration Severity

The necessary upgrades to the road network will be done in consultation with the Gauteng Department of Roads and Transport. Please refer to Appendix G for the EMPr.

2.3 Groundwater

A Baseline Hydrogeological Specialist study has been conducted by Geo Pollution Technologies – Gauteng (Pty) Ltd in order to address the potential impacts that the proposed development will have on groundwater resources. The mitigation measures proposed in the specialist study and EMPr are deemed adequate to prevent/minimise potential impact on surface water resources (refer to Appendix H1 for the a Baseline Hydrogeological Specialist study and Appendix G for the EMPr)

2.4 Surface water pollution

An Integrated Water and Waste Management Plan (IWWMP) has been developed in order to address the potential impacts that the proposed development will have on the Bronkhorstspruit river system. The mitigation measures proposed in the IWWMP and EMPr are deemed adequate to prevent/minimise potential impact on surface water resources. Refer to the Water Use License Application for the IWWMP.

2.5 Socio-economic benefits

The following employment opportunities will be created by the siding:

- Approximately 150 new employment opportunities will be created during the construction phase.
- Approximately 10 new employment opportunities will be created during the operational phase.

The siding is of strategic importance for the Oakleaf Khanye colliery mining development and therefore without the proposed coal siding, the Khanye colliery will not be able to distribute the coal material to respective clients. This project cannot be seen in isolation to the Oakleaf Project. Oakleaf intends to support both local economic and skills development throughout the local study area, with a specific focus on developing the communities surrounding the proposed project.

1) Local Economic Development

Oakleaf has an approved Social and Labour Plan (SLP) which outlines their envisaged LED programmes for surrounding communities. Oakleaf's LED plan is based on municipal IDPs and was developed in consultation with the municipal

authorities. Proposed LED projects; these programmes are primarily focused on improving educational infrastructure. As part of their LED planning, Canyon also intends to implement measures to advance procurement to HDSA suppliers and will continually seek to allocate a substantial amount of annual expenditure in services and consumables to suppliers with this status. The commitment to purchasing will also extend to create long term partnerships with suppliers so as to mentor and support local HDSA-owned businesses.

2) Skills Development and Training

In line with the Skills Development Act and the subsequent Skills Development Regulations Oakleaf intends to develop a Skills Development Plan. The Plan will not only aim to address the proposed mine's operational requirements but also cater to employee's future employment aspirations. Underlying the envisaged skills development plan is the overarching objective of enabling current HDSAs to be equipped to apply for increasingly senior level and ultimately management positions at the mine.

2.6 The sensitivity of the surrounding habitats

The sensitivity of the surrounding environment has been highlighted and the activities applied for in terms of the NEMA are related to the critical biodiversity area in which the proposed site is located. The proposed mitigation measures must be adhered to in order to prevent significant impacts to the receiving environment. As previously stated the footprint of the facility will be established on the existing siding and will only be slightly extended into the wetland North of the site. A WUL application will be submitted with this regard.

2.7 Consideration of alternatives during the EIA

A comprehensive assessment of different alternatives was conducted in the draft BAR. The result of the assessment clearly indicated that the proposed alternative is the most favourable in terms of environmental, locality and feasibility considerations. The other alternatives would entail i.e. the conversion of sensitive habitats and the proposed facility will be situated on the footprint of the existing rail siding and would not require the conversion of an entire greenfield. Moreover, the establishment of conveyor belts will require the linear conversion of either agricultural land or natural habitat, compared to road transportation that will require no conversion of land.

2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION AND OPERATIONAL PHASE

Briefly describe the methodology utilised in the rating of significance of impacts

Impact assessment methodology

The assessment methodology utilised to determine the significance of the potential impacts of the development and operation of the proposed Bronkhorstspruit coal siding is explained in the following section. The methodology used for the assessment of the potential impacts is broadly consistent to that described in 2002 DEAT Integrated Environmental Management Series and 2014 EIA regulations.

The significance of the impacts is determined through a synthesis of these criteria, ranking them as follows;

Risk classification

Significance Rating (SR)	Significance
350 - 600	Very high
200 – 349	High
149 - 199	Medium
0 – 149	Low

For each impact identified, the Significance Rating (SR) is determined by various factors. Significance is described prior to mitigation as well as with the most effective mitigation measure(s) in place where so required.

The significant Rating is calculated as follows;

Risk (SR) = (Duration + Probability + Extent) x Severity – (Mitigation + Degree to which the impact can be reversed)

The criteria are defined as follows;

- **Duration** – Refers to timeframe of the impact (how long will it last)
- **Probability** – Refers to the likeliness (chance) of the event occurring
- **Extent** – Refers to the scale of the impact in case the aspect results into impact (how far will the impact reach)
- **Severity** – Refers to the degree to which the impacts can change the environment
- **Mitigation** – Refers to a control that can be implemented to reduce the significance of an environmental impact
- **Degree to which the impact can be reversed** – refers to the chance that the impact can be reversed by applying

mitigation measures

A risk rating value is assigned accordingly as follows;

Table 8: Marks awarded for duration:

Duration	Guidelines	Value
Permanent	Permanent	10
Long term	As long as the facility is in operation	7
Medium term	5-10 years	5
Short term	0-4 years	3

Table 9: Marks awarded for probability:

Probability	Guidelines	Value
Definite	where the impact will occur regardless of any prevention measures	10
Highly probable	impact is likely to occur 11 – 15 times per year where it is most likely that the impact will occur (>70% and <90% sure)	8
Probable	it is probable that the impact will occur 5 to 10 times per year where there is a distinct possibility that the impact will occur (>40% and < 70% sure);	6
Improbable	impact occurs very rarely (less than 5 times) throughout the year where the possibility of the impact to materialise is very low, either because of design or historic experience (<40% sure)	3
Imposable	No risk	0

Table 10: Marks awarded for extent

Extent	Guidelines	Value
International	Causes international impacts	10
National	Where the impact would have an impact on a national scale	9
Regional	Where the impact would extend to the region (municipal boundaries);	7
Local	Where the impact would be limited to the site and its immediate surroundings;	5
Immediate	extending only as far as the activity	3

Table 11: Marks awarded for severity

Severity	Guidelines	Value
Highly significant	Causes irreparable damage	20
Severe	where natural or social functions or processes are altered to the extent that they will temporarily or permanently cease.	15
Major	where the affected environment is altered but natural and social functions and processes continue albeit in a modified way;	10
Minor	where the impact affects the environment in such a way that the natural and social functions and processes are affected in an insignificant manner. The impact is of low order and therefore likely to have little real effect	5

Table 124: Marks awarded for mitigation

Mitigation	Guidelines	Value
Engineering controls	an engineering control such as bund walls or lock out valves to control the activity	-10%
Administrative	Procedure or work instruction that guides or manage the activity	- 5%
Degree to which the impact can be reversed	**Guidelines**	**Value**
High	The impact can be reversed easily by applying little effort	- 8%
Medium	The impact can be reversed by applying effective mitigation measures	- 6%
Low	The chance of revering the impact is low and is not likely. However, by applying extensive measures the impact can be reversed	- 4%
None	Cannot be reversed	- 0%

Any potential impact with a Risk Rating (SR) “medium risk” or higher must be assigned a mitigation measure to mitigate impact. In this case, most of the impacts have been determined as a low or medium impact, mitigation measures were however still assigned from a responsible corporate citizen and precautionary approach principal.

The mitigation described in the Environmental Management Programme (EMPr) document, represents the full range of plausible and pragmatic measures but does not necessarily imply that they all should or will be implemented. The decision as to which mitigation measures to implement lies with the applicant and ultimately with the relevant competent authority.

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the construction phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

Proposal (Proposed development and operation of the Bronkhorstspruit coal siding – Construction Phase)

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Impact category: Emissions to atmosphere – nuisance to nearby community				
Vehicle/machine exhaust emissions - air pollution	Low	• Prohibit vehicles from idling when not in use	Low	Low
Dust generation from earth works and vehicle movement	Medium	• Enforce vehicle speed limits • Apply dust suppression on dirt roads • Dust fall monitoring must be conducted to detect increase levels of dust fall • Dust suppression must be conducted on all haul roads. Suitable dust suppression products should be used.	Low	Low
Impact category: Storm water discharge and surface water pollution				
Hydrocarbon spillages from vehicles and other construction equipment - storm water pollution	Medium	• Place drip trays under parked vehicles if required • Spill kits must be available and employees trained to utilise spill kits • Clean up spillages immediately • Inform contractors of the need for appropriate measures to manage cement in an environmentally sound manner • Cement spillages must be cleaned appropriately • Store diesel/oil in a designated area only	Low	Low
Storage of diesel on-site	Medium		Low	Low
Handling and use of cement during construction	Low		Low	Low
Impact category: Soil erosion and deterioration				
Soil erosion due to soil disturbance and increased runoff volumes and velocity Loss of topsoil	Medium	• Establish a suitable storm water management system to divert runoff from operational areas or potentially contaminated areas • Report and rectify erosion when detected • Store excavated topsoil in a demarcated area, designed to prevent contamination for later rehabilitation purposes	Low	Low
Impact category: Waste Management				

Poor on-site waste management - wind-blown litter, soil and water contamination, burning of waste.	Low	• Store general waste in a designated area, designed to prevent wind blown litter • Where possible recycle, recover or reuse waste • Ensure that all general waste is removed and disposed off at a licensed general waste disposal site. • Use only licenced contractors • Waste should not cause nuisance conditions	Low	Low
Storage and handling of hazardous waste - water and soil pollution, harm to surrounding communities	Low	• Inspect waste storage areas regularly during construction • Prohibit the burning of waste hazardous waste site and • Hazardous waste such as oily rags must be removed and disposed of at a licensed hazardous waste site and the safe disposal certificates kept on file • Place used hydrocarbon waste in a designated area	Low	Low
Impact category: Hazardous substances management				
Hazardous substances (cleaning detergents, paint etc.)	Low	• Store chemical substances in a designated area • Store only compatible substances in a specific area • Fire fighting equipment must be available in the case of a fire - if required • Safety Data Sheets must be available for all hazardous substances • Clean up spillages immediately • Only competent staff must manage hazardous substances	Low	Low
Impact category: Heritage resources				
Destruction of heritage resources associated with the black concentration camp Construction activities resulting in the destruction of heritage resources older than 60 years	Low	• Implement a chance find procedure • Obtain permit from SAHRA	Low	Low
Impact category: Noise generation				
Groundworks	Medium	• Machinery with low noise levels to be used.	Low	Low
Foundations	Medium	• Machinery with low noise levels to be used.	Low	Low
Building activities	Medium	• Building activities to take place during daytime periods only.	Low	Low
Transportation of building material to and from the site	Medium	• Use machinery with low noise levels and maintained in a good order to be used and to comply with the IFC's Health and Safety	Low	Low

		Regulations.		
Assembly of equipment/machinery	Medium	• Machinery with low noise levels to be used.	Low	Low
Impact category: Traffic impacts				
Increased traffic volumes due to construction activities	Low	• Inform communities of planned activities that would affect vehicle/ pedestrian traffic; • Optimise the hauling plan to minimise disruption of movement patterns; • Ensure the required signage has been erected to warn road users of mine traffic; • Ensure that access to residences and business properties is uninterrupted by providing alternative routes.	Low	Low
Impact category: Biodiversity				
Construction activities - decline in Threatened and red data species	Medium	• A buffer of 50m terrestrial habitat from the edge of the riparian zone of the Bronkhorstspruit should be left free from any form of disturbance and development for Half-collared Kingfisher. • Establish buffer zones around wetlands as per wetland mitigation measures • The overhanging riparian vegetation along both banks, as well as vegetation within the 100-year flood line, must be kept as undisturbed and natural as possible • Implement measures to prevent sediment load in the Bronkhorstspruit River system • The areas earmarked for exclusion from development must be fenced off during the construction phase to ensure that the developer and his contractors do not damage these areas or do not cover them with soil, builders' rubble or waste. • No vehicles may enter the exclusion zones • Where possible, trees naturally growing on the site should be retained as part of the landscaping. • Dumping of builders' rubble and other waste in the areas earmarked for exclusion must be prevented, through fencing or other management measures. • Outside lighting should be designed to minimize	Low	Low
Construction activities - destruction of terrestrial faunal habitat	Low		Low	Low
Construction activities - destruction of aquatic habitats	Medium		Low	Low

Construction activities - reduction in natural migratory and faunal dispersal routes (corridors wetlands)	Low	impacts on important pollinators. All outside lighting should be directed away from sensitive areas. • Proper veld management practises should be implemented with respect to grazing, burning and control of woody invasions. • The contractor must ensure that no fauna is disturbed, trapped, hunted or killed during the construction phase. • Alien and invasive plants must be removed. • If the Giant Bullfrog or any herpetological species are encountered or exposed during the construction phase, they should be removed and relocated to natural areas in the vicinity.	Low	Low
Encroachment of alien and invasive species as a result of disturbance	Medium		Low	Low
• **Impact category:** Wetlands (refer to EMPr for detailed mitigation measures)				
Loss of wetlands due to construction activities	Medium	• Wetland areas are to be avoided as far as possible. • Construction activities must take place as far away from the wetlands as possible • Should the relevant water use license be granted for construction to take place in the wetlands (i.e. stormwater diversion canal), the impacted area must be as minimal as possible. • Heavy vehicles for construction of the stormwater culverts should be avoided as far as practically possible • No unnecessary clearance of wetland habitat is allowed to take place in unauthorized areas. • All further mitigation measures as determined in the water use license must be adhered to. • No animals or avi-fauna are to be hunted, captured, trapped, removed, harmed, killed or eaten • The Environmental Representative must be contacted if the mitigation measures are not adhered to • Construction must take place in the low flow season (winter months being May/June/ July) as far as practically possible. • The time that surfaces are left exposed must be kept to a minimum and re-vegetation should be implemented where applicable. • In general, rehabilitation to	Low	Low

		the affected RoW areas through/in the wetlands will need to take place in any impacted areas in the wetlands following construction. A wetland rehabilitation plan and monitoring		
Increased runoff, erosion and sedimentation	Medium	• A stormwater management plan must be compiled and implemented • Stormwater management must take into consideration potential flood impacts and must be managed so as to deal with potential floods as well as to reduce silt and sediment loads from entering the wetlands. • Implementation of soft engineering structures to mitigate increased run-off and sedimentation • Run-off from the construction site in general must only be allowed to exit the site in a controlled and diffuse manner. • Construction close to and in the wetlands where a water use license has been obtained to do so, is to take place in the low flow season (winter months May/June/July/August) as far as practically possible. • The time that surface are exposed must be kept to a minimum and re-vegetation must be implemented where applicable as soon as possible. • No establishment of new roads into or within the buffer zones of the wetlands identified are allowed unless water use licensing has been granted	Low	Low
Construction impacts related to water quality	Medium	• All construction materials are to be stored in the temporary construction area outside of the wetlands. • All soil stockpiles must be contained by bunded areas • All vehicles and equipment must be regularly maintained to avoid any oil, fuel or hazardous leaks or spills. • Movement of contractors and vehicles within wetland areas must be minimised • Chemical toilets must be provided and must be serviced on a regular basis.	Low	Low
Impact category: Social benefits				
Employment opportunities for local and regional residents	Medium positive			
Use of local suppliers - contribution to local economic	Medium positive			

development	

Proposal (Proposed development and operation of the Bronkhorstspruit coal siding – Operational Phase)

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Impact category: Air quality				
Atmospheric emissions	Low	• Apply dust suppression on the dirt roads • Cover the haul trucks to reduce wind blown dust from the coal • Enforce strict speed limits and erect speed humps if required • Apply dust suppression on the dirt roads; • Conduct dust fall monitoring - when increased dust fall is detected investigate additional dust control methods • Ensure effective dust management of stockpile area through implementing one of the following or if required through dust monitoring a combination of methods: o Install and operate mist cannons around the coal stockpile area. o Erect wind screens/wind fences at strategic locations in terms of surrounding receptors. The wind screens must be maintained to ensure the effectiveness thereof. • Clean up coal spillages immediately • Train staff to report and clean up coal spillages immediately • Maintain a complaints register. • Limit stockpile height • Ensure that employees are aware of storage requirements • Adequate firefighting equipment must be available • Develop and implement a fire management plan.	Low	Low
Dust generation from the transportation of coal to the siding via trucks on existing haul roads	High		Medium	Low
Dust generation from the stockpiling and loading of coal at the siding	Medium		Medium	Low
Spontaneous combustion of coal - safety and air quality issue	Low		Low	

Impact category: Groundwater				
Seepage from pollution control dam leading to groundwater contamination - potential migration to Bronkhorstspruit Expected hydro chemical or geochemical Ca, Na, SO4, Cl, Potential acidity	Medium	• Refer to the EMPr and Geohydrological specialist study for measures specifically related to the PCD and coal stockpiles • General measures include the following: ○ Surface hydrology design should include surface drainage and storm water diversion drains, to meet the requirements of the Water Act. This includes the separation of unpolluted from polluted surface water and the containment of polluted water on site in impoundments. Also, where leachate is generated, it must be contained separately from water which is only slightly polluted through contact with the waste. ○ Monitoring systems for surface and ground water pollution should be indicated. This will include the positions of both surface water sampling points and monitoring boreholes. ○ The Department requires a Water Quality Monitoring Plan as part of the permitting requirements. This involves background analyses, detection monitoring, investigative monitoring and post-closure monitoring. The Water Quality Monitoring Plan ensures that the water quality in the vicinity of a landfill is regularly monitored and reported upon throughout its life, so that, where necessary, remedial action can be taken. ○ All temporarily and finally covered areas must be graded and maintained to promote run-off without excessive erosion and to eliminate ponding or standing water. ○ Clean, uncontaminated water, which has not been in contact with the waste, must be allowed to flow off the site into the natural drainage system, under controlled conditions. All drains must be maintained. This involves ensuring that they are not blocked by silt or vegetation. • Refer to the EMPr for measures specifically related to the PCD and coal stockpiles • Berms to be constructed around coal stockpile area to	Low	Low
Seepage from coal stockpiles leading to groundwater contamination - potential migration to bronkhorstspruit Expected hydro chemical or geochemical Ca, Na, SO4, Cl, Potential acidity	Low		Low	Low

		ensure no clean water within siding area gets into contact with coal material within loading area. • The recommendations from the environmental geohydrological report risk assessment of coal stockpiles must be strictly implemented at the facility.		
Abstraction of groundwater - depletion of water resource	Medium	• Maintain abstraction rates below the sustainable safe yields of the aquifer • Abstraction must be conducted according to the WUL conditions	Low	
• Impact category: Surface water pollution				
Effluent discharge into the environment (water resources) from the coal stockpiles, coal spillages and other contaminated areas	High	• The dirty water pollution control dam must be designed to meet the DWS standards for dealing with flood events (i.e. 1:100 and 1:50 year flood events). • It is important therefore that a stormwater management system is implemented whereby all dirty water is collected and clean water is separated. • Where clean water is separated and stored, this can be used for dust suppression purposes. • Quality of this water must be regularly checked to ensure that it meets minimum standards as required by the Department of Water and Sanitation (DWS). • Emergency spill plans and procedures must be in place and implemented should overspill of pollution control dams and drainage networks occur. • All vehicles and equipment must be regularly maintained to avoid any oil/fuel leaks or spills. • If any spill or leak does occur, it must be ensured that it is properly cleaned up as soon as possible to avoid significant effects.	Low	Low
Increased sediment loads in the wetlands and subsequently the Bronkhorstspruit due to: • Clearing of vegetation and erosion of the bare side slopes of the stockpiles; • Reduced infiltration due to compacted soils and other impermeable surfaces associated with infrastructure increasing runoff volumes and	Medium	• Keep the construction footprint area to a minimum and retain vegetation in all areas outside the direct footprint. Where vegetation destruction does occur outside the footprint rip the soil and re-vegetate as soon as possible. • Place access and haul roads so that the grade of the road is minimized. Where this is not possible, implement water management measures to disperse the water to a	Low	

velocities with subsequent increase in erosion at discharge points.		variety of points along the road where the flow can be controlled and the energy dissipated. • Demarcate and cordon off the boundaries of the Wetland from heavy machinery. Educate and make employees and contractors aware of the reasons for cordoning off this area. • Prevent sediments in runoff from entering the Wetland by placing a berm between the workings / soil stockpiles and the Wetland. • Divert clean stormwater around exposed areas. Where stormwater is discharged into wetlands, construct gabions in an effective and appropriate manner to contain erosion. • The stormwater diversion canal must incorporate energy dissipating structures into the design of the canal to reduce accelerated run-off entering Channelled Valley Bottom Wetland 2. • Re-vegetate all cleared areas and berms immediately according to a re-vegetation plan. • Repair and reseed areas damaged by erosion and monitor until it can be shown to the satisfaction of a suitably qualified specialist that soil erosion is under control. • Monitor re-vegetated areas at least monthly to ensure successful reestablishment of vegetation and that no erosion gullies are forming. Take corrective actions on the basis of monitoring results. • A water quality monitoring program will be developed and implemented to commence prior to construction in order to develop adequate baseline data. Water quality monitoring should be ongoing during construction, operation and decommissioning until such time that adequate water quality has been achieved. • Undertake concurrent rehabilitation as soon as the disturbing activity has ceased according to a Rehabilitation Plan which will inform the final design of the landscape in advance. • Where erosion begins to take place in a wetland, a wetland		

		rehabilitation plan will be required. Recommendations from a suitably qualified wetland specialist must be obtained and implemented.		
Deterioration of water quality due to possible release of dirty storm water: Storm water typically contains various pollutants that could contribute to deteriorating the water quality in the wetlands where stormwater is released into the valley bottoms. In addition, stormwater runoff will carry pollutants from accidental spills, dust or eroded materials.	Medium	• Monitor water quality of seepage from the coal stockpile. Plan additional mitigation measures if monitoring indicates unacceptable water quality levels. • The storage (stockpile) and loading surface of the siding must comply to DWS requirements. The facility has been designed for a 200mm scarified, shaped and stabilized to a C3. • Maintain the routine monitoring program during decommissioning and post closure for early detection of impacts and implementation of corrective action.	Low	
Flooding of infrastructure and operations will occur if there are inadequate stormwater controls.	Medium	• Design all clean and dirty water systems according to Regulation 704.	Low	Low
Abstraction of surface water - Impact on the quantity of water resource	Medium	• According to IWWMP (refer to **Appendix H8**) and WUL conditions	Low	Low
Impact category: Waste Management				
Storage and handling of general waste - litter leading to nuisance conditions	Low	• Store general waste in a designated area, designed to prevent wind blown litter • Ensure that all general waste is removed and disposed off at a licensed general waste disposal site. • Use only licenced contractors	Low	Low
Storage and handling of hazardous waste	Medium	• Burning of waste must be prohibited on site • Maintain an inventory of waste generated. • Place used hydrocarbon waste in a designated container	Low	Low
Impact category: Hazardous substances management				

Storage and handling of hazardous substances such as diesel and oil - spillages leading to stormwater contamination	Medium	• Chemical storage containers must be compatible with the respective substances to prevent any corrosion that may lead to leakages. • Inspect containers regularly to detect leakages • Chemical containers must be placed in a bunded area with a capacity to contain 110% of the tank's capacity • Ensure that drainage valves for bunds are closed at all times (when not used for water drainage) • A Safety Data Sheet must be available for all hazardous substances stored on-site • Signage must be placed on all chemical storage tanks indicating the name of the substance and the hazards associated with the respective substances. • Firefighting equipment must be readily available	Low	Low
Impact category: Noise				
Increase in the traffic noise from the additional traffic along the existing roads	Low	• Enforce strict speed limits and erect speed humps if required • Maintain vehicle in good working conditions • The following noise mitigatory measures must be in place: ○ Front End Loaders which comply with the manufacturers specifications according to recommended noise levels to be used at all times; ○ The reverse signal to be replaced with a low frequency vibrating unit; ○ The wagons will create a noise barrier between the residential area and the activities. • The emergency generator to be encapsulated and installed in such a manner that the noise from the generator and/or exhaust will not exceed the prevailing ambient noise levels as measured at any of the boundaries of the residential development • Maintain generator in good working condition • Conduct environmental noise monitoring on a biennial basis.	Low	Low
Loading activities	Medium		Medium	Low
Impact category: Visual				

Dust generation Footprint of the facility	Medium	• Refer to section related to air quality • Ensure good house keeping • Maintain coal stockpile levels as low as possible	Low	Low
Impact category: Traffic				
Hauling coal to the existing Bronkhorstspruit rail siding may generate traffic.	Medium	• Regulate traffic at intersections of the R 25 and R 907 and access roads, with haul trucks yielding to oncoming traffic; • Inform communities of planned activities that would affect vehicle/ pedestrian traffic; • Optimise the hauling plan to minimise disruption of movement patterns; • Ensure the required signage has been erected to warn road users of mine traffic; • Ensure that access to residences and business properties is uninterrupted by providing alternative routes. • **Recommendations:** ○ Determine the pavement design requirements for Road R907, to accommodate the hauling trucks; and ○ Determine the condition of the roads along the haul route, near the Bronkhorstspruit Rail Siding and confirm whether the roads can accommodate the hauling trucks. Parameters Spatial Duration Severity	Low	Low
Impact category: Biodiversity				
Operational activities - reduction in general floral biodiversity	Low	• Refer to the EMPr and biodiversity specialist studies for specific mitigation measures • The overhanging riparian vegetation along both banks, as well as vegetation within the 100-year flood line, must be kept as undisturbed and natural as possible • Implement measures to prevent sediment load in the Bronkhorstspruit River system • Buffer zones around sensitive environmental areas must be maintained during operational phase • Prevent pollution of natural areas around the site.	Low	Low
Operational activities - reduction in general faunal biodiversity	Low		Low	Low
Operational activities - decline in Threatened and red data species	Medium		Low	Low
Operational activities - destruction of terrestrial faunal habitat	Low		Low	Low
Operational activities - destruction of aquatic habitats	Medium		Low	Low
Operational activities - reduction in natural migratory and faunal dispersal routes (corridors wetlands)	Low		Low	Low

Encroachment of alien and invasive species as a result of disturbance	Medium		Low	Low

Impact category: Wetlands				
Water quality impacts emanating from the proposed facility	High	• It is important therefore that a stormwater management system is implemented whereby all dirty water is collected and clean water is separated. • The dirty water pollution control dam must be designed to meet the DWS standards • Emergency spill plans and procedures must be in place and implemented • All vehicles and equipment must be regularly maintained to avoid any oil/fuel leaks or spills • If any spill or leak does occur, it must be ensured that it is properly cleaned up as soon as possible to avoid significant effects	Low	Low
Flooding and erosion - loss of wetland function	Medium	• The stormwater culverts must incorporate energy dissipating structures into the design of the canal to reduce accelerated run-off • Where erosion begins to take place in a wetland, this must be dealt with as soon as practically possible to prevent severe erosion	Low	Low
Destruction of adjacent wetland habitat in all phases may occur if operation activities are not properly controlled as activities could lead to destruction of wetland vegetation and compaction of wetland soils adjacent to the operational area infrastructure footprint.	Medium	• Demarcate “no go” areas and inform people accordingly to prevent entrance to sensitive areas. • Demarcate and cordon off the boundaries of the Wetland from heavy machinery. Educate and make employees and contractors aware of the reasons for cordoning off this area. • Locate all infrastructure and pits outside of the demarcated Wetland area. Undertake all activities within the operation footprint area. • Locate all construction servitudes outside the wetland areas. Where the servitudes intrude into the wetlands, rip and vegetate all the areas following construction. • Minimize the construction footprint and ensure that construction areas are located on the southern side of the haul road away from the Wetland. • Vegetation will not be disturbed unnecessarily. • Bare soil areas will be re-vegetated immediately according to a re-vegetation plan.	Low.	Low

		• Implement the above to meet closure objectives.		
Impact category: Financial impacts				
• Deterioration of coal stockpiles	Low	• Limited the storage time	Low	Low
Impact category: Employee safety				
• Injuries due to occupational hazards	Low	• Implement the requirements of the Occupational Health and Safety Act and Regulations • Implement best practice guidelines	Low	Low
Impact category: Natural resource management				
Wasteful use and resources like water and electricity leads to unnecessary impacts to the national resources.	Low	• No running taps to be left unattended. • Switch off lights when not in use. • Maintenance of water infrastructure • Investigate energy saving mechanisms such as energy saving lights	Low	Low
Use of water from the PCD for dust suppression - reduce dependency on water resources	High positive			
Impact category: Social benefits				
Employment opportunities for local and regional residents	High positive in combination with Khanye Colliery			
Use of local suppliers - contribution to local economic development	High positive			
Indirect knock on economic impacts	Medium positive			

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

The following specialist studies have been undertaken to support the BA for the proposed Bronkhorstspruit coal siding project (Appendix H)

- Galago Environmental
  - Flora Assessment
  - Mammal Assessment
  - Avifaunal Habitat Assessment
  - Herpetofaunal Habitat Assessment
- Geo Pollution Technologies – Gauteng (Pty) Ltd
  - Baseline Hydrogeological Study
- dBAcoustics
  - Environmental Noise Impact Assessment
- HCAC - Heritage Consultants
  - Archaeological Impact Assessment
- BM Geological Services
  - Desktop Paleontological Heritage Impact Assessment
- Ilke Nel
  - Integrated Water and Waste Management Plan
- Sivest
  - Wetland Delineation and Impact Assessment Report
- Digby Wells Environmental (Attached as Appendix I)
  - Proposed Development of an Open Pit Coal Mine and Associated Infrastructure near Bronkhorstspruit, Gauteng

Final Environmental Impact Assessment Report

During the EIA for the Khanye Colliery, several specialist studies were undertaken to support the EIA findings and also included the different alternatives for a coal siding

- Air Quality Assessment
- Aquatic Ecological Assessment
- Fauna and Flora Assessment
- Groundwater Assessment
- Heritage Assessment
- Social Impact Assessment
- Soil Impact Assessment
- Surface Water Assessment
- Topography and Visual Impact Assessment Report
- Traffic Impacts Assessment
- Wetland Ecological Assessment

Describe any gaps in knowledge or assumptions made in the assessment of the environment and the impacts associated with the proposed development.

The Impact Assessment was done at a specific time period in terms of the current understanding of the proposed development and operation of the proposed Bronkhorstspruit coal siding. The assessment was also conducted in terms of best available methods and legal requirements which may change over time.

3. IMPACTS THAT MAY RESULT FROM THE DECOMISSIONING AND CLOSURE PHASE

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the decommissioning and closure phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

Proposal (Proposed development and operation of the Bronkhorstspruit siding – decommissioning phase)

Potential impacts:	**Significance rating of impacts(positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**
Impact category: Emissions to atmosphere (dust and exhaust emissions)				
Dust generation from vehicle movement on unprepared soil - increased dust generation and nuisance conditions	Medium	• Appoint registered demolition contractors with appropriate procedures and equipment. • Restrict vehicle movement to demarcated areas. • All vehicles to be maintained in good working order to keep their atmospheric emissions under control. • Enforce vehicle speed limits to reduce dust emissions. • Prohibit idling of vehicles when not in use.	Low	Low
Vehicle exhaust emissions - air pollution	Low		Low	Low
Generation of dust from demolition activities	Medium		Low	Low
Decommissioning of the plant will prevent further generation of air emissions	High positive			
Impact category: Surface water discharge				

Hydrocarbon spillages from decommissioning vehicles – storm water and soil pollution	Medium	• Refuel vehicles off site or in a dedicated/paved area with a sump to capture runoff • Place drip trays under parked vehicles, where necessary • Clean hydrocarbon spills up immediately • Contaminated soil must be cleaned up with a readily available spill kit or excavated immediately, followed by proper disposal at a licensed disposal site	Low	Low
Impact category: Groundwater pollution				
Seepage from pollution control dam leading to groundwater contamination - potential migration to bronkhorstspruit Expected hydro chemical or geochemical Ca, Na, SO4, Cl, Potential acidity	Medium	• Update the numerical and geochemical model against monitored data • After proper geochemical investigation the ARD can be dealt with as follows; ○ Neutralisation (e.g. lime) and treatment (stimulation of sulphate reducing bacteria) ○ Segregation/isolation/encapsulation	Low	Low
Seepage from coal stockpiles leading to groundwater contamination - potential migration to bronkhorstspruit Expected hydro chemical or geochemical Ca, Na, SO4, Cl, Potential acidity	Low	• Polluted groundwater can be treated as follows: ○ Reduce hydraulic head by water shedding ○ Integrate capture store-release systems ○ Utilise evapotranspiration ○ Cap and cover with capillary break ○ Drainage diversions ○ Neutralisation and detoxification of tails seepage • All stockpile material and the contents of the PCD must be removed from the site and disposed of correctly.	Low	Low
Impact category: Waste management				
Storage and handling of general waste and building rubble - wind blown litter leading to nuisance conditions	Low	• Store general waste in a designated area, designed to prevent wind blown litter • Ensure that all general waste and building rubbles is removed and disposed of at a licensed general waste disposal site. • Use only licenced contractors • Maintain an inventory of waste generated • Store building rubble in a designated area	Low	Low
Storage and handling of hazardous waste - water and soil pollution, harm to surrounding communities	Low	• Hazardous waste generated during decommissioning activities must be	Low	Low

		removed and disposed of at a licensed hazardous waste site and the safe disposal certificates kept on file • Place used hydrocarbon waste in special containers • Contaminated general waste and building waste must be managed as hazardous waste • Hazardous and general waste must be managed separately		
Impact category: Noise				
Noise impact on surrounding communities due to demolition activities	Low	• Restricting the decommissioning activities to daylight hours • Switching off equipment when not in use • Maintain equipment and vehicle in good working condition	Low	Low
Impact category: Wetlands				
Loss of wetlands due to decommissioning activities	Medium	• Adhere to all specialist stipulated mitigation measures; • Compile a wetland rehabilitation plan for the construction and decommissioning phases of the proposed development; and • A construction and operational stormwater management plan is critical to prevent contamination and degradation of wetlands in the construction and operation phase of the proposed development. It is also important to prevent flood related disasters affecting the proposed development during both phases.	Low	
Increased runoff, erosion and sedimentation	Medium		Low	
Decommissioning impacts related to water quality	Medium		Low	
Impact category: Rehabilitation				
Decommissioning and rehabilitation of the site will prevent further environmental impacts and improve the visual appearance of the site	High positive			
Impact category: Social				
Loss of employment opportunities	High	• Engagement with employees in advance	Medium	Low

4. IMPACTS THAT MAY RESULT FROM THE COAL SIDING ALTERNATIVES

Please note that the impacts associated with the alternatives are similar to that of the proposed alternative. The impacts assessed below are those that differ from the proposed alternative in order to show the difference in impacts significance.

No Go Alternative

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact and mitigation not being implemented**
No impact on environmental features- status quo remains	Low to medium positive			
Impact category: Social impacts				
Loss of employment opportunities due to non-continuation of the site	Very high	No mitigation as employment opportunities will be negated	Very high	High

Alternative 1 - siding location

Potential impacts:	**Significance rating of impacts(positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact and mitigation not being implemented**
Impact category: Air quality				
Dust generation from the transportation of coal to the siding via conveyor belts	Medium	To mitigate fugitive emissions from the conveyor of coal at the tipping point, water spray can be used to enhance the moisture content and lower the emissions.	Low	Low
Construction of new railway siding	Medium	Topsoil should not be removed during windy periods (August, September and October); Apply wetting agents or dust suppressant on exposed areas; Reduce vehicle travel speeds; and Minimse the area of disturbance during construction.	Low	Low
Impact category: Noise				
Increase in noise levels as a result of the construction activities	Medium	Restricting construction activities to daylight hours where viable; Installation of low noise rollers on the conveyor belt system; Machines and vehicles to be serviced on a regular basis to ensure noise suppression mechanisms are effective e.g. installed exhaust mufflers; Environmental noise monitoring to establish compliance with the regulations and to verify the predicted noise levels; and Switching off equipment when not in use	Medium	Low
Increase in noise levels as a result of the conveyor system	High	Restricting loading and transport of coal from rail siding to daylight hours, where	High	Low

Machinery, cargo train and vehicles may increase ambient noise levels at surrounding noise sensitive receptors		viable; Machines and vehicles to be serviced on a regular basis to ensure noise suppression mechanisms are effective e.g. installed exhaust mufflers; Environmental noise monitoring to establish compliance with the regulations and to verify the predicted noise levels; and Switching off equipment when not in use.		
Noise impact on employees and communities during decommissioning	Medium	Restricting the decommissioning activities to daylight hours Switching off equipment when not in use Maintain equipment and vehicle in good working condition	Low	Low
Impact category: Visual				
Visual impact due to coal conveying system	High	Plant trees to minimize disturbance Refer to section related to air quality	High	Low
Visual impact due to coal siding footprint	High	Plant trees to minimize disturbance Refer to section related to air quality	High	Low
Impact category: Biodiversity				
Impact on wetlands	High	Establish appropriate buffer zones, Minimise disturbance of wetlands Implement off set programme if required	High	Low
Impact on riparian and aquatic zone	High	Establish appropriate buffer zones, Minimise disturbance of riparian and aquatic zones	High	Low
Impact category: Heritage				
Impact on burial ground and graves	High	As far as is feasible, mine infrastructure design and siting should be amended to remove any physical, direct impacts on the burial ground. Irrespective of whether the burial ground will be directly or indirectly affected, agreement regarding the future of the site must be reached between Oakleaf and Next-of-Kin (NoK) through the implementation of a Burial Grounds and Graves Consultation process in accordance with Section 36 of the NHRA and Chapter XI of the Regulations. This process must include agreements in respect of a Conservation Plan	Medium	Low
Impact category: Soil				
Construction of new railway siding and roads	High	The topsoil should be stripped by means of an excavator bucket, and	Low	Low

		loaded onto dump trucks; Topsoil stockpiles are to be kept to a maximum height of 4m (the practical tipping height of dump trucks); Topsoil is to be stripped when the soil is dry, as to reduce compaction; The topsoil 0.3 m of the soil profile should be stripped first and stockpiled separately; The subsoil approximately 0.7 – 0.9 m thick will then be stripped and stockpiled separately; Soils to be stripped according to the rehabilitation soil management plan and stockpiled accordingly; Stockpiles are to be maintained in a fertile and erosion free state by sampling and analysing annually for macro nutrients and pH; The handling of the stripped topsoil will be minimized to ensure the soil's structure does not deteriorate; Compaction of the removed topsoil should be avoided by prohibiting traffic on stockpiles; Prevent unauthorised borrowing of stockpiled soil; The stockpiles will be vegetated (details contained in rehabilitation plan) in order to reduce the risk of erosion, prevent weed growth and to reinstitute the ecological processes within the soil; Soils will be stripped using the delineated soil types as guide. Yellow and red soils may be stripped together. Wetland soils (if allowed) should be stripped and stockpiled separately but also in the order topsoil (0.3 m) then subsoil separately; and Access should be limited to prevent any unnecessary compaction from occurring.		

Alternative 2 - siding location

Potential impacts:	**Significance rating of impacts(positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**
Impact category: Air quality				
Dust generation from the transportation of coal to the siding via conveyor belts	Medium	To mitigate fugitive emissions from the conveyor of coal at the tipping point, water spray can be used to enhance the moisture content and lower the emissions.	Low	Low
Construction of new railway siding	Medium	Topsoil should not be removed during windy periods (August, September and October); Apply wetting agents or dust suppressant on exposed areas; Reduce vehicle travel speeds; and Minimse the area of disturbance during construction.	Low	Low
Impact category: Noise				
Increase in noise levels as a result of the construction activities	Medium	Restricting construction activities to daylight hours where viable; Installation of low noise rollers on the conveyor belt system; Machines and vehicles to be serviced on a regular basis to ensure noise suppression mechanisms are effective e.g. installed exhaust mufflers; Environmental noise monitoring to establish compliance with the regulations and to verify the predicted noise levels; and Switching off equipment when not in use	Medium	Low
Increase in noise levels as a result of the conveyor system Machinery, cargo train and vehicles may increase ambient noise levels at surrounding noise sensitive receptors	High	Restricting loading and transport of coal from rail siding to daylight hours, where viable; Machines and vehicles to be serviced on a regular basis to ensure noise suppression mechanisms are effective e.g. installed exhaust mufflers; Environmental noise monitoring to establish compliance with the regulations and to verify the predicted noise levels; and Switching off equipment when not in use.	High	Low
Noise impact on employees and communities during decommissioning	Medium	Restricting the decommissioning activities to daylight hours Switching off equipment when not in use Maintain equipment and vehicle in good working	Low	Low

		condition		
Impact category: Visual				
Visual impact due to coal conveying system	High	Plant trees to minimize disturbance Refer to section related to air quality	High	Low
Visual impact due to coal siding footprint	High	Plant trees to minimize disturbance Refer to section related to air quality	High	Low
Impact category: Biodiversity				
Impact on wetlands	High	Establish appropriate buffer zones, Minimise disturbance of wetlands Implement off set programme if required	High	Low
Impact on riparian and aquatic zone	High	Establish appropriate buffer zones, Minimise disturbance of riparian and aquatic zones	High	Low
Impact category: Heritage				
Impact on burial ground and graves	High	As far as is feasible, mine infrastructure design and siting should be amended to remove any physical, direct impacts on the burial ground. Irrespective of whether the burial ground will be directly or indirectly affected, agreement regarding the future of the site must be reached between Oakleaf and Next-of-Kin (NoK) through the implementation of a Burial Grounds and Graves Consultation process in accordance with Section 36 of the NHRA and Chapter XI of the Regulations. This process must include agreements in respect of a Conservation Plan	Medium	Low
Impact category: Soil				
Construction of new railway siding and roads	High	The topsoil should be stripped by means of an excavator bucket, and loaded onto dump trucks; Topsoil stockpiles are to be kept to a maximum height of 4m (the practical tipping height of dump trucks); Topsoil is to be stripped when the soil is dry, as to reduce compaction; The topsoil 0.3 m of the soil profile should be stripped first and stockpiled separately; The subsoil approximately 0.7 – 0.9 m thick will then be stripped and stockpiled separately; Soils to be stripped according to the rehabilitation soil management plan and stockpiled accordingly;	Low	Low Low

		Stockpiles are to be maintained in a fertile and erosion free state by sampling and analysing annually for macro nutrients and pH; The handling of the stripped topsoil will be minimized to ensure the soil's structure does not deteriorate; Compaction of the removed topsoil should be avoided by prohibiting traffic on stockpiles; Prevent unauthorised borrowing of stockpiled soil; The stockpiles will be vegetated (details contained in rehabilitation plan) in order to reduce the risk of erosion, prevent weed growth and to reinstitute the ecological processes within the soil; Soils will be stripped using the delineated soil types as guide. Yellow and red soils may be stripped together. Wetland soils (if allowed) should be stripped and stockpiled separately but also in the order topsoil (0.3 m) then subsoil separately; and Access should be limited to prevent any unnecessary compaction from occurring.		

Alternative 3 - siding location

Potential impacts:	**Significance rating of impacts(positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**
Impact category: Air quality				
Dust generation from the transportation of coal to the siding via conveyor belts	Medium	To mitigate fugitive emissions from the conveyor of coal at the tipping point, water spray can be used to enhance the moisture content and lower the emissions.	Low	Low
Construction of new railway siding	Medium	Topsoil should not be removed during windy periods (August, September and October); Apply wetting agents or dust suppressant on exposed areas; Reduce vehicle travel speeds; and Minimize the area of disturbance during construction.	Low	Low
Impact category: Noise				
Increase in noise levels as a result of the construction activities	Medium	Restricting construction activities to daylight hours where viable;	Medium	Low

		Installation of low noise rollers on the conveyor belt system; Machines and vehicles to be serviced on a regular basis to ensure noise suppression mechanisms are effective e.g. installed exhaust mufflers; Environmental noise monitoring to establish compliance with the regulations and to verify the predicted noise levels; and Switching off equipment when not in use		
Increase in noise levels as a result of the conveyor system Machinery, cargo train and vehicles may increase ambient noise levels at surrounding noise sensitive receptors	High	Restricting loading and transport of coal from rail siding to daylight hours, where viable; Machines and vehicles to be serviced on a regular basis to ensure noise suppression mechanisms are effective e.g. installed exhaust mufflers; Environmental noise monitoring to establish compliance with the regulations and to verify the predicted noise levels; and Switching off equipment when not in use.	High	Low
Noise impact on employees and communities during decommissioning	Medium	Restricting the decommissioning activities to daylight hours Switching off equipment when not in use Maintain equipment and vehicle in good working condition	Low	Low
Impact category: Visual				
Visual impact due to coal conveying system	High	Plant trees to minimize disturbance Refer to section related to air quality	High	Low
Visual impact due to coal siding footprint	High	Plant trees to minimize disturbance Refer to section related to air quality	High	Low
Impact category: Biodiversity				
Impact on wetlands	High	Establish appropriate buffer zones, Minimise disturbance of wetlands Implement off set programme if required	Medium	Low
Impact on riparian and aquatic zone	High	Establish appropriate buffer zones, Minimise disturbance of riparian and aquatic zones	Medium	Low
Impact category: Soil				

Construction of new railway siding and roads	High	The topsoil should be stripped by means of an excavator bucket, and loaded onto dump trucks; Topsoil stockpiles are to be kept to a maximum height of 4m (the practical tipping height of dump trucks); Topsoil is to be stripped when the soil is dry, as to reduce compaction; The topsoil 0.3 m of the soil profile should be stripped first and stockpiled separately; The subsoil approximately 0.7 – 0.9 m thick will then be stripped and stockpiled separately; Soils to be stripped according to the rehabilitation soil management plan and stockpiled accordingly; Stockpiles are to be maintained in a fertile and erosion free state by sampling and analysing annually for macro nutrients and pH; The handling of the stripped topsoil will be minimized to ensure the soil's structure does not deteriorate; Compaction of the removed topsoil should be avoided by prohibiting traffic on stockpiles; Prevent unauthorised borrowing of stockpiled soil; The stockpiles will be vegetated (details contained in rehabilitation plan) in order to reduce the risk of erosion, prevent weed growth and to reinstitute the ecological processes within the soil; Soils will be stripped using the delineated soil types as guide. Yellow and red soils may be stripped together. Wetland soils (if allowed) should be stripped and stockpiled separately but also in the order topsoil (0.3 m) then subsoil separately; and Access should be limited to prevent any unnecessary compaction from occurring.	Low	Low

Alternative 4 - siding location

Potential impacts:	**Significance rating of impacts(positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**
Impact category: Air quality				
Dust generation from the transportation of coal to the siding via conveyor belts	Medium	To mitigate fugitive emissions from the conveyor of coal at the tipping point, water spray can be used to enhance the moisture content and lower the emissions.	Low	Low
Construction of new railway siding	Medium	Topsoil should not be removed during windy periods (August, September and October); Apply wetting agents or dust suppressant on exposed areas; Reduce vehicle travel speeds; and Minimise the area of disturbance during construction.	Low	Low
Impact category: Noise				
Increase in noise levels as a result of the construction activities	Medium	Restricting construction activities to daylight hours where viable; Installation of low noise rollers on the conveyor belt system; Machines and vehicles to be serviced on a regular basis to ensure noise suppression mechanisms are effective e.g. installed exhaust mufflers; Environmental noise monitoring to establish compliance with the regulations and to verify the predicted noise levels; and Switching off equipment when not in use	Medium	Low
Increase in noise levels as a result of the conveyor system Machinery, cargo train and vehicles may increase ambient noise levels at surrounding noise sensitive receptors	High	Restricting loading and transport of coal from rail siding to daylight hours, where viable; Machines and vehicles to be serviced on a regular basis to ensure noise suppression mechanisms are effective e.g. installed exhaust mufflers; Environmental noise monitoring to establish compliance with the regulations and to verify the predicted noise levels; and Switching off equipment when not in use.	High	Low
Noise impact on employees and communities during decommissioning	Medium	Restricting the decommissioning activities to daylight hours Switching off equipment when	Low	Low

		not in use Maintain equipment and vehicle in good working condition		
Impact category: Visual				
Visual impact due to coal conveying system	High	Plant trees to minimize disturbance Refer to section related to air quality	High	Low
Visual impact due to coal siding footprint	High	Plant trees to minimize disturbance Refer to section related to air quality	High	Low
Impact category: Biodiversity				
Impact on wetlands	High	Establish appropriate buffer zones, Minimise disturbance of wetlands Implement off set programme if required	High	Low
Impact on riparian and aquatic zone	High	Establish appropriate buffer zones, Minimise disturbance of riparian and aquatic zones	High	
Impact category: Soil				
Construction of new railway siding and roads	High	The topsoil should be stripped by means of an excavator bucket, and loaded onto dump trucks; Topsoil stockpiles are to be kept to a maximum height of 4m (the practical tipping height of dump trucks); Topsoil is to be stripped when the soil is dry, as to reduce compaction; The topsoil 0.3 m of the soil profile should be stripped first and stockpiled separately; The subsoil approximately 0.7 – 0.9 m thick will then be stripped and stockpiled separately; Soils to be stripped according to the rehabilitation soil management plan and stockpiled accordingly; Stockpiles are to be maintained in a fertile and erosion free state by sampling and analysing annually for macro nutrients and pH; The handling of the stripped topsoil will be minimized to ensure the soil's structure does not deteriorate; Compaction of the removed topsoil should be avoided by prohibiting traffic on stockpiles;	Low	Low

		Prevent unauthorised borrowing of stockpiled soil; The stockpiles will be vegetated (details contained in rehabilitation plan) in order to reduce the risk of erosion, prevent weed growth and to reinstitute the ecological processes within the soil; Soils will be stripped using the delineated soil types as guide. Yellow and red soils may be stripped together. Wetland soils (if allowed) should be stripped and stockpiled separately but also in the order topsoil (0.3 m) then subsoil separately; and Access should be limited to prevent any unnecessary compaction from occurring.		

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

- Digby Wells Environmental (Attached as Appendix I)
  - Proposed Development of an Open Pit Coal Mine and Associated Infrastructure near Bronkhorstspruit, Gauteng Final Environmental Impact Assessment Report

During the EIA for the Khanye Colliery, several specialist studies were undertaken to support the EIA findings and also included the different alternatives for a coal siding

- Air Quality Assessment
- Aquatic Ecological Assessment
- Fauna and Flora Assessment
- Groundwater Assessment
- Heritage Assessment
- Social Impact Assessment
- Soil Impact Assessment
- Surface Water Assessment
- Topography and Visual Impact Assessment Report
- Traffic Impacts Assessment
- Wetland Ecological Assessment

Where applicable indicate the detailed financial provisions for rehabilitation, closure and ongoing post decommissioning management for the negative environmental impacts.

N/A

4. CUMULATIVE IMPACTS

Describe potential impacts that, on their own may not be significant, but is significant when added to the impact of other activities or existing impacts in the environment. Substantiate response:

The Bronkhorstspruit river system has been modified due to excessive nutrient and other pollutant input which has resulted in significant habitat modification. The proposed project has the potential to add to modification of the Bronkhorstspruit river. However, the proposed mitigation measures, if correctly implemented, are sufficient to prevent such modification.

The development will add to the current traffic volumes in the area which will lead to a cumulative impact on the community. However, this impact will be low after proper mitigation has been implemented.

The proposed development will occur on the existing Bronkhorstspruit siding footprint and will not result in a cumulative loss of agricultural land.

It is approximated that between 35-50% of all the wetland areas within South Africa have been destroyed as a result of

anthropogenic stressors (Oakleaf EIA) and a cumulative loss of these important systems is on-going. The project has the potential to impact on the wetlands adjacent to the site and therefore add the deterioration of wetlands. However, sufficient mitigation such as buffer zones should be applied to avoid impacts on the wetlands.

The proposed project has the potential to discharge contaminated runoff into the Bronkhorstspruit and add to the current pollution due to upstream pollution discharge. The proposed mitigation measures in the IWWMP must be implemented to prevent discharge into the water resource.

The groundwater of the aquifer has not been impacted, therefore no cumulative effects are anticipated.

The Air Quality Impact Specialist Study (Digby Wells Environmental 2015) indicated that the ambient baseline environmental condition is currently not impacted by high dust fall as there is minimal activity on site. Mitigation measures is however recommended for the control and mitigation of dust from the facility to ensure their impact is kept below the ambient standards prescribed in the legislation.

5. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that sums up the impact that the proposal 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.

Proposal

The proposed coal siding will be situated on the existing footprint of the Bronkhorstspruit rail siding and the predicted disturbance of the footprint of the adjacent areas will be minor. The proposed coal siding development has the potential to contribute significantly to the local as well as South African economy. The facility will be used to receive and dispatch coal from the Khanye Colliery and is therefore essential to release the socio-economic benefits of the mining development. The Khanye Colliery has already received its mining right and Environmental Authorisation for the operations and the siding is therefore important from a strategic point of view.

The facility must be designed to prevent or minimise potential environmental impacts associated with the project. The potential environmental consequences associated with the handling, transportation and storage of coal can be mitigated by the prescribed management measures stipulated in the EMPr and specialist studies. The success of the implementation of the mitigation must be evaluated by means of environmental monitoring and auditing.

Special care must be taken to establish and maintain infrastructure such as the PCD to separate contaminated from uncontaminated runoff. Stormwater infrastructure must be designed and maintained in order to accommodate runoff associated with a 1 in 50 year flooding event to avoid contamination.

The proposed mitigation measures prescribed by the geohydrological baseline assessment specialist study must be adhered to in order to prevent groundwater contamination due to seepage from the coal stockpiles and PCD. The recommendations contained in the Environmental Geohydrological Report Risk Assessment of coal stockpiles must be strictly implemented.

Strict measures must be applied to mitigate potential dust generation as a result of the handling, transportation and storage of coal. Dust fall monitoring must be undertaken several months prior to commencement and during operations. Additional measures may be applied if increased dust fall is detected. The effectiveness of the control measures must be taken into account when applying the combination of the dust management mitigation in order to prevent impact on the identified receptors.

The site is situated adjacent to a wetland and within a Critical Biodiversity Area. The proposed mitigation measures prescribed by the biodiversity specialist studies and wetland assessment must be strictly adhered to in order to prevent or minimise potential impacts on biodiversity and wetlands.

The waste hierarchical approach has been designed to promote effective waste management practices to avoid the disposal of waste and associated environmental consequences. Moreover, the proposed project will contribute significantly to the local economy by providing employment opportunities and sourcing material from local suppliers.

From an environmental point of view, the proposed alternative is preferred compared to the other proposed sites by Canyon and the project can proceed only if the proponent commits to the effective implementation of the proposed mitigation measures contained in the EMPr and specialist studies. Continued monitoring must be undertaken as to ensure compliance is achieved throughout the live of the project.

Alternative 1

Rail siding alternative 1 will result in the destruction/removal of graves/burial grounds which will have a high impact on heritage resources. The proposed alternative will only result in the destruction of insignificant heritage resources (power line pylons and rail way tracks) and will result in a negligible impact on heritage resources.

Rail siding alternative 1 all intersect sensitive areas such as wetlands and rivers. These rail siding alternatives are not feasible as they pose a significant threat to the watercourses. The most feasible alternative from an environmental perspective is rail siding alternative 5 which entails the conversion of the existing Bronkhorstspruit rail siding to accommodate the proposed facility and the hauling of coal on the existing road network. Noise impacts associated with all four alternatives are also predicted to be higher compared to that of the proposed alternatives.

The proposed alternative entails the utilisation of the existing road network to transport the coal to the siding compared to the establishment of a conveyor system to transfer the coal to the other alternative sites. Both conveyor system alternatives will transverse the Bronkhorstspruit and result in significant impacts on wetland as well as riparian biodiversity. Moreover,

conveying coal across the Bronkhorstspruit may severely affect the water quality of the river. Although the transportation of coal via the road network will result in traffic and visual impacts, it is the preferred and most feasible alternative.

It is therefore not recommended to proceed with alternative 1.

Alternative 2

Rail siding alternative 2 all intersect sensitive areas such as wetlands and rivers. These rail siding alternatives are not feasible as they pose a significant threat to the watercourses. The most feasible alternative from an environmental perspective is rail siding alternative 5 which entails the conversion of the existing Bronkhorstspruit rail siding to accommodate the proposed facility and the hauling of coal on the existing road network. Noise impacts associated with all four alternatives are also predicted to be higher compared to that of the proposed alternatives.

The proposed alternative entails the utilisation of the existing road network to transport the coal to the siding compared to the establishment of a conveyor system to transfer the coal to the other alternative sites. Both conveyor system alternatives will transverse the Bronkhorstspruit and result in significant impacts on wetland as well as riparian biodiversity. Moreover, conveying coal across the Bronkhorstspruit may severely affect the water quality of the river. Although the transportation of coal via the road network will result in traffic and visual impacts, it is the preferred and most feasible alternative.

It is therefore not recommended to proceed with alternative 2.

Alternative 3

The proposed alternative entails the utilisation of the existing road network to transport the coal to the siding compared to the establishment of a conveyor system to transfer the coal to the other alternative sites. Both conveyor system alternatives will transverse the Bronkhorstspruit and result in significant impacts on wetland as well as riparian biodiversity. Moreover, conveying coal across the Bronkhorstspruit may severely affect the water quality of the river. Although the transportation of coal via the road network will result in traffic and visual impacts, it is the preferred and most feasible alternative.

This alternative cuts through a wetland associated with a tributary of the Bronkhorstspruit which has been delineated as a Channelled Valley Bottom wetland. This wetland is already compromised as the existing railway traverses through it. Noise impacts associated with all four alternatives are also predicted to be higher compared to that of the proposed alternatives.

It is therefore not recommended to proceed with alternative 3.

Alternative 4

The proposed alternative entails the utilisation of the existing road network to transport the coal to the siding compared to the establishment of a conveyor system to transfer the coal to the other alternative sites. Both conveyor system alternatives will transverse the Bronkhorstspruit and result in significant impacts on wetland as well as riparian biodiversity. Moreover, conveying coal across the Bronkhorstspruit may severely affect the water quality of the river. Although the transportation of coal via the road network will result in traffic and visual impacts, it is the preferred and most feasible alternative.

Rail siding alternative 4 all intersect sensitive areas such as wetlands and rivers. These rail siding alternatives are not feasible as they pose a significant threat to the watercourses. The most feasible alternative from an environmental perspective is rail siding alternative 5 which entails the conversion of the existing Bronkhorstspruit rail siding to accommodate the proposed facility and the hauling of coal on the existing road network. Noise impacts associated with all four alternatives are also predicted to be higher compared to that of the proposed alternatives.

It is therefore not recommended to proceed with alternative 4.

No-go (compulsory)

The no go alternative entails the non-continuation of the proposed development. The site is entirely disturbed by the footprint of the existing Bronkhorstspruit rail siding, except for the area on which the footprint of the siding will be slightly extended to establish the stormwater culverts beneath the site. The existing land use will continue if the project does not proceed and the natural vegetation/wetland will not be disturbed. Other potential negative environmental impacts associated with the project will not come into effect if the no-go alternative proceeds. However, the substantial socio-economic benefits of the project and the Khanye Colliery will be negated if the project does not proceed which will have a highly negative effect on the local communities and the South African economy as a whole. The Khanye Colliery has obtained its mining right and EA for the project and the proposed coal siding is necessary for the dispatch of the coal from the colliery to the respective markets. The proposed Bronkhorstspruit coal siding is essential from a strategic point of view to unlock the socio-economic benefits of the Khanye Colliery. The employment opportunities associated with the proposed project will not benefit local economic development and potential skills development opportunities will be lost if the project does not proceed. Therefore, the no-go alternative is not preferable and Canyon should pursue the transportation of coal through the use of the rail system.

6. IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

For proposal:

Overall the proposed and preferred project scope entails the development of a coal siding the existing footprint of the Bronkhorstspruit rail siding. The potential adverse impacts associated with the proposed project include the following:

- Biodiversity impacts, including impacts on wetlands; and
- Dust generation;
- Groundwater contamination;
- Heritage impacts.
- Noise impacts;
- Surface water contamination;

The impact on the environment is considered low to medium, except for impacts associated with dust generation which is considered to be medium to high. The abovementioned impacts can be effectively managed to prevent potential consequences. The prescribed mitigation measures contained in the EMPr and specialist studies provide a sound framework for the management of the proposed project to prevent or mitigate potential environmental impacts.

Benefits of the positive impacts associated with the proposed activities include the following:

- Efficient resource use – use of water in the PCD for dust suppression
- Significant contribution to the local and South African economy by providing job opportunities

For alternatives:

The alternatives assessed during the BA will have similar impacts as the proposed alternative, including the following:

- Biodiversity impacts, including impacts on wetlands; and
- Dust generation;
- Groundwater contamination;
- Heritage impacts.
- Noise impacts;
- Surface water contamination;

However, the 4 alternatives will lead to Medium to High impacts on biodiversity (wetland and riparian habitat), noise generation, heritage impacts (only alternative 1) and visual impacts. These impacts are significant compared to that of the proposed alternative.

Having assessed the significance of impacts of the proposal and alternative(s), please provide an overall summary and reasons for selecting the proposal or preferred alternative.

The reasons for choosing the Proposal alternative as opposed to the No Go alternatives and the other alternatives is that the proposal;

- Will be situated on the existing footprint of the Bronkhorstspruit rail siding which will prevent or minimise impacts on sensitive ecosystems;
- The site is zoned as Industrial 1/S.A.R (railway purposes) which is in line with the proposed development;
- The coal will be transported to the facility via the existing road network not via conveyor belts which will prevent significant biodiversity consequences;
- The proposed site is optimally situated to receive and dispatch coal from the Khanye Colliery which will result in a significant contribution to the local and South African economy;
- The visual impact associated with the proposed alternative will be less significant compared to the establishment of a new siding on a greenfield site;
- Noise impacts will be less significant compared to the other alternative sites.

7. SPATIAL DEVELOPMENT TOOLS

Indicate the application of any spatial development tool protocols on the proposed development and the outcome thereof.

The properties on which the proposed coal siding project will be situated are zoned and as South African Railway (S.A.R) and Industrial 1, which is in line with the proposed activity to be conducted by Canyon. Bronkhorstspruit has been identified by the City of Tshwane Regional Spatial Development Framework as one of the metropolitan nodes and the economy is not very diversified and hence there are limited economic activities and industrial activities. The proposed development may contribute to the diversification of the local economy.

The Gauteng EMF has been assessed to evaluate the compatibility of the proposed activities with the zones allocated in the EMF. The zones allocated in the EMF have been designed to provide a generic guideline for development in the Gauteng province and site specific conditions should be taken into account. Although the site is situated in Zone 4 in terms of the EMF and the proposed activities are not compatible with the zone, the site has been completely been transformed by the footprint of the existing siding. Moreover, the property has been zoned for industrial purposes which is in line with the proposed development.

8. RECOMMENDATION OF THE 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 as bound by professional ethical standards and the code of conduct of EAPASA).	Yes X	No

If “NO”, indicate the aspects that require further assessment before a decision can be made (list the aspects that require further assessment):

The needs and considerations of the adjacent landowners should be considered and discussed in more depth during the public participation phase. From initial communication it was ascertained that the surrounding land uses is very sensitive to air quality impacts.

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:

An adequate liner must be installed at the pollution control dam with a sacrificial layer to prevent seepage from the facility
It is recommended that a cementitious barrier layer is installed at the coal stockpile with a bitumen seal on top. This will serve as a precautionary measure because the downstream wetland is only 100 m from the stockpile area;
Develop and implement a groundwater monitoring programme to detect pollution associated with the proposed development.
Adequate stormwater infrastructure must be installed and maintained to manage runoff from a 1 in 50 year flooding event
Adequate stormwater infrastructure must be installed and maintained to separate contaminated runoff from uncontaminated stormwater
All the requirements of the EMPr must be adhered to
All the recommendations of the respective specialist studies must be taken into account by the applicant
Ensure that good housekeeping practices are implemented
Measure must be put in place to detect and clean up coal spillages at the siding
Measures must be implemented to minimize dust fall and nuisance to surrounding landowners
Monitoring for dust fall must be undertaken by the applicant in terms of the National Dust Regulations
Measures must be implemented to prevent or minimise impacts on wetlands adjacent to the site as well as the riparian habitat
Noise mitigation measure must be implemented to avoid impacts on local communities

9. THE NEEDS AND DESIREBILITY OF THE PROPOSED DEVELOPMENT (as per notice 792 of 2012, or the updated version of this guideline)

Location and infrastructure:

The proposed facility will be used to receive and dispatch coal from the Khanye Colliery, located 6 km East of the siding, for approximately 17 years. The site is ideally located to transport coal via road from the Khanye Colliery to the site and to use the existing rail network to dispatch the coal to the respective clients. The existing infrastructure at the site provides a sound basis for the development of the coal siding, and will prevent the conversion of virgin land to accommodate the infrastructure (except for the diversion channel). The site is ideally located in terms of potential negative environmental consequences, compared to the identified alternative locations. The existing Bronkhorstspruit has been completely transformed for past railway purposes although not currently utilized.

The facility will be used to receive and dispatch coal from the Khanye Colliery and is therefore essential to release the socio-economic benefits of the mining development. The Khanye Colliery has already received its mining right and Environmental Authorisation for the operations and the siding is therefore important from a strategic point of view.

Contribution to South Africa’s energy requirements:

Coal that will be transported to the siding is necessary to supplement South Africa’s energy requirements in terms of electricity requirements or coal to liquid fuel conversion. South Africa still depends heavily on coal as a source of economic value, employment and energy. Electricity that is generated from coal plays a vital role in economic development and associated social benefits such as job creation and improvement of quality of life. Although alternative energy sources exist, South Africa will likely continue to include coal as a significant part of its energy mix. The proposed coal siding will contribute to infrastructure that is required (a necessity) to transport coal to the respective users, either for electricity generation or export market. There is therefore a clear need to develop the coal siding as part of coal resource development in the area.

Economic value

The following employment opportunities will be created by the siding:

- Approximately 150 new construction employment opportunities will be created during the construction phase.
- Approximately 10 new employment opportunities will be created during the operational phase.

The siding is of strategic importance for the Oakleaf Khanye colliery mining development and therefore without the proposed coal siding, the Khanye colliery will not be able to distribute the coal material to respective clients. This project cannot be seen in isolation to the Oakleaf Project. Oakleaf intends to support both local economic and skills development throughout the local study area, with a specific focus on developing the communities surrounding the proposed project.

1) Local Economic Development

Oakleaf has an approved Social and Labour Plan (SLP) which outlines their envisaged LED programmes for surrounding communities. Oakleaf's LED plan is based on municipal IDPs and was developed in consultation with the municipal authorities. Proposed LED projects; these programmes are primarily focussed on improving educational infrastructure.

As part of their LED planning, Canyon also intends to implement measures to advance procurement to HDSA suppliers and will continually seek to allocate a substantial amount of annual expenditure in services and consumables to suppliers with this status. The commitment to purchasing will also extend to create long term partnerships with suppliers so as to mentor and support local HDSA-owned businesses.

2) Skills Development and Training

In line with the Skills Development Act and the subsequent Skills Development Regulations Oakleaf intends to develop a Skills Development Plan. The Plan will not only aim to address the proposed mine's operational requirements but also cater to employee's future employment aspirations. Underlying the envisaged skills development plan is the overarching objective of enabling current HDSAs to be equipped to apply for increasingly senior level and ultimately management positions at the mine. In this regard, key components of the skills development plan are:

• Identification of an HDSA talent pool;

• Encouraging the participation of more women in mining operations;

• Mentorship programmes that assist high-performing HDSAs to progress quickly through a career path; and

• Where external recruitment is necessary to supplement internal talent to meet the above objectives, a targeted strategy will be implemented that will provide opportunities for residents in local communities whenever possible.

• The mine intends to implement several other programmes and initiatives that will also contribute to skills development, these include:

o Adult basic Education and Training (ABET). ABET will be introduced in an attempt develop the educational level of the workforce and the community through further learning. The programme primarily gives learners the opportunity to become functionally literate;

o Portable Skills Development initiatives. Portable skills are skills which can be used in a variety of industries, they are not only limited to the mining industry. The company has included portable skills training in its annual budget and ongoing training will take place throughout the life of mine. This training will be scheduled once a year and will include skills such as welding, electrical, computer literacy and child care;

o Learnerships. Oakleaf will make available four learnership opportunities on an annual basis from 2016 to 2020; however, the process of learnerships is heavily dependent on cooperation between the Mining Qualifications Authority, the mine and an institution of further education and training;

o Mentorship Plan. Mentorship is a component of career progression planning and relates to the Skills Development Plan in terms of the requirement for education and training requirements that may be identified through the mentoring process for career progression. It can be defined as a mutual supportive learning relationship that meets a development need, helps to develop full potential and benefits all partners i.e. the mentor, mentee and the company. All employees will have a 'subject matter expert' line manager as an appointed mentor. Mentoring will not only be limited to the employees, but will also include HDSA companies through an affirmative procurement strategy. The purpose of this strategy will be to enhance real transformation of the mining industry supplier community;

o Bursaries. Oakleaf intends to offer several bursaries on an annual basis. Bursaries will be awarded to qualifying students enrolled for registered courses in various fields of study, either in universities or colleges. Bursaries will be awarded to historical disadvantaged individuals including women and the disabled within the communities within the project. Bursars will be required to undertake vocational work and in-service training within the mine after graduation in order to be exposed to a comprehensive programme designed to prepare them for their first substantive position; and

o Oakleaf's SLP will also include a human resource development programme The primary objective of human resource development programme is to ensure development of requisite skills in respect of learnerships, bursaries, artisans, ABET training, and other training initiatives.

Khanye Colliery will employ approximately 250 employees as mentioned above (mine and core business contractors) in the opencast operation, associated handling of materials, processing and within support functions such as Health and Safety, Human Resources, Administration and Technical Services. Majority of this employment will be through contractors. Where necessary the Colliery will ensure that permanently employed contractors within its core business will comply with the Human Resource requirements for their workforce, as set out in this SLP and the Mining Charter as amended.

Khanye Colliery will seek to make a contribution to the economic, social and educational well-being of communities associated with operations, which includes local business development and providing opportunities for workers from disadvantaged backgrounds.

All Human Resource issues in this plan will reflect the divisional statistics and plans as well as those of the specific operation. These issues will include:

- Levels of Literacy
- Hard to Fill vacancies
- Career Progression and Mentorship Plans
- Internship and Bursary allocation
- Employment Equity
- Plans to meet the Mining Charter requirements

The siding form part of this as Canyon Resources and Oakleaf is part of the Canyon Group of Companies.

Spatial

Bronkhorstspruit has been identified by the City of Tshwane Regional Spatial Development Framework as one of the metropolitan nodes and the economy is not very diversified and hence there are limited economic activities and industrial activities. The proposed development may contribute to the diversification of the local economy.

10. THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

(CONSIDER WHEN THE ACITIVTY IS EXPECTED TO BE CONCLUDED)

The date on which the proposed facility will be close down has not been currently established. It is expected that the facility will operate for approximately 17 years.

11. ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

(must include post construction monitoring requirements and when these will be concluded.)

If the EAP answers "Yes" to Point 7 above then an EMP is to be attached to this report as an Appendix

EMPr attached	**Appendix G**

SECTION F: APPENDICES

The following appendices must be attached as appropriate (this list is inclusive, but not exhaustive):

It is required that if more than one item is enclosed that a table of contents is included in the appendix

Appendix A: Site plan(s) – *(must include a scaled layout plan of the proposed activities overlain on the site sensitivities indicating areas to be avoided including buffers)*

Appendix B: Site location

Appendix C: Photographs of major wind directions from center of site

Appendix D: Facility illustration(s)

Appendix E: Public participation information

Appendix F: Environmental impact register

Appendix G: Environmental Management Programme

Appendix H: Specialist Studies

Appendix I: Khanye Colliery final Environmental Impact Assessment Report and specialist studies **(on request)**

Appendix J: Updated Air Quality Assessment and the Summary of the original Air Quality Assessment

Appendix K: Summary of Stormwater Management System

Appendix L: Map of water uses

CHECKLIST

To ensure that all information that the Department needs to be able to process this application, please check that:

- Where requested, supporting documentation has been attached;
- All relevant sections of the form have been completed.

BIBLIOGRAPHY

BM Geological Services. "Desktop Palaeontological Impact Assessment Report with report cover_Bronkhorstspruit Siding." 2016.

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GFK Consulting Engineers. "Bronkhorstspruit Siding for the Proposed Khanye Colliery Preliminary Storm Water Diversion Design." 2016.

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Sivest. "Proposed Construction of a Coal Loading Facility within the existing Bronkhorstspruit Railway Siding near Bronkhorstspruit, Gauteng Province." 2016.

Appendix A0
Location of Alternatives

Appendix A1
Layout of facility

Appendix A2

Engineer Drawings of Coal Stockpile Liner

Appendix B1

Location of facility Topo-Cadastral (1:50 000)

Appendix B2

Location of facility (500m, 3km and 5km buffers)

Appendix B3
1m contour lines

Appendix B4

Properties within 100m of the site

Appendix C
Wind directional photos

Appendix D
Facility illustration

Appendix E
Public participation

Appendix E1

Proof of site notice

(placed on the 26th of October 2016)

Appendix E2

Proof of written notice issued

Written notices issued as required in terms of the regulations (provided on the 26th of October 2016)

Appendix E3

Proof of newspaper advertisement

(placed on the 26th of October 2016)

Appendix E4

Communications to and from interested and affected parties

Appendix E5

Minutes of any public and/or stakeholder meetings (meeting was held on the 16th of November)

Appendix E6

Comments and Responses Report
WUL documents

Appendix E7

Comments from I&APs on Basic Assessment (BA) Report (included in comments and response report)

Appendix E8

Comments from I&APs on amendments to the BA Report (included in comments and response report)

Appendix E9

Copy of the register of I&APs (see Attached)

Appendix E10

Proof of submission of draft BAR to Tshwane Metropolitan Municipality

Appendix E11

Proof of communication to I&APs regarding the appeal process

Appendix E12

Response to comments and communication regarding availability of amended BAR

Appendix E13

Proof of submission of final IWWMP and WUL to DWS

Appendix F

Environmental Impact Register

Appendix G

Environmental Management Programme

Appendix H

Specialist Studies

Appendix H1

Geohydrological Report

Appendix H2

Biodiversity Impact Assessment

Appendix H3

Wetland Specialist Study

Appendix H4

Archaeological Impact Assessment

Appendix H5

Noise Report

Appendix H6

Desktop Palaeontological Impact Assessment Report

Appendix H7

Geochemical Assessment of Coal Stockpiles

Appendix H8

Final IWWMP

Appendix I

Khanye Colliery final Environmental Impact Assessment Report and specialist studies (on request)

Appendix J1

Updated Air Quality Assessment

Appendix J2

Summary of original Air Quality Assessment

Appendix K

Summary of Stormwater Management System

Appendix L

Map of water uses

Appendix M

Request for extension to the BAR timeframe

Appendix N
GDARD decision on Appeal