

## PART 2



### 2.6.8.1. Medicinal Plant Species

Medicinal plants are important to many people and are an important part of the South African cultural heritage (Van Wyk *et al*, 1997). Plants have been used traditionally for centuries to cure many ailments, as well as for cultural uses such as building material and for spiritual uses such as charms. In the Ermelo and Carolina areas a number of plant species with medicinal properties are expected to occur and have been found in previous studies in surrounding areas. The medicinal plant species found in the project area will be investigated further during the EIA phase (see Fauna and Flora Impact Assessment Terms of Reference for the EIA phase in Section 6).

### 2.6.8.2. Alien Invasive Plant Species

Alien plants tend to spread and invade ecosystems and become problem plants in areas away from their natural habitat. This is a universal problem in many countries, including South Africa. The Conservation of Agricultural Resources Act regards weeds as alien plants with no known useful economic purpose that should be eradicated. Invader plants, also considered by the Act, are also of alien origin but may serve useful purposes as ornamentals, as sources of timber, or may have other benefits. These plants need to be managed and prevented from spreading. From previous studies in surrounding areas it can be expected that a number of alien invasive plants will occur in the area. The fauna and flora study to be undertaken during the EIA phase will confirm the status and presence of the alien invasive plant species (see Fauna and Flora Impact Assessment Terms of Reference for the EIA phase in Section 6 below).

## 2.6.9. Fauna

### 2.6.9.1. Mammals

The limited remaining habitat around the pans and drainage lines, the isolation of these areas by agricultural fields from other natural grasslands, and the proximity of human activity and dwellings will have an influence on what mammal species are still likely to occur in the area. It is probable that more rodent species occur at many of the sites, as they are difficult to observe during the day as many have nocturnal habits. It is also difficult to assess the faunal importance of such a limited area within the broader landscape as most species of fauna are mobile and may visit these areas from time to time but are unlikely to be resident. Discussions with local farmers and the Mpumalanga Parks Board will assist in identifying local mammals. The fauna and flora study will assist in identifying mammals present in the area, and those likely to occur as well as red data species. From previous studies, it was possible to determine mammals likely to occur in the area. These are included in Table 2-5 below.

**Table 2-5: Mammals Likely to Occur in the Area**

Order	Scientific Name	Common Name	IUCN Status
Artiodactyla	<i>Antidorcas marsupialis</i>	Springbok	Least concern
Artiodactyla	<i>Damaliscus pygargus phillipsi</i>	Blesbok	Least concern



Order	Scientific Name	Common Name	IUCN Status
Artiodactyla	<i>Raphicerus campestris</i>	Steenbok	Least concern
Artiodactyla	<i>Redunca arundinum</i>	Reedbuck	Least concern
Artiodactyla	<i>Sylvicapra grimmia</i>	Grey/ Common Duiker	Least concern
Carnivora	<i>Aonyx capensis</i>	Common Clawless Otter	Least concern
Carnivora	<i>Atilax paludinosus</i>	Water Mongoose	Least concern
Carnivora	<i>Canis adustus</i>	Side striped Jackal	Near Threatened
Carnivora	<i>Canis mesomelas</i>	Black-backed Jackal	Least concern
Carnivora	<i>Caracal caracal</i>	Caracal	Least concern
Carnivora	<i>Cynictis penicillata</i>	Yellow Mongoose	Least concern
Carnivora	<i>Felis nigripes</i>	Black-footed Cat	Vulnerable
Carnivora	<i>Felis silvestris</i>	African Wild Cat	Least concern
Carnivora	<i>Galerella sanguinea</i>	Slender Mongoose	Least concern
Carnivora	<i>Genetta genetta</i>	Small-spotted Genet	Least concern
Carnivora	<i>Genetta tigrina</i>	Large-spotted Genet	Least concern
Carnivora	<i>Ictonyx striatus</i>	Striped Polecat	Least concern
Carnivora	<i>Leptailurus serval</i>	Serval	Near Threatened
Carnivora	<i>Suricata suricatta</i>	Suricate	Least concern
Carnivora	<i>Vulpes chama</i>	Cape Fox	Least concern
Insectivora	<i>Atelerix frontalis</i>	South African Hedgehog	Near Threatened
Lagomorpha	<i>Lepus capensis</i>	Cape/ desert Hare	Least concern
Lagomorpha	<i>Lepus saxatilis</i>	Scrub/ Savannah Hare*	Least concern
Rodentia	<i>Cryptomys hottentotus</i>	Common Molerat	Least concern
Rodentia	<i>Hystrix africaustralis</i>	Porcupine	Least concern
Rodentia	<i>Otomys angoniensis</i>	Angoni Vlei Rat	Least concern
Rodentia	<i>Otomys irroratus</i>	Vlei Rat	Least concern
Rodentia	<i>Pedetes capensis</i>	Springhare	Least concern
Rodentia	<i>Rhodomys pumilio</i>	Striped Mouse	Least concern
Rodentia	<i>Tatera brantsi</i>	Highveld Gerbil	Least concern
Tubulidentata	<i>Orycteropus afer</i>	Aardvark	Least concern

### 2.6.9.2. Birds

The proposed Consbrey project occurs within an important birding area as shown on Plan 8.

A variety of land and water birds are likely to occur in the area. Hadedah ibis, Blacksmith plover, Cape wagtail, Sacred ibis, Common sandpiper, Ethiopian snipe, African spoonbill, Grey heron and Black headed heron are Common waders. Barn owls and the spotted eagle owls have been known to occur in the area.

The Secretary bird (Near Threatened) occurs in grassland habitats and the African grass owl (Vulnerable) occurs in grassland with vlei areas. Both these habitats are present within the area. Being Red Data birds they will need to be protected and conserved. The fauna and flora study to be undertaken during the EIA phase will confirm the status and presence of bird species (see Fauna and Flora Impact Assessment Terms of Reference for the EIA phase in Section 6).

### 2.6.9.3. Reptiles and Amphibians



The southern rock agama is known to occur in the area, and the spotted skink was observed on a farm to the north of Breyten. The reptile populations in the area are expected to be higher, but since these animals are very sensitive to vibrations and noise, and hide easily in crevices and undergrowth, they are not easily spotted. The fauna and flora study to be undertaken during the EIA phase will confirm the status and presence of reptiles and amphibians (see Fauna and Flora Impact Assessment Terms of Reference for the EIA phase in Section 6).

**2.6.9.4. Invertebrates**

From previous studies conducted in the area, a number of families, species and individuals were collected in each insect order, as well as in the Arachnida. The Diptera, Coleoptera and Hemiptera are the most represented invertebrate orders followed by the Arachnida and Hymenoptera. These are some of the larger more cosmopolitan insect orders, occurring in a variety of habitat types. They can be easily collected with sweep-net sampling methods, which exclude many ground-dwelling invertebrates such as some spiders (Arachnida), some ants (Hymenoptera), some crickets (Orthoptera) and most cockroaches (Blattodea). The invertebrate population dynamic is fairly consistent with what one might find with sweep-net sampling of grassland areas. The fauna and flora study to be undertaken during the EIA phase will confirm the status and presence of invertebrates (see Fauna and Flora Impact Assessment Terms of Reference for the EIA phase in Section 6).

**2.6.10. Surface Water**

**2.6.10.1. Catchment Description**

The proposed project area is located over two Water Management Areas (WMAs) namely the Inkomati (WMA 05) and the Olifants (WMA 04). The affected quaternary catchments are the X11A and the B12A for the WMA 05 and 04 respectively (Plan 9 - Quaternary Catchments).

There are streams traversing the proposed project area in the two catchments. In the B12A catchment, the Klein Olifantsrivier drains the project area in a north-westerly direction while the Vaalrivierspruit drains the project area in a northerly direction in the X11A catchment, which drains directly into the Nooitgedacht dam.

The surface water attributes of the affected catchments namely Mean Annual Runoff (MAR), Mean Annual Precipitation (MAP) and Mean Annual Evaporation (MAE) are summarised in Table 2-6 (WRC, 2005) indicating that the ratio of precipitation: evaporation is 0.45 and 0.48 for the B12A and the X11A quaternary catchments respectively.

**Table 2-6: Summary of the Surface Water attributes for the Two Affected Quaternary Catchments**

Quaternary Catchment	Rainfall Zone	MAP (mm)	MAR (mm)	MAR m <sup>3</sup> * 10 <sup>6</sup>	Evaporation Zone	MAE (mm)
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B12A	B1B	672	59	23.9	5A	1501
X11A	X1A	688	18.8	12.7	4A	1446

Table 2-7 is a summary of the percentage catchment area that is occupied by the proposed project site (WRC, 2005) which is represented by 4.9 and 11.4% for the B12A and X11A quaternary catchments respectively.

**Table 2-7: Summary of the Proposed Project area within the Two Quaternary Catchments**

Quaternary Catchment	Catchment Area (km <sup>2</sup> )	Project Area in Catchment (km <sup>2</sup> )	% of Project Area on Catchment
B12A	405	20	4.9
X11A	674	77.4	11.4



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**Plan 9: Consbrey Quaternary Catchments**





### 2.6.10.2. Surface Water Quantity

#### Stream Flow

There are no DWA stream flow gauges located within the two quaternary catchments or in the vicinity of the project site.

#### Estimated Design Rainfall

The 24 hour design rainfall depth was calculated from the rainfall data of nearby rainfall stations (Table 2-8) using the Design Rainfall Estimation (DRE) in South Africa (Smithers and Schulze, 2003).

**Table 2-8: Summary of the Closest Rainfall Stations**

Station Name	Station Number	Lat.	Long.	Rainfall Record Period (years)
Hendrina	0476369 8	26.1603	29.7161	49
Ermelo Wo	0479870 X	26.4978	29.9839	50

The calculated 24 hour design rainfall data is summarised in Table 2-9.

**Table 2-9: Estimated 24 Hour Design Rainfall for Rainfall Stations Close to Project Site**

Station Name	Station Number	24 Hr. Design Rainfall (mm)	
		1:50	1:100
Ermelo	0479870 X	137	154
Hendrina	0476369 8	131	147

### 2.6.10.3. Surface Water Quality

There are no DWA water quality monitoring sites located within the two catchments occupied by the proposed project area. Sampling will be conducted up and downstream of the site as well as in areas around the site to determine the pre-mining baseline during the EIA phase.

### 2.6.10.4. Surface Water User Survey

The predominant land and surface water use in the region is agricultural (livestock watering and crop irrigation) and urban supply (from local dams). There are mining activities also located within the vicinity of the proposed project area and the extent of surface water use will be determined within the EIA phase. Micro consultation with land owners will determine more detailed analysis of onsite water use.

### 2.6.11. **Wetlands**

The proposed Consbrey Colliery is located between the town of Breyten and Hendrina, located in the Gert Sibande District Municipality. The dominant wetland types within the proposed project area include a number of endorheic pans and channelled valley bottom wetlands. Based on the National Freshwater Ecosystems Priority Areas (NFEPA) Wetlands Map, the wetland areas within the project area are ranked between RANK 5 (Wetlands excluding dams within a sub-quaternary catchment identified by experts at the regional



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review workshop as containing impacted working for wetlands sites) and Rank 6 (Any other wetland excluding dams). Therefore, the integrity of the wetland areas within the project area has been impacted as a result of the existing land use activities.

The Mpumalanga Conservation Plan (C-plan) however indicates that the status of the project area ranges from “highly significant” to areas of “least concern”. The areas that are categorised as “highly significant” are those areas that form part of the outskirts of the Mpumalanga Lake District. The Chrissiesmeer Lake District occurs within a plateau surrounded by the drainage basins of important river systems that arise around the fringes of the pan field, namely the Vaal River, the Komati River (via the Boesmanspruit), the uMpuuzi River and the Usutu River (McCarthy *et al.*, 2007). The Endangered Wildlife Trust (EWT) is currently involved in two biodiversity conservation projects for the area, that are directed by the Mpumalanga Tourism and Parks Agency (MPTA). These are the application for the Chrissiesmeer Lake District to be declared a Wetland of International Importance through the Ramsar Convention and secondly to use biodiversity stewardship to legally protect the land in the area.

The estimated wetlands within the project area are depicted on Plan 10. This plan depicts the wetlands according to the National Fresh Water Priority Areas database.



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**Plan 10: Consbrey Estimated Wetlands**

# Msobo Coal Consbrey Project Estimated Wetlands

## Legend

- Consbrey Project Area
- Secondary Town
- Arterial / National Route
- Main Road
- Other Access Road
- Railway Line
- Perennial River
- Non-Perennial River

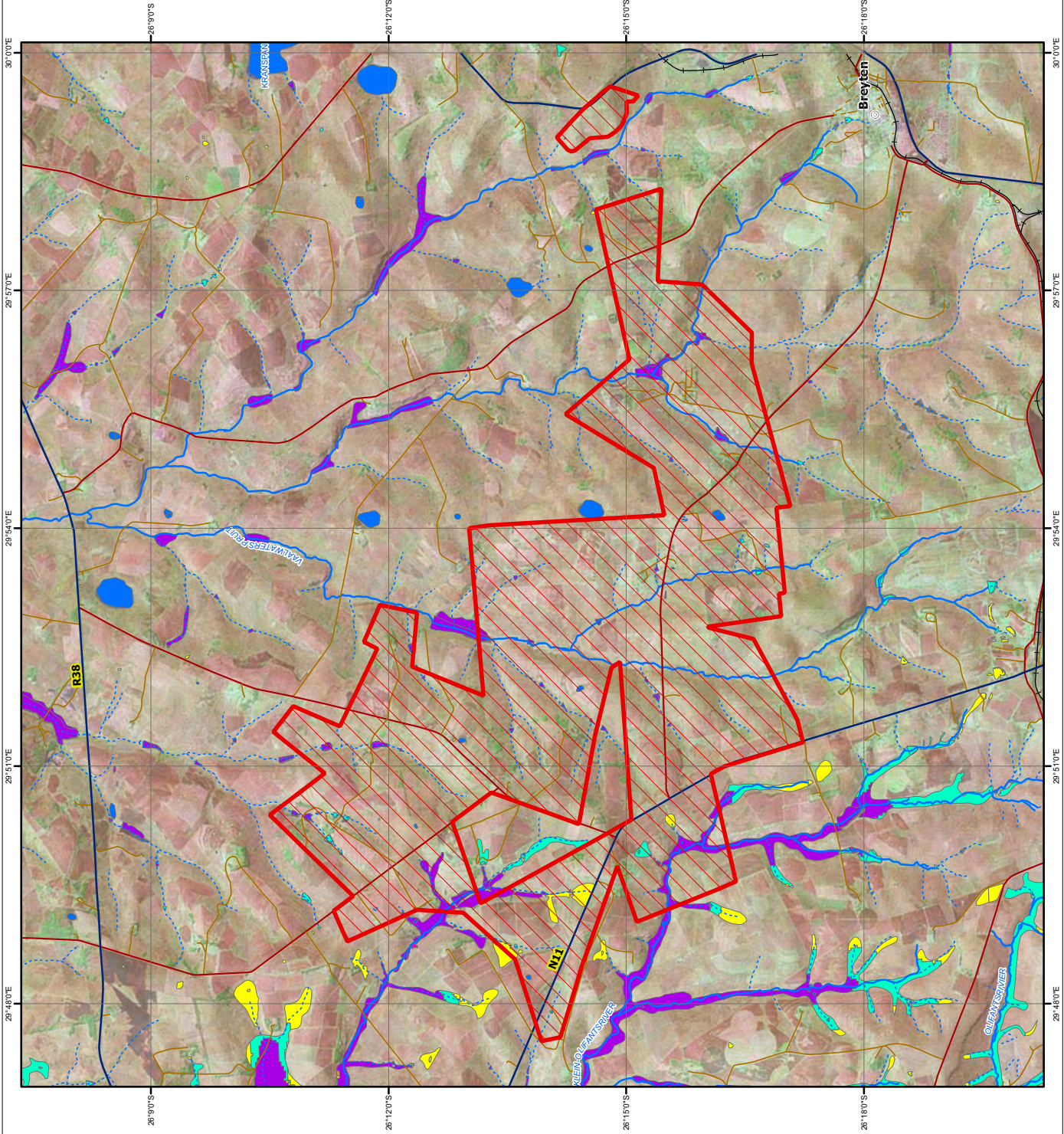
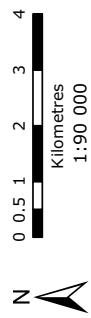
## NFEPA Wetlands

- Channelled valley-bottom wetland
- Depression
- Flat
- Seep
- Unchannelled valley-bottom wetland
- Valleyhead seep

NOTE: Specialist wetland delineations to be conducted.



DIGBY WELLS ENVIRONMENTAL  
www.digbywells.com  
Geographic Coordinate System Ref #: amp.MSOI.805.201302.097  
Datum: WSG 1984  
Revision Number: 1  
Date: 19/02/2013



## 2.6.12. Aquatic Environment

### 2.6.12.1. Affected Water Courses

Due to the location of the proposed mining operation within two separate quaternary catchments, two river systems will be affected by the proposed mining operation.

The first of which is the Vaalwaterspruit system located in quaternary catchment X11A. This watercourse flows directly into the Nooitgedacht Dam. The present ecological status of the aquatic biota associated with this watercourse is currently a Class C which is defined as a moderately modified state. The aquatic biota associated with the watercourse has an attainable ecological status of Class B which is a largely natural state. Plan 11 depicts the aquatic sensitivity plan of the rivers and streams in project area. The aquatic sensitivity of the project area is classed as “not required”; however the Vaalwaterspruit drains into the Nooitgedacht dam that is considered irreplaceable.

The second watercourse affected by the proposed mining operation is the Klein Olifants River. This watercourse is the primary draining feature in quaternary catchment B12A and flows into the Olifants River. It should be noted that this river system flows through the heavily industrialised area of Pullens Hope and the Witbank/ Middleburg Coal fields and therefore the cumulative impacts associated with the proposed mining operation are of particular interest. The aquatic biota associated with the Klein Olifants River is considered to be a Class C (moderately modified) state. The attainable ecological status for the Klein Olifants River is a Class B (Largely natural).

### 2.6.13. Groundwater

Three superimposed groundwater systems, with typical yields between 0.1 and 2 l/s, are present in the Mpumalanga coal fields. They can be classified as the upper weathered Ecca aquifer, the fractured aquifers within the unweathered Ecca sediments and the aquifers below the Ecca sediments, also called the pre-Karoo aquifer.

The weathered material in the upper weathered aquifer consists mostly of decomposed and highly weathered coarse grained sandstone, with shale and siltstone in some areas. The sustainability of the shallow weathered aquifer is dependent on seasonal recharge from rainfall. The rainwater infiltrates the soil and a portion of it (effective recharge) eventually reaches the saturated zone.

The fractured aquifer consists of unweathered, interlaminated sequence of sandstone and shale, fresh sandstone, carbonaceous shale, coal and in some instances dolerite. The pores within the sedimentary rocks are well cemented and allow little permeation of water. All groundwater movement is therefore along secondary structures such as fractures, cracks and joints.

Dolerite dykes and sills that occur in this area may act as impermeable or semi permeable boundaries to the groundwater system, with the result that the water table on either side of the dyke may not be at the same level. The intrusion of the dykes under high temperature and pressure results in the formation of cooling joints forming within the host rock at the dyke





contacts. These dykes therefore would compartmentalise and/or behave as conduits for groundwater flow and would therefore significantly impact on the water levels and interconnectivity of the weathered and fractured aquifers (Hodgson et al, 1985).

Of all unweathered sediments in the fractured aquifer, the coal seam often has the highest hydraulic conductivity. The floor of the coal seam controls the initial build-up during the initial stages of water accumulation. The topography of the Dwyka played a crucial role in determining the distribution of the lower seams, and their associated clastic rocks. The lower seams narrow towards and pinch out against paleo-highs. Thus, the shape of the pre-coal environment is still a crucial factor in the current hydrogeology.

The Dwyka tillite forms a hydraulic barrier between the overlying mineral deposits and the pre-Karoo aquifer due to its low hydraulic conductivity. The pre-Karoo aquifer is not exploited within this area due to the scarcity of fractures, high fluorides and excessive pumping depth. This pre-Karoo aquifer is not expected to influence the dynamics of the overlying Ecca aquifers as they are mostly separated by the generally impervious Dwyka tillites (DWA, 2005).

#### **2.6.13.1. Groundwater Use**

Vryheid formation borehole yields are typically in the order of 0.1 – 2 l/s, although yields up to 9 L/s have been recorded. However, the groundwater yield potential is low, since 83% of boreholes yield less than 2 l/s. Groundwater levels vary between 5 and 25 mbgl (meters below ground level) (Barnard, 2000).

Land use and groundwater use in and around the mining areas has remained fairly constant since 1998. Hydrocensus results (DWA, 2005) illustrated that, with the exception of coal mining, the typical groundwater use for the general Consbrey area are domestic and stock watering. However, during a detailed hydrocensus done in 1996 around the Smutsoog mine, it was found that groundwater is used for domestic purposes, stock watering and irrigation supply. Two boreholes were also used for water supply to the mine (DWA, 2008).

During the 2005 hydrocensus none of the local farmers were able to provide accurate information about borehole yields, but variations between 0.14 l/s to 2.7 l/s were reported. It was generally recorded that borehole yields had reduced significantly during the drought in 1992, but it was noted that the groundwater response to the onset of rainy seasons was, in years of normal rainfall, generally quite rapid. The mining operations till 1992 did not appear to have affected the boreholes.

A hydrocensus will take place within the project area to update these findings and look at the current water use.

#### **2.6.13.2. Groundwater Levels**

Based on the results of the 2008 hydrocensus, the rest groundwater levels in the proposed Consbrey project area have not been disturbed by nearby mining activities. The measured groundwater levels varied between 0.9 and 8 mbgl (Figure 2-11).

Typically, groundwater levels in the Vryheid formation vary between 5 and 25 mbgl (meters below ground level) (Barnard, 2000). The average rest level of the upper aquifer in the Witbank farm area is approximately 6 to 8 mbgl (DWA, 2005a). The groundwater table intercepts the surface at local pans and becomes deeper beneath higher lying areas. In general, the water table is very shallow and seeps can be seen in the areas where groundwater daylighting forming headwaters of the streams (Silk, 1997). A number of natural springs were reported to exist during periods of normal rainfall. It appears from these reports that these are frequently close to or slightly above the coal seam outcrop.

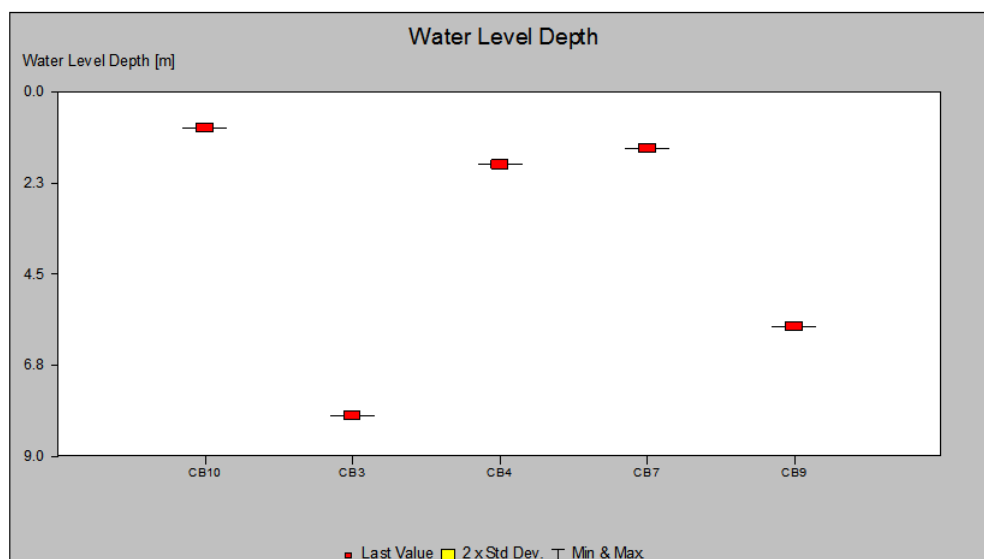


Figure 2-11: Groundwater Levels Consbrey 2008 Hydrocensus

### 2.6.13.3. Groundwater Recharge

Rainfall in the Tselentis area averages around 700 mm/a. Recharge to Karoo sediments and to various types of mining has been studied extensively during the past 26 years in the Mpumalanga Mines. Factors relevant for recharge in mines that can be expected at the New Areas are identified and shown in Table 2-10 (Hodgson, 2006).

Table 2-10: Factors Relevant for Recharge in Mines (Hodgson, 2006)

Description	Recharge % of annual rainfall
Influx into bord-and-pillar mining > 100m	1
Influx into bord-and-pillar mining 60 – 100m	1.5
Influx into bord-and-pillar mining 30 – 60m	2



Description	Recharge % of annual rainfall
Influx into bord-and-pillar mining 15 – 30m	2.5
Influx into bord-and-pillar mining < 15m	4
Recharge to undisturbed Karoo sediments	3
Recharge to stooped areas	6 – 11
Recharge to open pit areas	10 - 20

#### 2.6.13.4. Groundwater Quality

Uncontaminated groundwater in the Vryheid formation is classified as Magnesium-Bicarbonate water and depicts recently recharged water. The ambient groundwater quality is of ideal drinking water quality, EC < 70 mS/m, and also suitable for stock watering and irrigation. However, the occurrence of nitrate in the groundwater might be of concern in some areas when using the source for drinking water purposes (Barnard, 2000). The results of the 2008 analysis are presented in Table 2-11. The results are colour coded in reference to the South African National Standards for drinking water (SANS 241:2005). Entries in red indicate concentrations exceeding the maximum allowable limits.

The salinity across the proposed mine area does not vary considerably. The recorded TDS values range between 30 and 368 mg/l. These values are typically below 1000 mg/l, well within Class I acceptable limits. Measured pH values indicate an overall minor acidic to alkaline groundwater system. Across the project area, the pH range is 6.68 to 8.21.

The results indicated elevated aluminium concentrations in CB7 and CB9. High iron concentrations were encountered in CB4. CB6, CB7 and CB9 also showed elevated iron concentration. Elevated manganese and aluminium were reported in CB6. CB5 also showed elevated manganese concentrations. The cause of the elevated dissolved metals will be investigated during the EIA phase.

The major ion chemistry is depicted in the Figure 2-12. The Piper diagram shows CB1, CB2, CB3, CB5 and CB8 as being typically recently recharged waters with typical bicarbonate and magnesium/calcium signatures. Borehole CB4 is dominated by sodium and / or potassium cations and a combination of carbonate/ bicarbonate and chloride anions. Sodium dominance is attributed to cation exchange processes as groundwater flow in through the aquifers in the vicinity of these boreholes. CB6, CB7 and CB7 depict a groundwater type affected by mine pollution. These water types will be further investigated during the EIA phase.



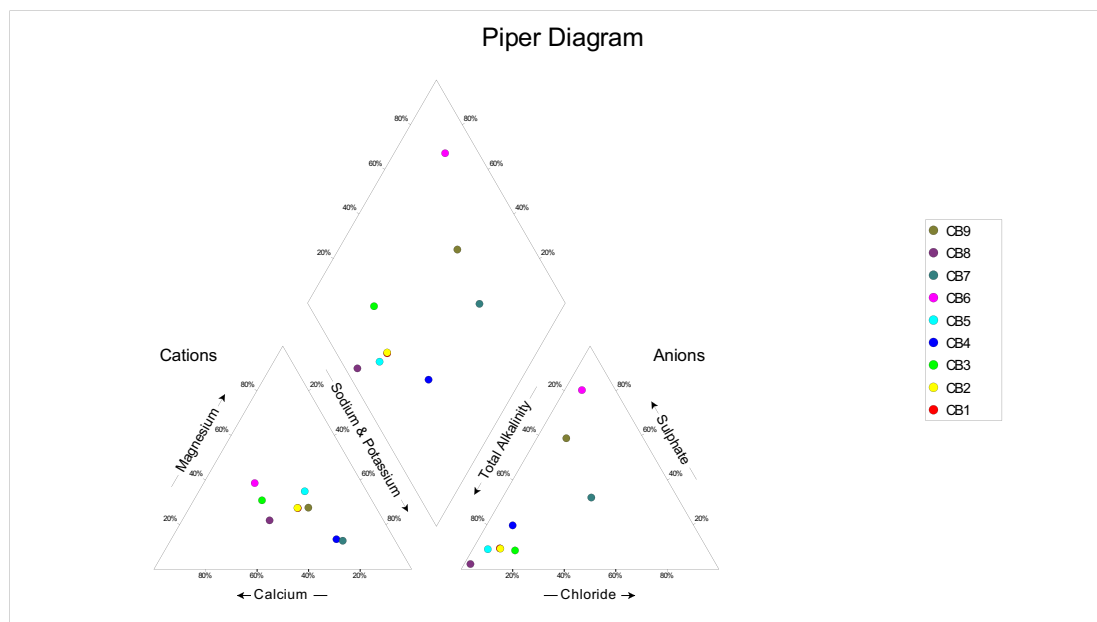


Scoping report in terms of the Mineral and Petroleum Resources Development Act, 2002, for the Proposed Consbrey Colliery

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Table 2-11: 2008 Hydrocensus Sampling Results

Sample ID	pH-Value at 25° C	Conductivity at 25° C in mS/m	Total Dissolved Solids	Calcium as Ca	Magnesium as Mg	Sodium as Na	Potassium as K	Total Alkalinity as CaCO <sub>3</sub>	Chlorides as Cl	Sulphate as SO <sub>4</sub>	Nitrate NO <sub>3</sub> as N	Fluoride as F	Aluminium as Al	Iron as Fe	Manganese as Mn	Ammonia as N
Class I (Acceptable)	5-9	<150	<1000	<150	<70	<100	<50	N/S	<200	<400	<10.0	<1	<0.3	<0.2	<0.1	<0.5
Class II (Max. Allowable)	4-10	150-370	1000-2400	150-300	70-100	200-400	50-100	N/S	200-600	400-600	10-20	1-1.5	0.3-0.5	0.2-2	0.1-1	0.5-1
CB1	8.19	40.6	246	26.4	14.2	41.8	1.87	174	17	18.4	0.13	0.36	-0.01	<0.01	<0.01	<0.2
CB2	8.21	40.4	264	26.4	14.2	41.5	1.79	179	18	18.7	<0.1	0.38	-0.01	<0.01	<0.01	<0.2
CB3	8.05	40.9	238	36.4	15.8	24.3	4.26	145	24	14.7	6.1	0.35	-0.01	<0.01	<0.01	<0.2
CB4	7.25	21.5	232	16.4	5.76	52.6	3.62	136	15	35.7	0.72	0.68	-0.01	3.65	<0.01	<0.2
CB5	8.31	23.2	146	12	10.5	21.7	4.16	109	6	10.4	<0.1	0.32	-0.01	0.06	0.03	<0.2
CB6	6.68	52.4	368	46.8	26.1	12.8	23.5	34	14	203	0.3	0.25	-0.01	0.31	0.02	0.85
CB7	6.81	3.71	30	1.41	0.52	5.15	0.47	8	6	7.3	12	0.22	1.3	0.57	<0.01	<0.2
CB8	8.2	38.4	250	39.4	11.6	31.9	6.36	212	5	3.8	0.12	0.34	-0.01	<0.01	<0.01	<0.2
CB9	7.34	12.97	104	6.62	4.17	12.9	1.28	24	7	45.2	0.58	0.22	4.43	1.86	<0.01	0.33



**Figure 2-12: Piper Diagram for 2008 Hydrocensus**

### 2.6.13.5. Conceptual Groundwater Model

The weathered aquifer ranges between 0 and 15 mbgl of which the lower 5 to 10 m is saturated. This aquifer is utilized for domestic and stock water use, via springs and shallow boreholes. The saturated depth of this aquifer is dependent on rainfall recharge and the influx of water into shallow underground mining operations is also expected to have a strong seasonal control (DWA, 2005).

The fractured Eccca aquifer contains a very low quantity of interstitial water as the pore spaces are generally too well cemented. Water movement in this stratum is therefore in secondary fractures, cracks or joints. Vertical percolation of water into coal voids is inhibited by horizontal stratification of the Eccca sediments and no instance has been found where overlying aquifers were totally drained due to bord and pillar mining. However, coal voids often fill up with water after mine closure due to slow seepage and the flooding, in turn, reduces the acid producing potential within the groundwater. Seepage of this water, from the roof and floor, into bord and pillar mine workings, occurs very slowly and is usually an insignificant contribution to the final void fill volume (Hodgson & Krantz, 1998).

Horizontal movement of groundwater within the fractured aquifer, for this area, is commonly intercepted by cross-cutting dolerite dykes which either serve to compartmentalise groundwater or behave as a conduit for groundwater flow; thus creating a dynamic groundwater system.

Very few major faults intersect the South African coalfields due to the tectonically undisturbed state of the Karoo Sequence. Very few faults with a displacement of more than 0.5 m exist within the greater Witbank area and these small fractures and faults are

generally associated with dips along flanks of paleo-valleys (Hodgson et al. 1985). The scarcity of these faults is exacerbated by the presence of the Jurassic dolerite dyke and sill swarms, which have subsequently intruded most pre-Jurassic faults, fractures and horizontal separations (DWA, 2005).

**2.6.13.6. Geochemistry**

The acid-generating and base-neutralising capabilities of the geological layers in the main open pit mining area at Tselentis are indicated in Table 2-12 (DWA, 2000). This is given as a desktop indication of possible acid-base capability which will be updated and calibrated for the project area during the EIA phase.

**Table 2-12: Acid-generating and Base-neutralising Capabilities at Tselentis**

Potentially acid generating	Sandstone/siltstone layer; coal seam floor
Potentially very acid generating	Argillaceous sandstone layer; bioturbated siltstone layer
Very slightly acid generating	Micaceous sandstone
Slightly acid generating	Upper weathered sandstone layer
Very high neutralising capacity	Dolerite dyke

The acid generating and base neutralising capabilities of the geological layers in the Witbank open pit mining area at Tselentis is shown in Table 2-13 (DWA, 2000).

**Table 2-13: Acid-generating and Base-neutralising Capabilities of the Geological layers in the Witbank coalfiled at Tselentis (open pit areas)**

Some acid generating potential and very little base potential	Clean sandstone layer
High aced producing potential and some base potential	Sandstone layer above coal seam
Potentially acid generating	C Lower parting seam

It is clear that the acid generating and neutralising potentials for the geological layers at Tselentis are site specific and that acid and neutralising potentials in the Consbrey will have to be evaluated during the EIA phase.

**2.6.14. Air Quality**

The pollutant of importance for the proposed Consbrey Colliery is particulate matter. The Department of Environmental Affairs (DEA) operates an Ambient Air Quality monitoring station at the residential area of Kwa Zamokuhle just north east of Hendrina.

The residential area of Kwa Zamokuhle in Hendrina area was identified as one of the five towns in the Highveld Priority Area where an ambient air quality monitoring station should be

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placed. Hendrina was one of the areas identified as having a high frequency of exceeding the PM<sub>10</sub> daily average standard, and also in terms of annual average SO<sub>2</sub> concentrations and thus identified as a "hot spot". The site that was considered the most appropriate was Tsiki-Naledi Secondary School in Kwa Zamokuhle. The air quality monitoring station gives a good indication of ambient air quality in the town of Hendrina, as there are no direct sources near to the school. There is also no direct influence of domestic fuel burning, as the school is in a built-up area.

The data from South African Air Quality Information System (SAAQIS) gives an overview of the state of the ambient air quality in the vicinity.

The daily average PM<sub>10</sub> and PM<sub>2.5</sub> ambient concentrations, as well as diurnal profiles at Hendrina Ambient Air Quality Monitoring Station for the period August 2008 to February 2013 are provided in Figure 2-13 to Figure 2-16 respectively.

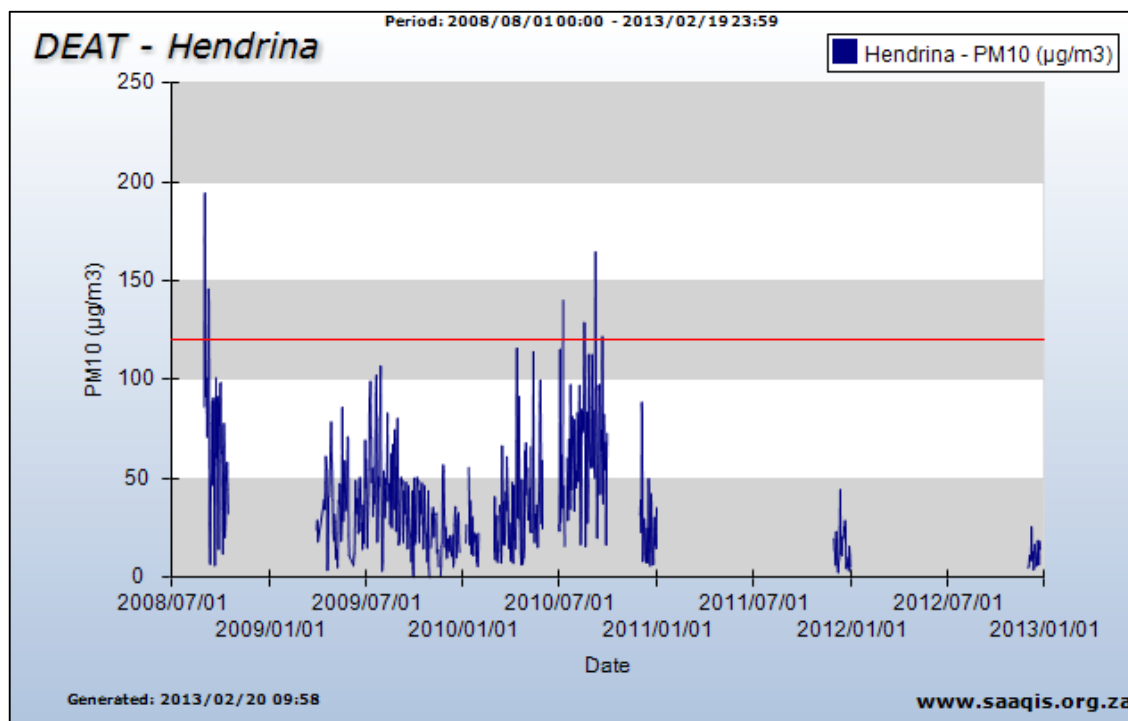


Figure 2-13: PM10 Daily Average 2008-2013 Hendrina AQM Station

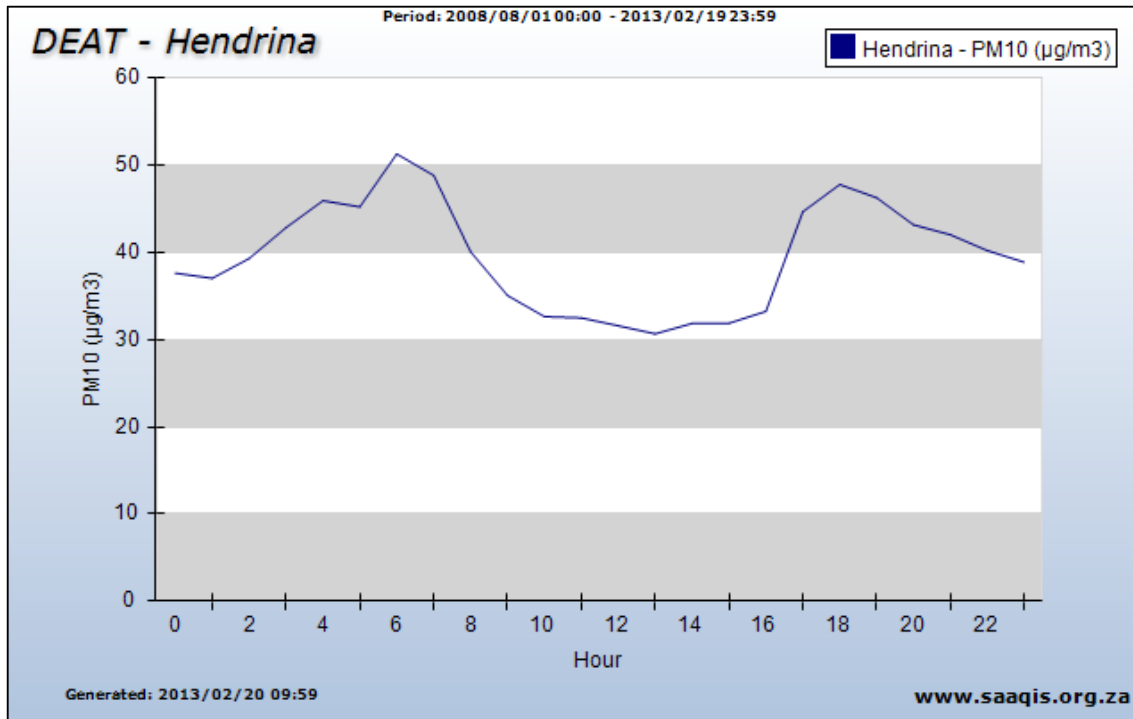


Figure 2-14: PM10 Diurnal Profile 2008-2013 Hendrina AQM Station

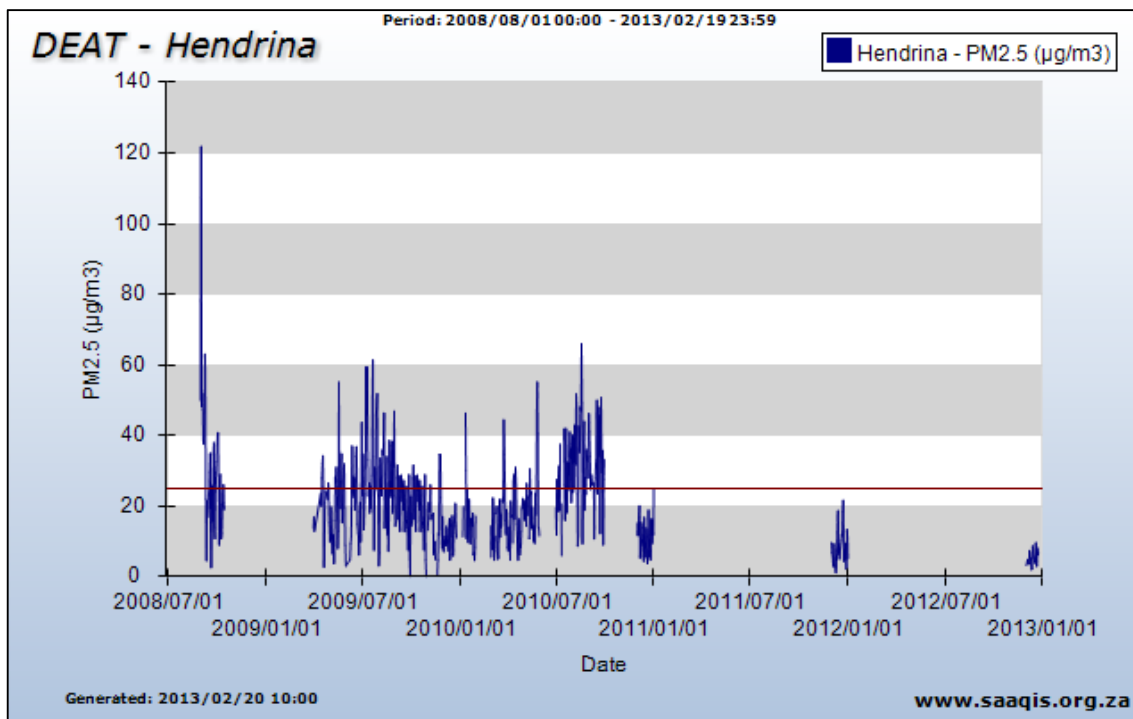


Figure 2-15: PM2.5 Daily Average 2008-2013 Hendrina AQM Station

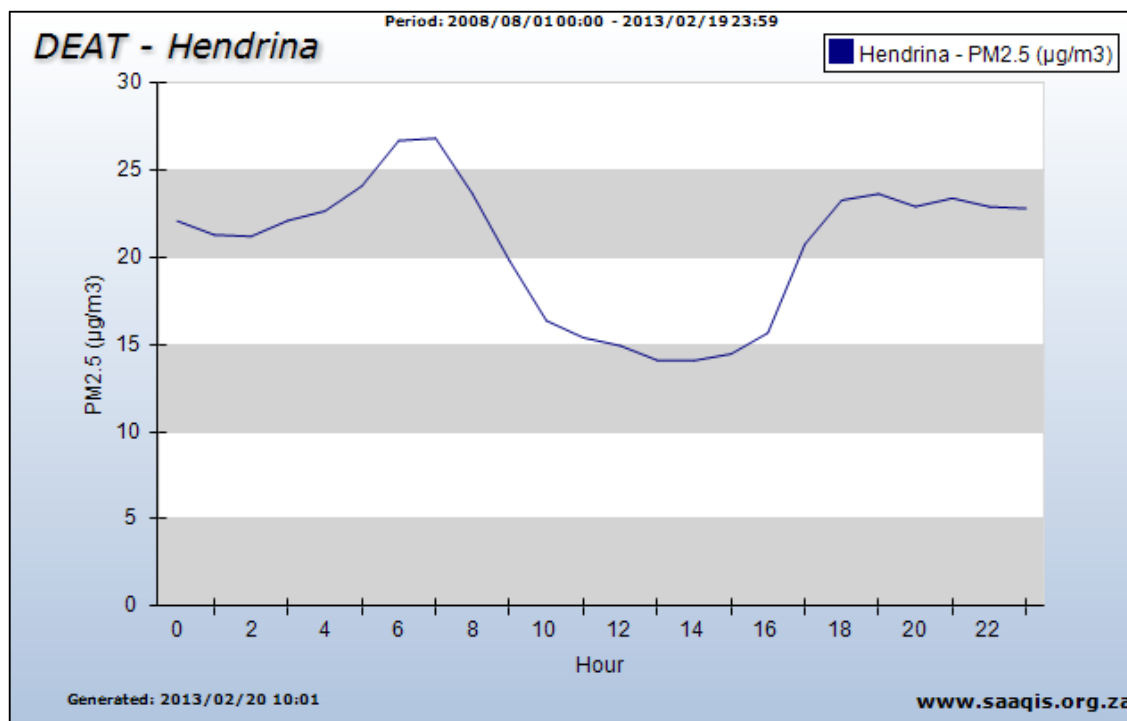


Figure 2-16: PM2.5 Diurnal Profile 2008-2013 Hendrina AQM Station

This data was used to establish baseline ground level concentrations for above mentioned pollutants in the vicinity of proposed Consbrey operation since the distance from the operation to the AQM station is approximately 10 km and is deemed representative of existing air quality in the area.

#### 2.6.15. Noise

The current ambient noise levels on the property to be mined are minimal and do not extend beyond what is generally associated with farming activities. The N11 provincial road traverses the south westerly portion of the project area and other farm roads traverse the area. The R542 traverses the southerly portion of the project area.

The R38 runs about 5 km from the southern portion of the project area and the R36 runs about 500 m from the eastern portion of the project area. These roads are unlikely to impact on the areas surrounding the proposed area due to the distant proximity.

Blasting from surrounding mining activities can also impact on the noise levels, but this is infrequent and will influence the significance of the impact.

#### 2.7. Provide any relevant additional information.

A mining right application was submitted for the Consbrey project during 2008 and a scoping report compiled. A consultation process was undertaken with the then identified I&APs and

has been documented. The consultation process is now being repeated, and previous information, although not replacing the study currently underway, does give an indication of the issues.

Existing specialist baseline studies were used to describe the baseline environment. These studies were conducted in 2008 for the proposed Consbrey Colliery and could not be updated with more relevant data, due to time constraints. Therefore, the existing information was adapted into the above baseline description, in order to provide a description and understanding of the baseline environment.

The specialist investigations for the EIA phase will include a detailed, site specific description of the receiving environment and assessment of the potential impacts. In light of this, the significant knowledge gaps that were identified for the scoping phase will be addressed in the EIA phase (more detail is provided in Section 6, Terms of Reference for the EIA phase):

### **3. IDENTIFICATION OF THE ANTICIPATED ENVIRONMENTAL, SOCIAL OR CULTURAL IMPACTS, INCLUDING THE CUMULATIVE IMPACTS, WHERE APPLICABLE**

#### **3.1. Provide a description of the proposed prospecting or mining operation including a map showing the spatial locality of infrastructure, extraction area, and any associated activities.**

##### **3.1.1. Resources and Reserves**

Bituminous coal will be mined covering a total area of 9146.7 ha (with Consbrey A covering 420 ha of the total area). Coal seams A, B, C, D and E are proposed to be mined during a 30 year Life of Mine (LoM). The coal depth ranges from 120 m to 180 m below the surface. The mine plan is depicted on plan 12 below.

A total of 292 Million tonnes (Mt) of Indicated resources are present in the Consbrey area.

##### **3.1.2. Mining Method**

The coal seams will be mined with the use of the open pit (truck and shovel) and underground (bord and pillar) methods. As the coal resource becomes inaccessible through open pit mining due to the depths of the coal seam, the resources will be mined through the use of underground bord and pillar method with the use of continuous miners. The continuous miners will feed coal onto shuttle cars which will in turn deliver the coal to the conveyor belt system conveying coal to the surface where it will be stockpiled. The mined coal will be transported via the use of trucks and/or a conveyor belt to the Spitzkop plant for processing. Therefore, there will be no coal processing plant on the proposed Consbrey Colliery.



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**Plan 12: Consbrey Colliery Mine Plan**



# Msobo Coal Consbrey Project Opencast Areas

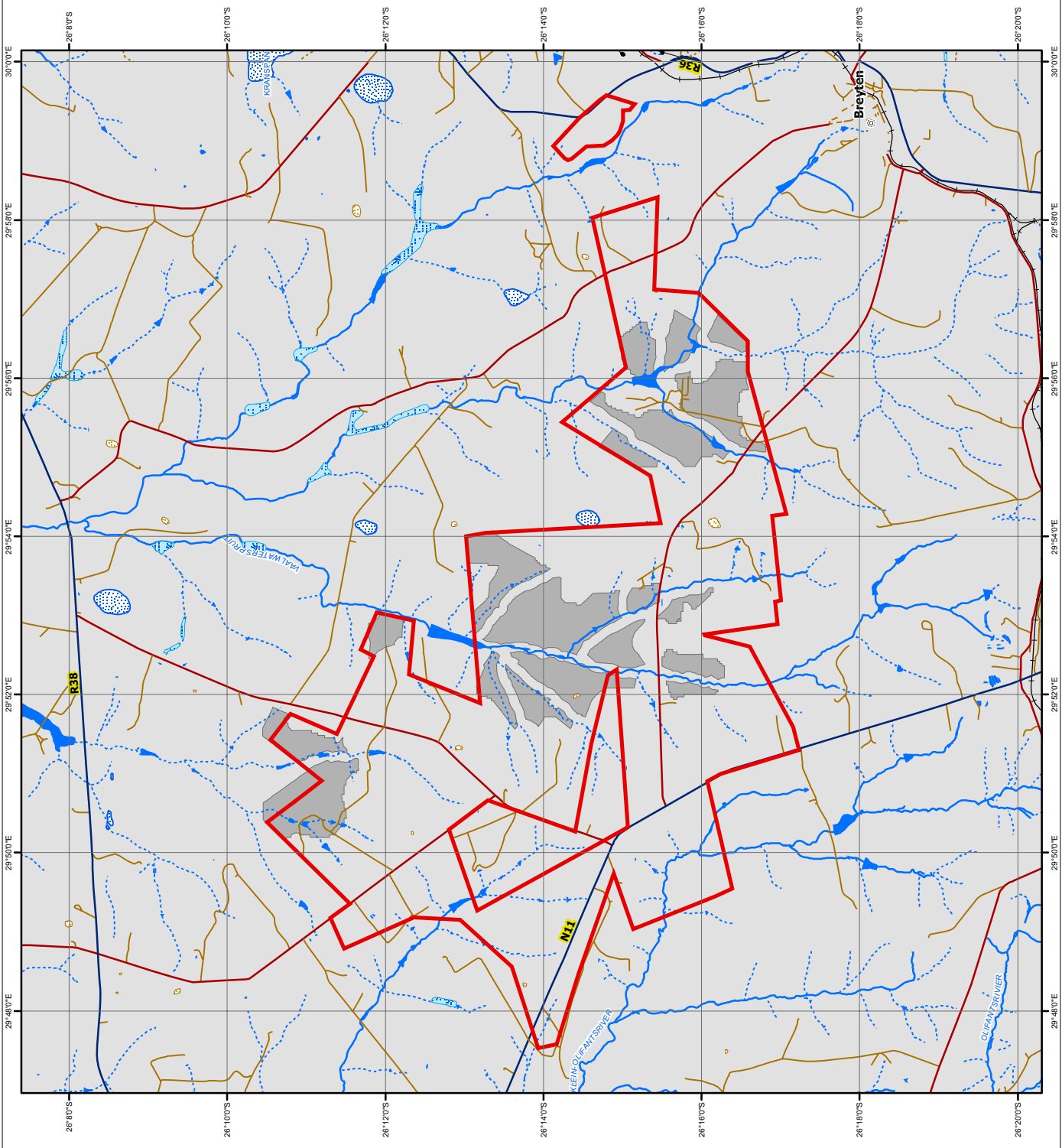
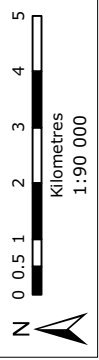
## Legend

- Consbrey Project Area
- Opencast Areas
- Secondary Town
- Arterial / National Route
- Main Road
- Other Access Road
- Street
- Track & Footpaths
- Railway Line
- Power Line
- Perennial River
- Non-Perennial River
- Dam
- Wetland
- Perennial Pan
- Non-Perennial Pan



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Revision Number: 1  
Datum: WSG 1984  
Date: 27/02/2013



# Msobo Coal Consbrey Project

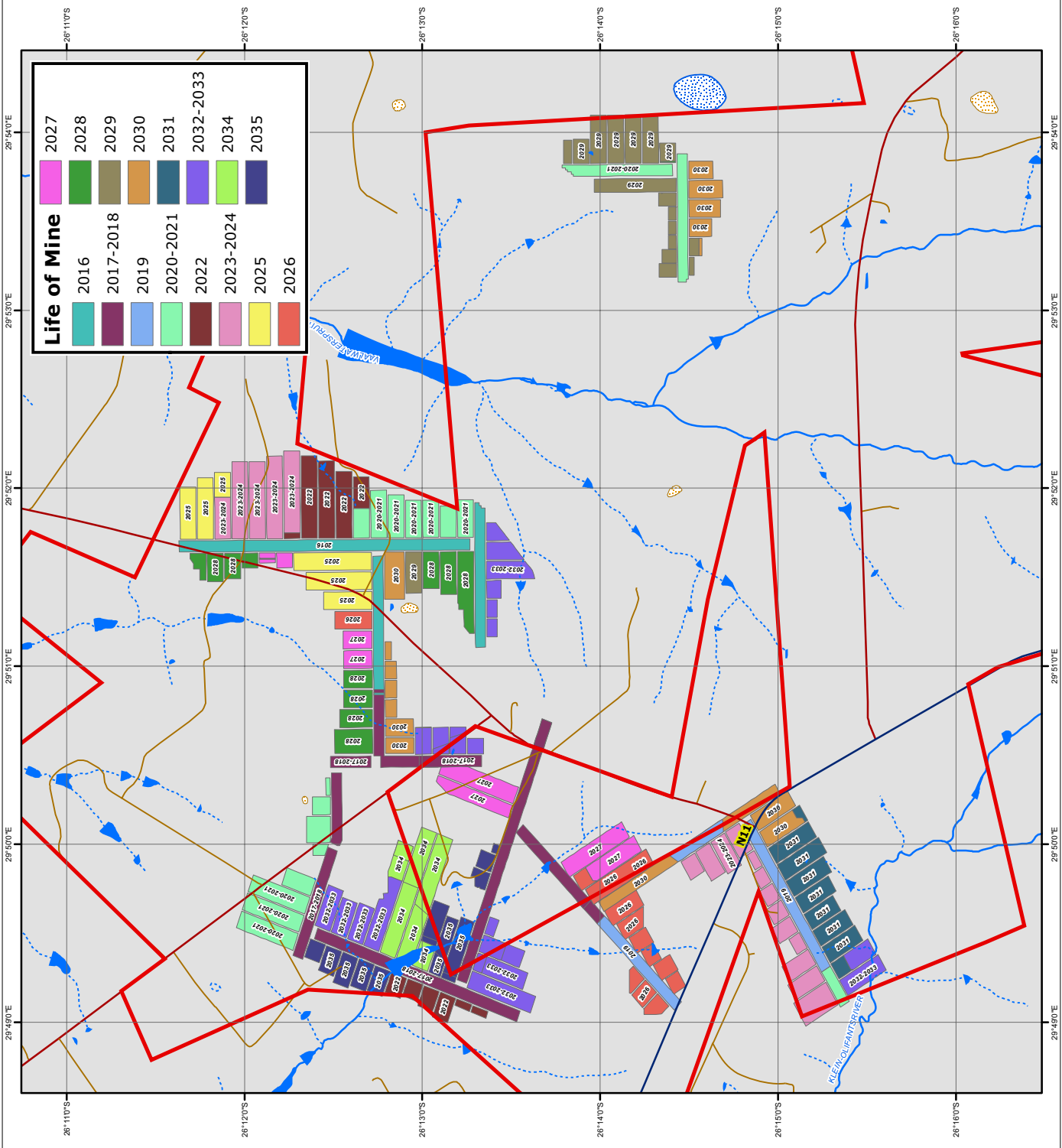
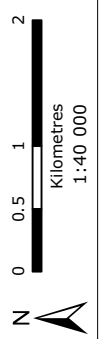
## Underground B Seam LOM

### Legend

- Consbrey Project Area
- Secondary Town
- Arterial / National Route
- Main Road
- Other Access Road
- Street
- Track & Footpaths
- Railway Line
- Power Line
- Perennial River
- Non-Perennial River
- Dam
- Wetland
- Perennial Pan
- Non-Perennial Pan



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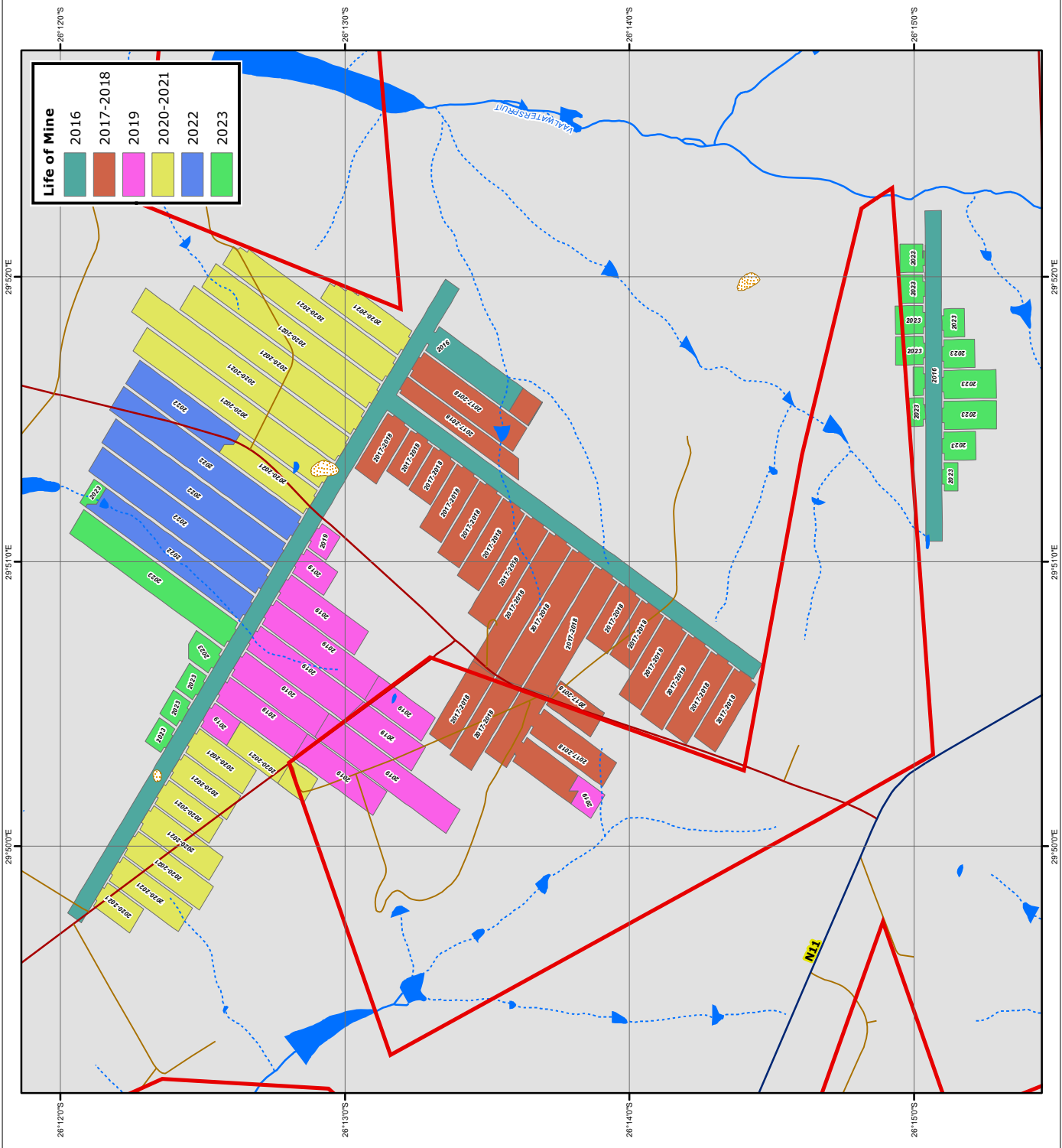
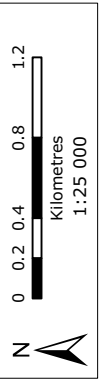
# Msobo Coal Consbrey Project Underground C Seam LOM

## Legend

- Consbrey Project Area
- Secondary Town
- Arterial / National Route
- Main Road
- Other Access Road
- Street
- Track & Footpaths
- Railway Line
- Power Line
- Perennial River
- Non-Perennial River
- Dam
- Wetland
- Perennial Pan
- Non-Perennial Pan



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 Datum: WSG 1984  
 Revision Number: 1  
 Date: 27/02/2013



### 3.1.3. Mineral Processing

The coal from Consbrey will be transported to the Spitzkop Colliery by truck and/or a conveyor belt system. The coal will be washed at the Spitzkop Colliery's beneficiation facility. The Spitzkop Colliery plant is a dense medium, single-stage wash plant with a feed capacity of 450 tons/ hr.

### 3.1.4. Transportation

After the beneficiation of coal at the Spitzkop Colliery Plant, the coal products will be loaded onto dedicated trains for transport either to the Richards Bay Terminal Facility (export) or to a regional power station and other domestic consumers.

### 3.1.5. Coal Markets

Some areas of the B and C lower seams can be beneficiated to supply an export quality steam coal. The C upper seam is of poorer quality and is suited for the domestic power generation market.

### 3.1.6. Infrastructure

The proposed infrastructure associated with the open pit and underground activities on Consbrey Colliery include:

- Temporary construction facilities and infrastructure;
- Waste management temporary handling and storage of general and hazardous waste, on-site change house and ablution facilities with sewage treatment plant;
- Process water management facilities through the use of pollution control dams;
- Storage and handling of hazardous substances such as fuel, lubricants, various process input chemicals, raw material stockpiles/ bunkers, gas, burning oils, explosives; and
- Services such as power lines, pipelines, conveyors, roads, telephone lines, communication and lighting masts.

### 3.2. Describe any listed activities (in terms of the NEMA EIA regulations) which will be occurring within the proposed prospecting or mining operation.

Currently only authorisation in terms of the MPRDA is sought. However, if any listed activities are triggered according to the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), the necessary applications will be compiled in terms of the NEMA. This approach will be taken for the Water Use Licence and the Waste Licence applications, and no activities will commence prior to receiving said authorisations.

The Environmental Management Act's (NEMA) as amended, EIA regulations GN R543 ("NEMA EIA Regulations") were published on the 18 June 2010 and came into effect on 2 August 2010. Together with the NEMA EIA Regulations, the Minister also published the following Regulations in terms of sections 24 and 24D of the NEMA:

- Regulation GN R544 - Listing Notice 1: This listing notice provides a list of various activities which require environmental authorisation and which must follow the basic assessment process as described in section 21 to 25 of the NEMA Regulations;
- Regulation GN R545 – Listing Notice 2: This listing notice provides a list of various activities which require environmental authorisation and which must follow an environmental impact assessment process as describer in section 26 to 35 of the NEMA Regulations; and
- Regulation GN R546 – Listing Notice 3: This notice provides a list of various environmental activities which have been identified by provincial governmental bodies which if undertaken within the stipulated provincial boundaries will require environmental authorisation. The basic assessment process as described in section 21 to 25 of the NEMA Regulations will need to be followed.

The typical NEMA activities that could be triggered for the proposed Consbrey colliery underground mining activities are listed below. If the activities in Listing Notice 2 and 3 are triggered during the EIA phase, they will be added to the list in Table 3-1.

**Table 3-1: Listing notice 1 (GNR 544) - Typical NEMA Activities that could be Triggered**

Activity Number	Activity Description
9	The construction of facilities or infrastructure exceeding 1000 metres in length for the bulk transportation of water, sewage or storm water: <ul style="list-style-type: none"> <li>(i) with an internal diameter of 0,36 metres or more; or</li> <li>(ii) with a peak throughput of 120 litres per second or more, excluding where:                             <ul style="list-style-type: none"> <li>a. such facilities or infrastructure are for bulk transportation of water, sewage or storm water or storm water drainage inside a road reserve; or</li> <li>b. Where such construction will occur within urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse.</li> </ul> </li> </ul>
10.	The construction of facilities or infrastructure for the transmission and distribution of electricity – <ul style="list-style-type: none"> <li>i. Outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or</li> <li>ii. Inside urban areas or industrial complexes with a capacity of 275 kilovolts or more.</li> </ul>
11	The construction of: <ul style="list-style-type: none"> <li>(i) canals; (ii) channels; (iii) bridges; (iv) dams; (v) weirs; (vi) bulk storm water outlet structures; (vii) marinas; (viii) jetties exceeding 50 square metres in size; (ix) slipways exceeding 50 square metres in size; (x) buildings exceeding 50 square metres in size; or (xi) infrastructure or structures covering 50 square metres or more where such construction occurs within a watercourse or within 32 metres of a</li> </ul>

	watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.
12	The construction of facilities or infrastructure for the off-stream storage of water including dams and reservoirs, with a combined capacity of 50 000 cubic metres or more, unless such storage falls within the ambit of activity 19 of Notice 545 of 2010.
13	The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres.
22	The construction of a road, outside urban areas, (i) with a reserve wider than 13,5 meters or, (ii) where no reserve exists where the road is wider than 8 metres, or (iii) For which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Notice 545 of 2010.
26	Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).
47	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre – (i) Where the existing reserve is wider than 13.5 meters; or (ii) Where no reserve exists, where the existing road is wider than 8 metres – excluding widening or lengthening occurring inside urban areas.

**3.3. Specifically confirm that the community and identified interested and affected parties have been consulted and that they agree that the potential impacts identified include those identified by them.**

Please refer to Section 1.8 which provides details around stakeholder comments associated with the consultation process. All stakeholders on the database have been provided with comment and registration sheets will be distributed on Friday, 1 March 2013 (see Section 5.1) together with the BID and announcement letter. This sheet can be used to submit formal comments and suggestions about the proposed project. Furthermore, meeting minutes and the comments received will be included, and continuously updated, in a Comment and Response report (CRR) which will accompany the Draft EIA Report.

**3.4. Provide a list and description of potential impacts on the cultural environment, if applicable.**

**3.4.1. Construction Phase**

Potential impacts may occur during the construction phase which will entail substantial excavations into the superficial sediment cover as well as the underlying bedrock. These notably include:

- Site clearing and the removal of topsoil and vegetation;
- The construction of infrastructure such as haul roads, pipelines and storm water diversion berms; and
- The excavations for the open pit and underground mining activities.

All these developments may adversely affect potential fossil heritage within the study area by destroying, disturbing or permanently sealing-in fossils that are then no longer available for scientific research or other public good.

During the construction phase, the impact on sites directly affected by construction activities would be high due to surface disturbances and destruction. If cemeteries, graves and burial grounds are affected by construction, these sites should be mitigated according to the NHRA (Act 25 of 1999), and if exhumation is required, as well as the National Health Act (Act 61 of 2003), the Provincial Department of Health and any ordinances of the Provincial Department of Health.

The impact on the cultural environment will depend on the value or significance of the identified heritage resources during the EIA phase. Taking the above into consideration, where an identified heritage resource has a low value, the destruction of the identified resource will have a low significance.

#### **3.4.2. Operational Phase**

During the operational phase, impacts resulting from open pit operations on cultural sites would be high, depending on the nature and location of sites identified in the Archaeological Impact Assessment (AIA). If sites of heritage significance are conserved and effectively managed, impacts would be low as long buffer zones are provided to protect sites from mining activities. Specifically, mining activities could pose significant impacts on the De Wittekrans Complex (Msobo Coal is located approximately 500 m from the De Wittekrans Complex) as the forms of the rock are significant at a local, regional and national level. The mining activities that could impact on these rock art forms are dust from blasting and movement of haul trucks on access roads and vibrations from blasting activities.

Underground mining operations would not have significant impacts on identified sites unless subsidence occurs. Should further sub-surface archaeological and heritage discoveries be made not previously identified/ documented in the AIA, operations must be ceased and a qualified archaeologist be contacted for an assessment of the discovery.

#### **3.4.3. Decommissioning Phase**

The removal of infrastructure and decommissioning and closure related operations are not anticipated to have any additional impact on sites of archaeological and heritage significance, conditional to the effective implementation of management measures determined during the EIA Phase and will be outlined in the AIA report.

Impacts on these sites could be severe if areas are not properly documented, fenced off, demarcated, managed and provided a buffer zone to prevent accidental damage. The

potential impacts will be investigated and reported on in more detail during the EIA phase, once the required studies have been completed.

**3.5. Provide a list and description of potential impacts identified on the heritage environment, if applicable.**

The potential impacts are described in section 3.4 above.

**3.6. Provide a list and description of potential impacts identified on the socio-economic conditions of any person on the property and on any adjacent or non-adjacent property who may be affected by the proposed prospecting or mining operations.**

The potential impacts on the socio-economic environment during the construction, operational and decommissioning phases are described below:

**3.6.1. Construction Phase**

The construction phase will likely give rise to a number of socio-economic impacts, both positive and negative. Positive impacts may include the following:

- Creation of temporary job opportunities for local and regional labourers and contractors. If Xstrata Coal endeavours to contract local labourers and contractors, the significance of this positive impact will be enhanced (also see Section 3.7);
- Multiplier effects on the local economy as a result of increased spending power of employees and services providers of the mine, rates and taxes payable by Xstrata Coal to the municipality, as well as Local Economic Development (LED) and Human Resource Development (HRD) spent by Xstrata Coal (also see Section 3.7); and
- Increased markets for local entrepreneurs, partially due to an influx of job-seekers who may become customers of local SMMEs and other businesses.

Negative socio-economic impacts during the construction phase of the proposed project may include the following:

- Physical and economic displacement of land owners and farm workers. Associated with this is the loss of agricultural land which may have a minor, albeit cumulative impact on food security at a national level;
- Competition between newcomers and the incumbent population for job-opportunities and other scarce social resources;
- Increased pressure on local services and resources, partially attributable to the proposed project's water and electricity requirements, and partially attributable to an influx of job-seekers who will require housing and other basic services, and who may make use of local health and educational facilities, amongst other services;
- Increased social pathologies, largely as a result of an influx of people into the area in search of employment or other economic opportunities. Such pathologies may include prostitution and petty theft;



- Safety impacts and a decrease in quality of life of land owners and workers as a result of construction activities, which may give rise to increased traffic, noise and dust levels; and
- Loss of farm labourers to the mine, which is likely to offer better wages than local farmers.

### 3.6.2. Operational Phase

Positive socio-economic impacts that may arise during the operational phase of the proposed project may include both job creation and community development (as part of the proponent's LED strategy). Both these impacts may serve to alleviate community needs prevalent in the surrounding areas. In addition, given the proposed project's LoM, the benefits of multiplier effects on the local economy and increased markets for entrepreneurs may continue beyond the construction phase and persist for the duration of the operational phase. Finally, as the proponent envisages exporting some of its coal products, a small positive impact on the national economy could be anticipated.

Potential negative impacts that may arise during the proposed project's operational phase may include the following:

- Economic dependency on the proposed project, which could be detrimental to those employed by the mine if employment is terminated during the course of the expected LoM due to uncontrollable external factors; and
- Decreased quality of life for those residing in the surrounding areas, mainly due to an increase in mining-related activities such as traffic, dust, noise, blasting and the possible presence of an (initial) foreign workforce.

### 3.6.3. Decommissioning & Closure

During the decommissioning phase of the Consbrey operation, rehabilitation of agricultural land will take place, and decreased levels of dust, noise, and traffic will be experienced in the areas surrounding the project area. In other words, the area will be returned to as close to its original condition as possible.

A significant negative impact will also be experienced in the area (Xstrata Coal SLP, 2012); a large number of individuals will inevitably lose their jobs upon decommissioning, which will adversely impact on the local economy and employment rate, which could in turn result in an increase of social pathologies such as theft, alcoholism and domestic violence. An important source of income will thus be lost for many families in the area and people may start to move out of the town, thereby possibly creating a "ghost town". Although possible, the probability of the area becoming a "ghost town" is low as there are a number of other mining operations in the area. Another negative effect may be experienced locally through a weakening of the multiplier effect when Xstrata Coal retracts its spending power from the area. Nationally, a decrease in total coal product will also be experienced.

### 3.6.4. Post Closure

It is not likely that any post closure effects will be felt within the socio-economic environment.

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### **3.7. Provide a list of potential impacts (positive & negative) on: employment opportunities, community health, community proximity, and links to the Social and Labour Plan.**

#### **3.7.1. Socio-economic Impact of the Operation**

According to Xstrata Coal's Social and Labour Plan (Xstrata Coal SLP, 2012) for the Consbrey operation, the anticipated impact of the proposed project on surrounding communities is expected to be positive in nature. Work opportunities will be created for at least 400 people; if an income multiplier factor of 1:6 is considered, this would positively and directly influence the quality of life for approximately 2 400 individuals. These some 400 employees will be able to support their dependents and will be offered the opportunity to partake in skills and education programmes, as well as other benefits available within a large company.

#### **3.7.2. Regional and Local Development**

The Consbrey operation will positively influence development opportunities within the Msukaligwa Municipality; it will contribute to the local economy through the provision of a large number of employment and income generating opportunities, as well as through creating a demand for services both for the project itself, and members in the surrounding areas. The proposed project could also have a positive impact on development in the Gert Sibande District Municipal area, and through the implementation of preferential procurement policies, there may be an increase in opportunities for local organisations and individuals to provide services and commodities to the operation and its workforce. However, in light of the fact that mineral resources are finite, it is essential to identify alternative catalysts for LED, whereby a diversified economy can be created (Xstrata Coal SLP, 2012).

#### **3.7.3. Sustainable community livelihoods**

Consbrey is expected to have a positive impact on livelihoods and subsistence strategies in the general project area. The proposed project will provide employment opportunities for an estimated 400 individuals, enabling these individuals to have a stable and regular income for many years. Through this income generation, the probability for dependents of the employees to also become involved in profitable employment is enhanced, thereby contributing positively to the economic sustainability of a larger portion of the population, which could ultimately result in higher standards of living and a reduction of poverty in the project-affected areas (Xstrata Coal SLP, 2012).

#### **3.7.4. Implementation of Local Economic Development Projects**

The sustainability of local communities and employees after mine closure is tentative. Accordingly, the following impacts or scenarios may potentially occur, and should be premeditated during LED project planning (Xstrata Coal SLP, 2012):

- Once sustainable development initiatives and projects have been established, the businesses may start to fail due to a number of potential factors. For example, skilled people may leave the area to find employment elsewhere, or technical and financial

resources may be gradually lost to the area. The result of this is that poverty may in fact increase significantly in the area after mine closure if projects are not properly managed and sustained.

- Alternatively, sustainable initiatives and projects may prove successful, and the self-reliance of the community may be significantly enhanced. Access to capital would then be improved, with the result being an increase in the wealth of the community and the region. Entrepreneurs and job seekers may thereafter be attracted to the area, causing an influx in the local population and a boost to the economy. A strong multiplier effect would follow this, and the standard of living would gradually increase.
- Lastly, capacity-building strategies and structures may prove to be effective, leading to community members developing their own business ideas, which eventually extend into sustainable projects and businesses. Hereby, the community would become increasingly sustainable.

**3.8. Provide a list and description of potential impacts identified on the biophysical environment including but not limited to impacts on: flora, fauna, water resources, air, noise, soil etc.**

The sections below describe the potential impacts identified during the construction, operational, decommissioning and post-closure phase.

A brief overview of the project activities likely to take place during each phase of the project is described below. These activities may result in potential impacts on the receiving environment. These were determined from desktop studies and based on experience in the project area. Detailed investigations will be carried out to refine the potential impacts and mitigations measures and make them project specific.

Construction Phase

The area is a greenfields site in terms of coal mining and as such, the following activities will take place in order to gain access to prepare the area for operations. During the construction phase, the area will be cleared and vegetation and topsoil will be removed in preparation for the surface infrastructure such as the construction of haul roads to and from the site.

Operational Phase

The operational phase will entail the removal of soil and overburden during open pit operations, the temporary stockpiling of these, and the filling of the voids of mined out areas as the open pit operations proceed.

The operational phase will include underground mining with the use of Continuous miners. The vent shaft will be fully operational. Haul roads will be used to transport coal to domestic markets.

Decommissioning Phase

The decommissioning phase will include demolition and removal of all infrastructure on site and rehabilitation. Final voids will be filled with overburden and topsoil and sub-soils will be replaced.

The potential impacts on the receiving environment during the construction, operational and decommissioning phase are described below:

### **3.8.1. Geology Potential Impacts**

#### **3.8.1.1. Construction Phase**

The impact on the geology will be insignificant. The rock strata will not be disrupted or excavated during construction as the activities will be limited to surface preparation.

#### **3.8.1.2. Operational Phase**

The mining of the natural coal seams will result in the permanent removal of the coal seam and therefore utilisation of the economic value thereof. The coal is a finite resource with a predicted lifespan. There will be a significant, long term impact on the geology of the mining area. No mitigation for this geological impact is possible. (DWA, 2005)

In underground mining areas adequate pillar support will be left in the underground workings to prevent collapse of the roof and therefore there will be no impact on the geological strata above the mined seams. Subsidence is unlikely to happen in the medium to long term.

In open pit areas the materials in the overburden and parting that may give rise to deterioration in water quality are the pyritic bioturbated sandstones and shales and black carbonaceous shales that are associated with the coal seams and occur close to the coal seams (DWA, 2005).

#### **3.8.1.3. Decommissioning Phase**

Parts of the area will be undermined/ removed. For underground mining there will be no other impacts on the geology and no mitigation is required. For open pit mining the surface area needs to be rehabilitated to a stable slope and to minimise water infiltration into the rehabilitated area.

The haul roads have no impact on the geology.

#### **3.8.1.4. Post Closure Phase**

The geology is no longer disturbed during post closure and hence there is no mitigation required.

### **3.8.2. Topography Potential Impacts**

#### **3.8.2.1. Construction Phase**

During construction, there will be surface disturbance in the form of diversion berms and trenches to divert surface water flow, soil stripping and stockpiling and levelling of areas in preparation of the boxcut and open pit areas. All these activities will have an impact on the

natural topography, albeit more site specific in extent. The impact on the topography will be long term.

#### **3.8.2.2. Operational Phase**

During operations, open pit mining will take place, resulting in a progressive impact on the natural topography. There will be overburden stockpiles, soil stockpiles and open pits which will also increase the secondary impacts such as disturbance to catchment area and erosion. These impacts will occur for the life of the mine. The final impact on topography will depend on the rehabilitation measures practised.

The underground mining will have a limited impact on topography, however if pillars are removed, subsidence could occur resulting in an alteration to the surface topography and secondary impacts such as areas of depressions where ponding could occur. These impacts could be significant but are possible to mitigate.

#### **3.8.2.3. Decommissioning Phase**

During decommissioning phase, the open pit areas and the boxcuts areas will be filled, levelled and rehabilitated, resulting in a neutral impact on topography as areas are rehabilitated as far as possible to their natural state. If subsidence occurs, this will need to be monitored and surface users be made aware of the possible impacts on the local topography.

#### **3.8.2.4. Post Closure Phase**

If rehabilitation is not successful, it could result in erosion. Subsidence could also continue to occur years after the mine has closed, therefore monitoring of surface rehabilitation and subsidence will be required.

### **3.8.3. Visual Potential Impact Assessment**

#### **3.8.3.1. Construction Phase**

The increase of activity, generation of dust and disturbance to surface area will negatively affect the current visual environment. The activities are likely to be visible from the N11 and main and other access roads which pass through the project area, although the topography and clumps of trees may help screen the activities.

#### **3.8.3.2. Operational Phase**

During operations, the open pit mining area will be most visible to locals in the area and traffic on the farm roads. The generation of dust and the trucks transporting the coal will also create a visual impact. The overburden stockpiles are likely to be visible to local land users and people visiting the area. Screening in the form of fences and tree lines can help reduce the significance of the impact.

The underground operations will have a minimal impact on the visual environment unless subsidence takes place, in which case the surface topography may be affected, and the visual environment changed slightly.

### **3.8.3.3. Decommissioning Phase**

Initially visual impacts will increase as the area is rehabilitated and overburden replaced. There will be additional machinery in the area and dust levels are expected to increase. Once rehabilitation is complete, the visual impact will be reduced.

### **3.8.3.4. Post Closure Phase**

Post closure visual impacts will be neutral. Monitoring is required to ensure rehabilitation is effective.

## **3.8.4. Soil Potential Impact Assessment**

### **3.8.4.1. Construction Phase**

The impact on soils during construction is expected to be negative due to the earth moving around the open pit underground workings, as well as preparation of haul roads where required. Topsoil will be stripped and stockpiled could result in disruption to the strata, fertility and volume. The soils will also be susceptible to erosion, especially during the rainy season. Mitigation is possible and can reduce the significance of the impact.

The use of haul roads will result in the soils compaction along the roads. Spillages of diesel and hydrocarbons will result in contamination of soil which will require remediation.

### **3.8.4.2. Operational Phase**

open pit mining results in a constant removal of soil and overburden, which could increase erosion and loss of soil fertility. This impact will remain for the duration of the mining activities. If soil stockpiles are not handled, stored or stockpiled correctly, the impact will be negative and long term. Soil erosion is a major problem in South Africa as soil takes a long time to regenerate, thus mitigation is required and monitoring should be undertaken to ensure impacts are minimised.

Underground mining will result in minor impacts on soil, however if subsidence occurs, this could result in a disturbance to the natural soil strata which could then impact on drainage and erosion. Mitigation will be required.

The hauling of coal via trucks has the potential to contaminate soil along the roads and monitoring will be required to identify and clean up spillages. Soil compaction and contamination from trucks will remain a potential impact for the duration of the mine.

### **3.8.4.3. Decommissioning Phase**

During decommissioning, the overburden and topsoil will be replaced and all mining areas will be rehabilitated. This will include seeding and establishing pioneer species in order to reduce erosion. This will have a positive impact on the local area. Monitoring will continue to ensure rehabilitation is successful. Haul roads will be ripped and re-vegetated.

Subsidence from underground mining may continue and impacts on soil are possible.

### **3.8.4.4. Post Closure Phase**

Impacts on soil post closure are minimal if rehabilitation has been successful. Subsidence may continue to impact on soil however this impact is not expected to be significant.

### **3.8.5. Land Use and Land Capability**

#### **3.8.5.1. Construction Phase**

During construction the land affected by mining is unavailable to other land uses. Mine infrastructure such as haul roads, open pit mining, stockpiles and underground infrastructure (such as air vents) all require space on land. These occupied and impacted areas are then unavailable to agricultural activities for the duration of mining activities. The cumulative land capability may also be reduced in the region as the land could be bought by the mine and land use permanently changed from agricultural to mining use.

#### **3.8.5.2. Operational Phase**

The land use in the open pit area and areas of mining infrastructure will change from the current land use to mining. The land capability in the open pit areas will be negatively affected for the duration of the activities.

Current land use above underground mining can continue throughout the mining activities. Land capability will also not be affected above the underground mine. In the event of subsidence, however, surface land use activities may be restricted and land capability may be affected, depending on the level of subsidence, which is currently undetermined.

Where underground mining undermines infrastructure such as roads and railway line, a safety factor will need to be applied to ensure the structure above does not collapse.

As the open pit areas are rehabilitated, the land use will be restored to at least grazing potential; however, the land capability will need to be determined.

#### **3.8.5.3. Decommissioning Phase**

Once stockpiles are removed and open pit areas, haul roads, and the boxcut are rehabilitated, the land use will be restored to at least grazing, however the agricultural potential will be unknown until land capability tests are undertaken. The land capability will need to be determined as it may have been affected by the mining activities.

#### **3.8.5.4. Post Closure**

Post closure impacts on land use and land capability may be experienced from secondary mining related impacts such as deterioration in water quality, subsidence and poor rehabilitation. Mitigation will be required to ensure that these secondary impacts are mitigated during mining so as to prevent them post mining. The severity of the impact is uncertain and will depend on the severity of the secondary impacts.

### **3.8.6. Flora Potential Impact Assessment**

#### **3.8.6.1. Construction Phase**

The preparation of mining activities will have a negative impact on the local flora as vegetation will be cleared for the construction of surface infrastructure. The areas of disturbance are not large, however in areas close to streams the vegetation is sensitive and mitigation will be required to ensure minimal impacts are experienced in these areas. The removal of invasive species, if present, will be a positive impact.

The local fauna will be able to move into surrounding areas which will reduce the significance of this impact.

#### **3.8.6.2. Operational Phase**

In the open pit areas, the impact on flora will continue to be negative as more land will be stripped to get to the coal seam. However, as each open pit cut is mined, the area will be rehabilitated and vegetation will be restored. Large portions of the project area are currently cultivated with limited natural vegetation. Monitoring will be required to ensure invasive species do not become established and to ensure that erosion is minimised and the slopes are of a suitable angle to allow for adequate drainage while discouraging erosion.

Underground areas will have a minimal impact on flora as mining takes place underground. In the event of subsidence from pillar removal, however, there may be a negative impact, but of low significance, depending on the depth of mining and safety factors applied.

##### **3.8.6.1. Decommissioning Phase**

The removal of infrastructure, replacement of overburden and rehabilitation of mining areas will result in a positive impact on the local flora. Monitoring will be required to ensure rehabilitation is effective and habitats are restored.

#### **3.8.6.2. Post Closure Phase**

Impacts on fauna post closure are due to secondary impacts such as deterioration of water quality, increased erosion from poor rehabilitation and alteration to drainage lines from subsidence. These impacts can all be mitigated which will reduce the significance. If no subsidence occurs, the impacts are minimal.

### **3.8.7. Fauna Potential Impact Assessment**

#### **3.8.7.1. Construction Phase**

The preparation of mining activities will have a negative impact on local fauna as natural habitats will be destroyed. There will be an increase in noise and activity, which will result in disturbance to fauna habitat. The local fauna will be able to move into surrounding areas which will reduce the significance of this impact.

#### **3.8.7.2. Operational Phase**

Noise created by the mining activities could cause the animals to move causing a negative impact. As more land is stripped to get to the coal seam, the removal of vegetation will result in the destruction of habitats and force animals to move away.



Underground areas will have a minimal impact on fauna as mining takes place underground. In the event of subsidence from pillar removal, however, there may be a negative impact, but of low significance, depending on the depth of subsidence.

#### **3.8.7.3. Decommissioning Phase**

The removal of infrastructure, replacement of overburden and rehabilitation of mining areas will result in a positive impact on the local fauna and flora. Monitoring will be required to ensure rehabilitation is effective and habitats are restored.

#### **3.8.7.4. Post Closure Phase**

Impacts on fauna post closure are due to secondary impacts such as deterioration of water quality, increased erosion from poor rehabilitation and alteration to drainage lines from subsidence. These impacts can all be mitigated which will reduce the significance. If no subsidence occurs, the impacts are minimal.

### **3.8.8. Aquatic Environment Potential Impact Assessment**

#### **3.8.8.1. Construction Phase**

A number of activities will occur during the construction phase. These activities and their various associated impacts on the aquatic integrity are discussed below.

##### *Clearance of land, removal of topsoil and vegetation:*

Impacts associated with land and vegetation clearance include the occurrence of increased rainfall runoff with reduced seepage. This negatively effects aquatic ecosystems through the alteration of flow types and associated habitat loss. Additionally to this the erosion potential of the catchment/watercourse is increased.

#### **3.8.8.2. Operational Phase**

During the operation phase of the mine, a different set of impacts will be expected. These activities and their associated impacts are listed below.

##### *Placement of mine infrastructure:*

The incidence of mining infrastructure allows for the creation of hard permanent features on which rain runoff force is increased. This may serve to increase erosion capabilities as well as increase flow velocities. This may result in habitat loss associated with increased sedimentation and erosion.

##### *Stockpiles and waste:*

During rainfall periods solutes present in exposed stockpiles and waste storage facilities dissolve into runoff and enter into nearby aquatic systems. Stockpiles and waste often contains various potentially harmful compounds once dissolved into the aquatic ecosystems. The presence of these compounds serve to deteriorate the quality and integrity of the aquatic ecosystems to an extent in which no life can survive or be supported by the aquatic

system. Due to the potential for deterioration in environmental quality mitigation is recommended.

Potential spillage from pollution control facilities:

During the underground mining operation groundwater will be pumped into pollution control dams. This groundwater is typically basic in nature with high concentrations of dissolved solids. The presence of pollution control dams presents the potential for spillages due to human error or natural events. If spillage does occur a deterioration of environmental quality of the associated or effected water courses will occur.

Potential contamination of surface water:

During the open pit mining operation the runoff of rainfall into the open pit area has the potential to contaminate and reduce water flowing into nearby streams. This has a negative impact on the quality and quantity of water flowing into the nearby aquatic ecosystems.

The mitigation of this impact will entail the following:

- Stormwater Management.

**3.8.8.3. Decommissioning Phase**

Potential contamination during closure activities:

During the decommissioning and closure phase, there is increased potential for surface water contamination from spillages and siltation these may impact the water quality and thus the state of the aquatic biota.

**3.8.8.4. Post Closure Phase**

Potential decant and Acid Mine Drainage (AMD)

After the closure of the mine the underground mine workings will become flooded with water. Due to chemical reactions in underground between water and the newly exposed mine workings there is a potential for groundwater to become acidic. Once the levels of groundwater reach a threshold there is potential for this water to exit the mine workings and enter into the surrounding aquatic systems. This will effectively lower the pH of these aquatic systems and serve to decrease the quality/state of the environment.

**3.8.9. Wetlands Potential Impact Assessment**

The proposed Consbrey Colliery project area is located within the Chrissiesmeer Lake District which comprises of over 230 pans within a 20 km radius. The Endangered Wildlife Trust is currently involved in two biodiversity conservation projects for the Chrissiesmeer Lake District. These are the application for the Lake District to declared a Wetland of International Importance through the Ramsar Convention and secondly to use biodiversity stewardship to legally protect the land in the area.

Over the Consbrey project area a number of valley bottom wetlands and pans and dams exist.

### **3.8.9.1. Construction Phase**

The preparation of mining activities will result in a direct destruction of wetland areas that are deemed irreplaceable and are unique at a provincial scale. The loss of wetland areas associated with the project area will result in a direct loss of wetland integrity and wetland functionality such as the maintenance of biodiversity. The areas of disturbance are not large, however these areas are regarded as sensitive and unique. The impacts associated with the construction phase of the project are regarded as very significant.

### **3.8.9.2. Operational Phase**

open pit mining of the coal will result in a direct destruction of some wetland areas within the project area. This will result in the destruction of habitat and the loss of sensitive fauna and flora species associated with the wetland systems within the project area. Furthermore, contaminated water originating from the open pit mining area as well as the associated infrastructure will result in the contamination of surrounding near pristine wetland areas therefore loss of biodiversity. the loss of biodiversity, wetland integrity and wetland functionality is regarded as very significant since the present Ecological Status of the wetland areas within the area is regarded as near pristine.

### **3.8.9.3. Decommissioning Phase**

The removal of infrastructure, replacement of overburden and rehabilitation of mining areas will result in a positive impact. However due to the disturbance of the local geomorphology and the hydrology as a result of open pit mining the wetland areas cannot be restored.

### **3.8.9.4. Post Closure Phase**

The destruction of wetland areas during open pit mining will result in an everlasting loss of the wetlands capacity to attenuate floods, enhance water quality and maintain biodiversity in the region. The loss of such functionality will occur as a result of the change in the local hydrology and geomorphology of the wetlands within the project area. These changes will effect a change in the way in which water moves in, through and out of the wetland areas within the project area.

## **3.8.10. Surface Water**

The surface water impacts that could arise from the proposed project will affect both the quality and quantity of the water resources.

### **3.8.10.1. Construction Phase**

#### **Surface Water Quality Impacts**

The removal of vegetation and increased vehicular movement will result in dust deposition into the non-perennial streams and drainage lines (as construction is often carried out in the dry season). The deposited dust and silt may result in negative surface water quality impacts at the onset of the rainy season. It is essential that dust suppression measures are implemented to reduce the significance of such dust and subsequent siltation.

During construction, there will be heavy machinery on site which increases the chances of accidental (onset of pro-longed) spillages of construction and hazardous materials including those containing hydrocarbons such as diesels and oils. This could result in negative water quality impacts if the spillage is not contained on-site and cleaned up immediately. The surface water quality impacts from hydrocarbon contamination could reach a regional extent.

#### Surface Water Quantity Impacts

When the separation of clean and dirty water areas is implemented (by placing isolation berms and trenches) a volume of run-off will be contained within the dirty areas and be prevented from reporting to the catchment. This requires minimization of the dirty area in order to reduce the negative water quantity impact.

Stream crossings that are constructed such as roads has to be in a manner that does not impede the flow of stormwater within the catchment as this would result in negative surface water quantity impacts such as damming of water. The structures such as culverts should be constructed to enable the free drainage/ flow of surface run-off.

There is a potential for extreme rainfall events to flood the mining area particularly where the area is close to water resources. This could result in negative surface water quality (such as pollution of stormwater) and quantity impacts (such as the containment of the contaminated water on-site). As such, the location of stockpiles, infrastructure and any other mining activities should be in line with the National Water Act (Act 36 of 1998) (NWA) amendment of Regulation GN R 704. The regulation governs the use of water in mining including location of infrastructure, use of materials and the design, operation and maintenance of the water containment and conveyance infrastructure. Where such infrastructure such as stockpiles is located on site, it is essential to isolate the associated surface water from the general stormwater so as to prevent contamination and subsequent reduced stormwater flow to the catchment.

#### **3.8.10.2. Operational Phase**

##### Surface Water Quality

Negative surface water quality impacts in the operational phase could arise from the spillage (accidental/ pro-longed leakages), improper use and storage of hazardous and hydrocarbon containing materials.

Dust deposition could result in surface water resource pollution and siltation.

Dirty water within the mining area should be contained or could result in pollution of the nearby water resources. Mitigation will be required to ensure the pits are drained accordingly and dirty water is contained and re-used where possible.

##### Surface Water Quantity

The open pit workings will receive run-off, precipitation and seepage that will be prevented from reporting to the catchment resulting in negative water quantity impacts.

Regarding undermining of streams could potentially result in subsidence or alteration of stream beds. The safety factors prescribed in GN R 704 and other environmental legislation should be applied unless there is exemption approved for such activities.

The operational water uses such as human consumption, domestic use and process water could be sourced from surface water (streams, dams and pans) and this could result in the negative surface water quantity impacts as most of the dams are relied upon for urban water supply by the water service providers.

#### **3.8.10.3. Decommissioning & Closure**

There potential for negative surface water quality impacts are increased in the decommissioning phase as this entails dismantling of structures and workshops. This could result in accidental spillages and where inexperienced contractors are used these materials could be disposed incorrectly.

However, there will be a neutral impact on surface water quality and quantity once the area is cleaned out and restored to a condition that best resembles pre-mining.

#### **3.8.10.4. Post Closure**

Post-closure when rehabilitation is implemented, the surface water quantity impacts will be minimised as the runoff will be restored to the catchment. However, improper contouring of the surface and over compacting the surface could result in damming and increased surface runoff respectively.

The cumulative surface water quality impacts may still exist in the water resources and it could take a long-period before the surface water quality returns to baseline/ pre-mining conditions.

The flooding of mine workings and the decant to surface could further impact on surface water quality, especially if Acid Mine Drainage forms.

Thus, monitoring of quality and the on-going rehabilitation should continue for at least three years post-mining to detect any subsequent negative impacts and to trigger implementation of mitigation measures.

### **3.8.11. Groundwater Potential Impacts**

#### **3.8.11.1. Construction Phase**

The impact on the groundwater will be insignificant. Small scale dewatering around the pit preparation area might start. No mitigation will be required, however groundwater monitoring needs to start before mining commences.

#### **3.8.11.2. Operational Phase**

The local aquifer systems are classified as minor aquifer systems and the regional utilisation thereof coincides with the principle land uses of grazing and to provide domestic water supply. The changes induced by mining may lead to a dewatering cone in the immediate

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vicinity of the mine, an increase in recharge, storage capacity (open pit workings) and deterioration in water quality.

The mining activities will open the areas to oxidation and the possible formation of acid mine drainage that will have to be contained. Open pit mining could have a significant impact on groundwater quality. Mitigation is required to minimise recharge to groundwater over the open pit mined areas by making the rehabilitated pit free-draining.

Monitoring of both groundwater levels and quality is required, for management and compliance purposes, as well as rainfall, to determine changes in recharge that might occur.

#### **3.8.11.3. Decommissioning Phase**

The quality of this water will be impacted upon by mining. Although not much can be done about the actual groundwater quality, mitigation is required against its surface water quality impact. The mining area might produce a seepage zone or decant as the recharge to open pit workings have increased by the disturbance of the strata. There are no large scale groundwater users in the area but poor quality groundwater emerging as seeps into the surface water environment can be seen as a negative, long term impact. Mitigation could take the form of passive treatment, active treatment of the containment and evaporation on site. The most suitable option would depend on the water quality and quantity that is released post closure.

Monitoring of both groundwater levels and quality is required, for management and compliance purposes, as well as rainfall, to determine changes in recharge that might occur.

#### **3.8.11.4. Post Closure Phase**

The impact on groundwater levels will be negative because of enhanced recharge. This will lead to seepage or decant of mine water. Mitigation to control groundwater levels is not economically feasible.

The potential for AMD is of significant concern due to the long time frame associated with it and the large financial expenditure associated with the handling of water contaminated in this fashion. Mitigation measures can include flooding of old mine workings to decrease the amount of oxygen available and therefore neutralising conditions will occur. Any seepage or decant should be contained and treated before released into the surface water environment.

Monitoring of groundwater levels and quality is required until set objectives have been achieved

#### **3.8.12. Air Quality Potential Impact Assessment**

Projects of this nature will generally present a number of air pollution sources that can have a negative impact on ambient air quality and downwind communities/land uses if unmanaged. Typically, the following air pollution sources may exist: dust clouds from blasting, wind erosion of exposed RoM stockpiles, wind erosion of exposed surface areas, unpaved roads, crushing and screening in the beneficiation plant, wind erosion of the discard

dump facilities, and materials handling. The findings, impact assessment and associated management measures will be included in the EIA/EMP report.

### **3.8.12.1. Construction Phase**

Site clearing, which will include removal of topsoil and vegetation, may result in dust emissions impacting people living in and around the site, as well as construction of any surface infrastructure e.g. haul roads, pipes, storm water diversion berms (including transportation of materials & stockpiling). The dust levels may increase due to increased activity of heavy machinery and due to the removal of vegetation, thus impacting areas around the project area. The dust levels may also increase due to blasting activities (blasting and development of initial boxcut for mining (incl. stockpiling from initial cuts) causing an impact on the people living on and around the site, and due to drilling activities rock for preparation of vent shaft and decline shaft.

### **3.8.12.2. Operational Phase**

Vehicle entrainment on unpaved roads is one of the main sources of particulate emissions.

The dust levels may also increase due to removal of coal via open pit mining and underground mining (mining process) and, as well as stockpiling of topsoil, overburden, RoM coal and discard dump. The mining operations will mainly comprise of fugitive dust releases, including materials handling operations (loading, tipping and offloading).

### **3.8.12.3. Decommissioning Phase**

The dust levels may increase due to demolition and removal of all infrastructure (incl. transportation off site). Demolition activities may result in dust emissions impacting people living in and around the site. Rehabilitation (spreading of soil, re-vegetation and profiling/contouring) have potential to increase dust levels in the area and impact people living around the site.

## **3.8.13. Noise Potential Impact Assessment**

### **3.8.13.1. Construction Phase**

Noise levels during construction are expected to increase due to increased vehicular activity and use of machinery to clear areas. This impact, however, will be short term. Noise in the area currently exists from the R542, N11, R36 and R38 and the dirt roads in the area. Areas in the Consbrey area further away from these main roads will experience increased noise levels as their environment is predominantly rural in nature.

### **3.8.13.2. Operational Phase**

During operations, the open pit areas will contribute to noise levels from the constant use of machinery to remove overburden and recover the coal. Trucks transporting the coal will also add to noise levels in the area, as well as on the main roads.

The underground mining activities will not contribute significantly to noise levels, however blasting for the underground and open pit areas will have a local impact in the area but of short duration. Mitigation will be required to help reduce the significance of the impact.

#### **3.8.13.3. Decommissioning Phase**

Initially noise levels will increase as machinery is used to rehabilitate the area. Once rehabilitation is completed, the noise levels will decrease significantly.

#### **3.8.13.4. Post Closure Phase**

Noise levels are not expected to increase post closure.

### **3.9. Provide a description of potential cumulative impacts that the proposed prospecting or mining operation may contribute to, considering other identified land uses which may have potential environmental linkages to the land concerned.**

Cumulative effects caused by the accumulation and interaction of multiple stresses affecting the parts and the functions of ecosystems. Of particular concern is the knowledge that ecological systems sometimes change abruptly and unexpectedly in response to apparently small incremental stresses. For purposes of this report, cumulative impacts have been defined as “the changes to the environment caused by an activity in combination with other past, present, and reasonably foreseeable human activities”.

During the EIA phase cumulative impacts will be assessed in order to determine how the proposed Consbrey Coal Mine will contribute to the already existing and potential future environmental impacts occurring in the area. A geographical area will be identified in order to assess the cumulative impacts and various aspects will be considered within this geographical zone. A historical approach will be taken to assessing the aspects together with current and proposed activities with the use of available information to establish the possible occurring cumulative impact within the geographical zone. Related consequences of identified cumulative impacts will be determined through a cause and effect relationship approach.

The following potential cumulative impacts have been determined during the scoping phase and will be investigated further during the EIA phase:

#### **3.9.1. Geology Cumulative Impacts**

The cumulative effect needs to be evaluated against the mining impacts on the remainder of the coal field.

Cumulative impacts on the geology are likely due to the increase in mining activities in the region. With more coal mining opening up in the Ermelo – Carolina area, the local geological conditions will be permanently disturbed. This impact cannot be mitigated however the resulting cumulative secondary impacts will need to be considered, such as impacts on groundwater quality and surface disturbance.



The MPRDA has as one of its aims to maximise the benefit of mining and utilise it as a catalyst in the local development of areas. In this context the mining of the proposed area will be beneficial to the town of Breyten, and surrounding towns. A number of other mining ventures currently exist in the area which will add to the development of the Breyten and Ermelo areas. Thus, while the local geology will be disturbed, it is for the betterment of the local community and the regional economy. The coal, however, is a finite resource with a predicated lifespan. Cumulative impacts are therefore permanent. (DWA, 2008)

### **3.9.2. Topography Cumulative Impacts**

There will be a cumulative impact on the topography due to the activities occurring in the surrounding areas, which include mining, as well as farming activities. These activities have the potential to alter drainage lines, increase erosion, which leads to donga's and alter the natural lie of the land. While difficult to mitigate, the impacts need to be managed to minimise their cumulative significance in the region.

### **3.9.3. Visual Cumulative Impacts**

The area is currently affected by existing mining activities. In this regard the visual impact is negatively increased; however the severity is not as great as for a predominantly rural region. The cumulative impact is difficult to mitigate and will require co-operation from all the mining houses in the region.

#### **3.9.4. Soil Cumulative Impacts**

There will be a cumulative impact on soil in the area due to the current and future activities taking place. Both mining and agriculture have the potential to result in soil erosion and contamination through surface disturbance, fertilizers, contamination of water and overgrazing. The combination of the mining and agriculture will result in a negative cumulative impact on the soil. Early mitigation and monitoring is required to reduce these impacts.

#### **3.9.5. Land Use and Land Capability Cumulative Impacts**

Due to the increase of mining activities in the area, land use and land capability will experience a negative cumulative impact. Where open pit activities are taking place, this impact is more significant. Mining, however, is a temporary activity and thus at some point the land used for mining will be rehabilitated and alternative land uses can occur. There is a possibility, however, that land capability may experience a long term negative impact from contamination to soil and water.

#### **3.9.6. Flora and Fauna Cumulative Impacts**

The local fauna and flora are expected to experience a cumulative impact from the surrounding farming and mining activities. The removal of natural vegetation for crops and grazing, and the surface disturbance from open pit mining, results in a negative impact for local flora and fauna as natural habitats are removed. It is difficult to restore the natural habitats post mining, although rehabilitation efforts will attempt to restore habitats as far as possible so that local fauna will start to move back into the area.

#### **3.9.7. Aquatic Environment Cumulative Impacts**

Due to the location of the proposed project being in the upper reaches of a quaternary catchment the cumulative impacts associated with the project will be felt downstream of the project area. The current project will be seen as adding to the extensive mining operations within the Ermelo coalfield. Therefore the cumulative impacts brought about through the proposed project can be described as high due to the existing industrial activities occurring catchment area.

#### **3.9.8. Wetland Cumulative Impacts**

The loss of wetland areas within the project area will also result in the cumulative loss of wetland functions such as water quality enhancement. The loss of the capacity to enhance water quality will therefore result in increased water contamination and higher water purification costs for the downstream users. It is difficult to restore the natural wetland habitats and the associated wetland functionality post mining, therefore these qualities will be lost from the system.

#### **3.9.9. Surface Water and Sensitive Areas Cumulative Impacts**

The Ermelo, Breyten and the Carolina areas are dominated by coal mining and agriculture activities as the main economic activities. As such, the impacts on the surface water quality

and quantity have been increasing over time and are of a negative nature particularly as they are both water intensive activities. Historic water quality data of sites within the region indicate that there is on-going deterioration of quality (from both mining and agricultural activities) including the decrease in dilution capacity of the streams and rivers. The rehabilitation backlog from mines within the area and washing out of fertilizer contaminants into the surface water resources further exacerbates the water quality deterioration and in some cases AMD generation resulting from historical mining has been reported. This has subsequently resulted in reduced quantity available for further development.

Thus, the proposed activity will contribute towards the already existing cumulative impacts of both quality and quantity. These impacts will be assessed in the EIA phase and the proposed Terms of Reference are detailed in Section 6 of this report.

However, since both mining and agriculture are strategic socio-economic activities for the country, it is important that their required water demands are met sustainably by the government through water use allocation/ licensing. However, there is an onus on the water users (mines and farmers) to use the allocated water more efficiently and to prevent deterioration as well as to implement cleaner technologies that can use less water and release the excess to the environment for further development opportunities that can benefit the socio-economic needs of the country.

#### **3.9.10. Groundwater Cumulative Impacts**

The local aquifer systems are classified as minor aquifer systems and the regional utilisation thereof coincides with the principle land uses of grazing and to provide domestic water supply. Irrigation and water supply to the mine also occur on a smaller scale. The changes induced by mining may lead to an increase in storage capacity (open pit workings) and deterioration in water quality.

The area has a history of coal mining and as such there is potential for a negative cumulative impact on local groundwater quality and quantity. Monitoring points around the mine sites will assist in determining the extent of this impact and therefore the significance. Groundwater users in the area will be affected if the water quality is poor, as well as downstream users if this water decants to the surface. Consultation with DWA and the creation of forums for the area could assist in determining effective mitigation measures to control and prevent negative cumulative impacts.

The management of cumulative impacts and even the closure planning of existing operations need to be done on a regional level. The mining companies, DWA and water users associations need to be approached to establish a working relationship to allow the cumulative impacts from being determined and regional management measures from being implemented.

#### **3.9.11. Air Quality Cumulative Impacts**

Cognisance must be taken of the fact that there are existing open pit mines in the area (Spitzkop and Tselentis) which can contribute to the cumulative impact on ambient air quality of the area.

#### **3.9.12. Noise Cumulative Impacts**

Noise levels in the area are expected to increase cumulatively due to the increase in trucks and traffic on the main roads, additional mining activities taking place in the area will also contribute to the impact on ambient noise levels in the area. Noise levels fluctuate and monitoring will be required to establish the significance of the noise on the local area.

#### **3.9.13. Archaeological and Cultural Cumulative Impacts**

Heritage resources are finite and irreplaceable. Cumulative impacts need to be identified and assessed.

Negative cumulative impacts on archaeological and heritage sites that may result from industrial and mining developments in the area generally include structural damage resulting from blasting or vibrations, pollution (AMD/ acid rain), vandalism and property damage (influx of workers), amongst others. It is important to preserve and raise awareness of the importance of archaeological and heritage conservation, including the conservation and monitoring of graves and historical buildings in the surrounding area.

Cumulative impacts of industrial developments may also be positive. Positive impacts may include contributions towards archaeology and heritage disciplines through research and effective documentation and mitigation of relevant heritage sites in the area. Ultimately, the developer should minimise or avoid all anticipated negative impacts and optimise and promote positive impacts, where possible.

#### **3.9.14. Traffic and Safety Cumulative Impacts**

Due to the increasing mining activities in the area the local roads are being affected by coal trucks. This cumulative impact is expected to increase as additional mines open in the area. The R36 and R542 roads are expected to be the most affected from the Spitzkop Greenfields project. Mitigation is difficult. There is an alternative to create a separate haul road, however this has its own negative impacts and is economically unfeasible.

#### **3.9.15. Socio-economic Cumulative Impacts**

The development of the remaining coal reserves in the Ermelo coal field will lead to the amplification of the positive as well as negative impact identified for the project. The economic stimulus during the operational phase, in conjunction with current planned and active mining will benefit the communities in the medium term. Negative impacts, like an increase in social ills, are also expected to occur if not managed. The policies towards labour, housing, labour sending areas etc. are of vital importance.

The impact of job losses after the closure may potentially cause a cumulative impact, if combined with other mine closures in the nearby area. The long life of mine for the Consbrey

project will lead to an element of stability; however dependence of industries on mining needs to be managed.

#### **4. Land use or development alternatives, alternative means of carrying out the proposed operation, and the consequences of not proceeding with the proposed prospecting or mining operation.**

##### **4.1. Provide a list of and describe any alternative land uses that exist on the property or on adjacent or non-adjacent properties that may be affected by the proposed prospecting or mining operation.**

###### **4.1.1. Land Use and Development Alternatives**

There are three main alternatives to the proposed mining operation. The first alternative is to continue to use the land for agriculture, mainly for grazing and fodder production but limited crop production as well. Grazing occurs in the immediate surroundings and this practice will incur limited disruption by the proposed mining operation which will be predominantly underground workings and surface activity will only take place on a small portion of land.

It must be noted that due to the nature of the proposed operation agricultural activities will be temporarily disrupted on the area to be open pit and this land will then return to productive use. Other land not directly required by mining can continue to be used for agriculture.

The second alternative is to use the land for residential purposes. This use would require municipal services and access to water and electricity. Due to the project area being located in a predominantly rural area, it is unlikely that this alternative would occur.

The third land use alternative is tourism. Tourism is an alternative to the current land use in the region, and includes guest houses and tourism activities in the area. It is however not likely to be an attractive proposition in the immediate vicinity of the proposed Consbrey Colliery; however the provision of accommodation to contract workers etc. (business tourism) into the area is expected to be viable.

The close proximity of the De Wittekrans archaeological complex is a further tourism attraction that could support tourism in the area.

While most of the above activities currently exist in the area, there is potential for additional growth and thus these activities are considered as a feasible alternative to mining. Mining is a temporary land use and it is possible that all of the above options can be pursued in conjunction with mining and after mining has ceased.

##### **4.2. Provide a list of and describe any land development identified by the community or interested and affected parties that are in progress and which may be affected by the proposed prospecting or mining operation.**

At this stage there have been no land developments identified by the community or interested and affected parties. However, should any surface during the PPP, it will be included in the documentation.

**4.3. Provide a list of and describe any proposals made in the consultation process to adjust the operational plans of the mine to accommodate the needs of the community, landowners and interested and affected parties.**

A preliminary process of engagement with the affected communities has taken place but in view of the limited time available, an exhaustive evaluation could not be undertaken. During the PPP all recommendations and suggestions made by the community will be recorded and considered. The comments and response report will record anything in this regard.

Please refer to *Section 1.8* which provides details around stakeholder comments associated with the consultation process.

**4.4. Provide information in relation to the consequences of not proceeding with proposed prospecting or mining operation.**

The no go alternative entails the maintenance of the status quo. If the proposed mining takes place it will have a number of positive impacts on the immediate surroundings as well as for the country. The bituminous coal will be for export and local markets.

The mining operation will also have an effect on the local population in terms of employment. The project will have a multiplier effect on the local economy through economic empowerment of the communities of Ermelo, Hendrina and Breyten.

If the project were not to proceed, the benefits described would not be created. If Xstrata Coal were not to proceed with the proposed operation, it will not stop mining according to the MPRDA as another application can be made by another company (ies).

Without the coal mine, the current land use and capability would remain and the coal resource would remain untapped.

**4.5. Provide a description of the most appropriate procedure to plan and develop the proposed prospecting or mining operation. The applicant must:**

**4.5.1. Provide information on its response to the findings of the consultation process and the possible option to adjust the prospecting or mining project proposal to avoid potential impacts identified in the consultation process.**

As mentioned earlier, time frame restrictions have not allowed for detailed consultation to take place prior to submission of this scoping report. However, Xstrata Coal intends on building and maintaining good relationships with the local communities and their leadership and will always strived to include them in all of their decision making.

The consultation process undertaken in 2008, although not intended to replace the current consultation process, is of value to provide an indication of concerns.



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**4.5.2. Describe accordingly the most appropriate procedure to plan and develop the proposed prospecting or mining operation with due consideration of the issues raised in the consultation process.**

Please refer to section 4.5.1.

**5. A description of the process of engagement of identified interested and affected parties, including their views and concerns.**

**5.1. Provide a description of the information provided to the community, landowners, and interested and affected parties to inform them in sufficient detail of what the proposed prospecting or mining operations will entail on the land, in order for them to assess what impact the prospecting will have on them or on the use of their land.**

A summary of the information provided during the PPP for the EIA process which is also discussed in further detail in this section is shown in Table 5-1.

**Table 5-1: Public Participation Information**

Activity	Details	Reference in Scoping Report
<b>Scoping Phase</b>		
Distribution of proposed project announcement letter and Background Information Document (BID).	BID and announcement letter will be emailed and posted to all stakeholders on the database on 1 March 2013.	<b>Appendix 1</b> BID, announcement letter, registration and comment sheet, pamphlets
Placing of newspaper adverts.	Adverts will be placed in the Highvelder (Thursday, 7 March 2013, in Afrikaans and English) and Mpumalanga News (Thursday, 7 March 2013, in English) newspapers.	<b>Annexure 5</b> Newspaper adverts
Putting up of site notices.	Site notices will be put up at the locations as stipulation for the proposed colliery in the MRA. Additional site notices will also be put up at libraries and the municipal offices in Breyten, Ermelo, Kwa-Zanele, Carolina and Chrissiesmeer.	<b>Annexure 6</b> Site notices
Making the Scoping Report available.	Availability of the Scoping Report done by distribution of the announcement letter and SMS on 1 March 2013 together with the BID and registration and comment sheet.  The Scoping Report will be made available at the following places for public review: <ul style="list-style-type: none"> <li>• Ermelo Public Library;</li> <li>• Kwa-Zanele Public Library;</li> </ul>	<b>Annexure 1</b> BID, announcement letter, registration and comment sheet, pamphlets



Activity	Details	Reference in Scoping Report
	<ul style="list-style-type: none"> <li>• Breyten Public Library;</li> <li>• Carolina Public Library; and</li> <li>• Chrissiesmeer Community hall.</li> <li>• <a href="http://www.digbywells.com">www.digbywells.com</a></li> </ul> <p>Public review period of the Scoping Report is 6 March – 9 April 2013.</p>	

The BID (see Appendix 1) provided more detail on the following:

- Background of the proposed project;
- The project description;
- Locality map;
- Anticipated specialist studies to be conducted;
- Applicable legislative requirements;
- The PPP and associated dates;
- Next steps of the EIA process; and
- Contact details for submission of comments and registration as an I&AP.

The BID will be accompanied by an announcement letter, registration and comment sheet and pamphlets (see Appendix 1) which contained the following information:

- Brief background to the proposed project;
- Details about the EIA and PP processes;
- Milestones and associated dates for the EIA and PP process;
- Legislative requirements;
- Details about availability of the Scoping Report;
- Invitation to an Open House meeting;
- Invitation to formally register as an I&AP; and
- Contact details for I&AP registration and submission of comments.

Pamphlets will be used to create awareness in the applicable communities which will be distributed via the community leadership structures.

The adverts placed (see Appendix 5) and site notices (see Appendix 6) put up included the following specific information:

- Location of the proposed sites under the MRA;
- Brief project background and description;
- Applicable legislation and competent authority;
- The independent Environmental Assessment Practitioner (EAP);
- Contact details for I&AP registration and submission of comments; and
- Public review date for the Scoping Report.

\* Due to scheduling constraints proof of newspapers advert placements will be provided in the Draft EIA report. These proofs will also be available towards mid-March 2013 if requested.

Various focus group, public and community meetings will be held with stakeholders during the Scoping Report public review period (6 March – 5 April 2013). Announcement of these meetings was sent to all stakeholders on the database via email and post on 1 March 2013. Comments received from stakeholders during these meetings will be included in the CRR with responses being provided by the project team.

At the various stakeholder meetings BIDs together with registration and comment sheets will be made available. Detailed information will be provided about the proposed project in the form of posters, presentations and various maps (locality, land tenure, environmental sensitivity etc).

**5.2. Provide a list of which of the identified communities, landowners, lawful occupiers, and other interested and affected parties were in fact consulted.**

*Appendix 4* provides a stakeholder database which will be updated throughout the PPP. Detailed stakeholder consultation information will be provided as part of the Draft EIA Report which will incorporate all consultation activities conducted during the public review period of the Scoping Report. These consultation activities will be captured in Maximizer 12, an electronic stakeholder information management system and database.

**5.3. Provide a list of their views in regard to the existing cultural, socio-economic or biophysical environment, as the case may be.**

Please refer to Section 1.8 which provides details around stakeholder comments associated with the consultation process.

**5.4. Provide a list of their views raised on how their existing cultural, socio-economic or biophysical environment potentially will be impacted on by the proposed prospecting or mining operation.**

Please refer to Section 1.8 which provides details around stakeholder comments associated with the consultation process.

**5.5. Provide a list of any other concerns raised by the aforesaid parties.**

Please refer to Section 1.8 which provides details around stakeholder comments associated with the consultation process.

**5.6. Provide the applicable minutes and records of the consultations.**

Please refer to Section 1.8 which provides details around stakeholder comments associated with the consultation process.

**5.7. Provide information with regard to any objections received.**

Please refer to Section 1.8 which provides details around stakeholder comments associated with the consultation process.

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## **6. Describe the nature and extent of further investigations required in the environmental impact assessment report, including any specialist reports that may be required.**

These investigations will result in the compilation of various technical reports and will be included as appendices to the EIA Report. The report will also include an impact assessment using a quantitative impact matrix. Cumulative impact assessment will also be compiled. The EIA/ EMP report will be developed to satisfy the MRPDA guidelines. An in depth PPP will also be conducted so that I&APs are afforded the opportunity to raise any concerns and comments. This will then be addressed in the EIA/ EMP report submitted to the DMR

### **6.1. Specialist Terms of Reference during EIA Phase**

#### **6.1.1. Topography Assessment**

Topography is the study of the earth's surface and it includes both natural and man-made features. In order to assess the topography of the area, ArcGIS 3D Analyst Extension will be used. A Digital Elevation Model (DEM) will be created using 5 metre contours, spot heights and trig beacons. The resultant topographical model will be used to create slope and aspect models. The pre-mining and post mining topography will be discussed, and mitigation measures will be provided.

#### **6.1.2. Visual Assessment**

A Visual Impact Assessment is a specialist study performed to identify the visual impacts of the proposed project on the surrounding landscape. Visual, scenic and cultural components of the environment can be seen as a resource, much like any other resource, which has a value to individuals, to society and to the economy of the region (Oberholzer, 2005).

The DEM created for the Topography assessment will be used for the Visual assessment. Additional relief data in the form of spot heights and trig beacons are available for the proposed project and surrounding area and will be included in the model. The DEM will be used to visualise the current landscape of the project area and the immediate surrounds. Further impacts which the development may pose on the landscape and topography will be investigated and quantified. The DEM will further be used in various specialist studies including surface water and groundwater assessments of the proposed development.

A viewshed model will be developed utilising the DEM. Infrastructures size, location and height are utilised with the DEM to create a viewshed which determines where within the surrounding landscape the development will be visible.

Once the viewshed has been performed the infrastructures visibility is assessed by the following criteria:

- Visual exposure;
- Visual sensitivity;
- Visual receptors;
- Visual absorption capacity (VAC); and

- Visual intrusion.

The above criteria as well as the proposed impacts are rated and tabulated. Mitigation methods are provided to minimise the impact of the proposed development.

### **6.1.3. Soil, Land Use and Land Capability Investigation**

This specialist study aims to characterise the soils in the study area that are to be affected by the proposed mining and its related infrastructure. It will provide an indication of the existing soil and land capabilities for the survey area and give a characterization of the land capability within the study area.

A reconnaissance soil survey study of the soils present at the proposed coal mine site is proposed. The soil survey assessment will be conducted during field visits. A more detailed survey approach is needed at open pit and planned infrastructure locations once a detailed mine plan is available. The proposed mine site will be traversed by vehicle and on foot. A hand soil auger will be used to determine the soil type and depth. The soils will be augered to the first restricting layer or 1.5 m depth.

Survey positions will be recorded as waypoints using a handheld GPS. The soil forms (types of soil) found in the landscape will be identified using the South African soil classification system namely; Soil Classification: A Taxonomic System for South Africa (Soil Classification working group, 1991).

#### **6.1.3.1. Soil Sampling**

The topsoil (0 mm - 300 mm) and subsoil (300 mm – 600 mm) of the dominant soil forms will be sampled. Samples will be analysed for soil acidity, fertility and textural indicators as follows:

- pH (water);
- Extractable cations and Na, K, Ca, Mg (Ammonium Acetate);
- Cation exchange capacity;
- Carbon content;
- Phosphorus (Bray1); and
- Soil texture namely sand, silt and clay.

#### **6.1.3.2. Land Use**

The extent of land use practices will be surveyed and mapped.

#### **6.1.3.3. Land Capability**

Soil properties of soil units mapped during the soil survey will be evaluated and categorized in land capability classes of arable land, grazing, and wilderness land.

### **6.1.4. Flora and Fauna Survey**

A two season survey is required, and will be performed during the months of October to April for the wet season and May to September for the dry season.

#### **6.1.4.1. Vegetation Survey**

This phase of the project will only commence once the detailed EIA studies have taken place and areas of concern identified. A floristic site visit will be conducted preferably during the growing season of all species that may potentially occur (this may require more than one seasons survey) with a possible two visits undertaken ( $\pm$  May and  $\pm$  March). Visits during other seasons will be determined by the flowering and fruiting times of species that do not occur during the summer season. The Braun Blanguet sampling method will be used during vegetation survey. Using the data sampled during the Braun Blanquet surveys the following can be compiled:

- Species list;
- Dominant species;
- Invasive species (if present);
- Exotic species (if present); and
- Rare or endangered species (if present).

#### **6.1.4.2. Animal Survey**

Characterization of the faunal environment and habitat, related biota and the extent of site related effects would be conducted. The major goal of the characterization procedure is to determine the current status of the faunal environment and to evaluate the extent of site - related effects in terms of certain ecological indicators, as well as to identify specific important ecological attributes such as rare and endangered species, as well as sensitive species. The following will be recorded during an animal survey:

- Mammals;
- Birds;
- Invertebrates;
- Reptiles; and
- Amphibians.

#### **6.1.5. Air Quality and Dust Monitoring Investigation**

The following activities will be carried out to determine the regional climate and to assess the baseline conditions, as well as the local (site-specific) prevailing weather conditions, and its influence on the climatic and atmospheric dispersion and dilution potential of pollutants released into the atmosphere (if available).

- Site-specific meteorological data will be obtained and evaluated to determine local prevailing weather conditions. The PSU/ NCAR mesoscale model (known as MM5) is a limited-area, non-hydrostatic, terrain following sigma co-ordinate model designed to simulate or predict meso-scale atmospheric circulation. MM5 modelled meteorological data set for full three calendar years will be obtained from Lakes Environmental in Canada. This dataset consists of surface data, as well as upper air meteorological data that is required to run the dispersion model. It is required if site specific surface and upper air meteorological data is not available. Site-specific

meteorological data will be obtained from the closest South African Weather Service station for comparison and ambient air quality data will be requested from South African Air Quality Information System (SAAQIS) for regulatory purposes.

- Identification of existing sources of emissions and characterisation of ambient air quality within the airshed using available monitoring data (Client to provide any existing ambient monitoring data);
- Review of the current South African legislative and regulatory requirements;
- Detailed literature review of emissions from all activities on site. Where information is not available on emission rates, US EPA AP42 emission factors or Australian NPI emission factors will be used. Other emission sources in the area will also be included in the emission inventory if relevant information can be sourced (Client to assist in the provision of this information);
- Review of potential health effects associated with these activities; and
- Define the potential sensitive receptors, such as local communities, as well as environmental constraints relative to air quality.

#### **6.1.5.1. Emissions Inventory**

Digby Wells will develop an air emission inventory taking into account minimum standards/criteria limits for certain point source emissions.

The operations at an open pit and underground coal mine project are likely to result in a range of emissions including particulate matter being emitted into the atmosphere from the ROM stockpiles, topsoil stockpiles, overburden stockpiles, product stockpiles, crusher, material handling points, as well as dust generated by vehicles movement on mine site, which could have an impact in terms of human health and will require detailed assessment.

Compiling a comprehensive emissions inventory for the operational phases of the mine will take into account emissions during routine conditions, including coal handling facilities and vehicle emissions.

#### **6.1.5.2. Dispersion Modelling**

Emissions from the mine will be modelled to determine the ambient air quality concentrations. The result of the dispersion modelling will be contour plots (maps) presenting the results of the assessment and comparison of the predicted concentrations will be made with the ambient monitoring data (if available) and with the SA NAAQS standards to determine compliance.

Dispersion models compute ambient concentrations as a function of source configurations, emission strengths and meteorological characteristics, thus providing a useful tool to ascertain the spatial and temporal patterns in the ground level concentrations arising from the emissions of various sources. All emission scenarios would be simulated using the USA Environmental Protection Agency's Preferred/ Recommended Models: AERMOD modelling system (as of December 9, 2006, AERMOD is fully promulgated as a replacement to ISC3 model).

AERMOD modelling system incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain.

There are two input data processors that are regulatory components of the AERMOD modelling system: AERMET, a meteorological data pre-processor that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, and AERMAP, a terrain data pre-processor that incorporates complex terrain using USGS Digital Elevation Data. Other non-regulatory components of this system include: AERSCREEN, a screening version of AERMOD; AERSURFACE, a surface characteristics pre-processor, and BPIPPRIME, a multi-building dimensions program incorporating the GEP technical procedures for PRIME applications.

AERMOD model is capable of providing ground level concentration estimates of various averaging times, for any number of meteorological and emission source configurations (point, area and volume sources for gaseous or particulate emissions), as well dust deposition estimates.

#### **6.1.5.3. Impact Assessment – Analysis and Interpretation**

Dispersion simulations of ground level particulate matter and gaseous emissions will be carried out. The anticipated and cumulative impacts of the activities on the ambient air quality of the area will also be identified and discussed. The impact assessment will be undertaken looking at the construction and operations of the proposed developments (based on available measured ambient air quality data if available).

Analysis of dispersion modelling to highlight:

- Predicted zones of maximum ground level impacts (PM and Gases);
- The zone of maximum predicted cumulative ground level;
- Evaluation of potential for human health and environmental impacts;
- Evaluation of predicted air pollutant concentrations will be based on SA ambient NAAQS standards.
- Number of times standards for criteria pollutants will be exceeded; and
- Recommendations of buffer zones and impact management zones.
- Assessment of the cumulative effects of the proposed mine's additive contributions and align information with respect to the Highveld High Priority Area Air Quality Management Plan;
- Mitigation measures incorporating Best Practicable Environmental Option that would prevent, control, abate or mitigate pollution.

#### **6.1.5.4. Dust Fallout Monitoring**

In order to determine the background dust situation in the proposed Consbrey Colliery area before any development takes place, a dust monitoring network, comprising at least eight single dust fallout buckets (whole of Consbrey Colliery), should be established by the whole of Mine.

The proposed National Dust Control Regulations state that:

“Any person that conducts an activity in such a way as to give rise to dust in quantities and concentrations that may exceed the dust fall standard set out in regulation 3 of the National Dust Regulations must, within a year after publication of these regulations, submit a dust monitoring report to the air quality officer.”

When it comes to the air quality monitoring type and frequency, data on emissions and ambient air quality generated through the monitoring programme should be representative of the emissions discharged by the project over time.

The monitoring of fall-out dust utilising the bucket collection is internationally recognised and documented as an accepted method of determining fall-out dust from various sources.

Single dust bucket samplers will be used to measure the fugitive dust levels which will make it possible to interpret the baseline dust levels at the relevant sensitive receptors around the mining and plant area (Figure 6-1). The results could also be used at a later stage to ascertain whether the activities at the mine and processing plant have an effect on the air quality of the area.



**Figure 6-1: Dust fallout Sampling Unit**

The position of the samplers is essential to the interpretation of the results, and needs to take into account the locations of sensitive receptors, historical directional wind data for the area, and topographical features that may affect the wind direction. The locations of the dust buckets will be determined taking into account predominant wind direction and location of sensitive receptors, but can be relocated if needed, according to the standard siting procedures. The buckets should be placed at the relevant receptors and positioned to capture impact of dust to the surrounding environment.

The buckets will be filled with distilled water mixed with a copper sulphate solution (to stop algae growth inside the bucket) and the stations will be left out on site for a period of 12 months. The buckets will be collected and replaced with new ones on a monthly basis and transported to a certified laboratory for analysis.



The results of dust fallout monitoring will be analysed and placed into various graphs and tables that best indicate the dust fallout situation on site and compared with the proposed acceptable rates as per draft national dust control regulations, together with the analysis of available meteorological data. Quarterly reports will be compiled, detailing all findings and will include a full assessment of the results collected during the quarter, along with conclusions and recommendations for future monitoring on site.

#### **6.1.5.5. Air Quality Monitoring Programme**

Recommendations will be provided regarding the mitigation and management of the identified impacts in the form of a monitoring programme.

#### **6.1.6. Noise Investigation**

The study will assess, via predictive noise modelling, the potential impact of the noise emissions from the proposed coal mining activities on the surrounding environment. The study will include baseline noise measurements and also provide recommendations in terms of the mitigation and monitoring measures.

In order to assess ambient noise levels, baseline noise monitoring will be conducted at various noise sensitive receptors surrounding the proposed mining project.

All measurements will be taken in accordance with the guidelines of the SANS 10103:2008 "The measurement and rating of environmental noise with respect to annoyance and to speech communication". The measurements will be taken for a 24hr period, taking into account the daytime as well as night time noise characteristics. According to the SANS 10103:2008 guidelines, daytime is between 06:00 and 22:00 and night time is between 22:00 and 06:00. Monitoring should be taken at a measurement of 1.5 m above ground level.

The baseline information will be included in an environmental noise impact assessment report, along with the quantification of the noise sources that will be produced by the proposed mining project. The impacts of the proposed mining project on the ambient noise levels of the area will be assessed by comparing the baseline information with the propagated noise levels from the proposed mining project. The propagated noise levels will be calculated by means of the dispersion modelling software 'Soundplan'. This model will depict in detail, what the expected noise levels are to be at sensitive receptors, and can predict, per receptor, the intensity of the noise impact. The report will also include recommended mitigation measures as well as recommended action plans.

#### **6.1.7. Wetlands Investigation**

The wetland delineation will be based on soil, vegetation and the hydrological components of the wetland system. An integrated wetland specialist study will be conducted to identify and characterise wetland systems associated with the project area. The overall wetland integrity (health), ecological services and importance will be assessed and described. This will be achieved with the implementation of the WET-Management series. Furthermore existing impacts and threats to the wetland systems within the project area will be identified and

described. A wetland management plan and a monitoring programme will be formulated for the respective wetland systems.

#### **6.1.7.1. Desktop Wetland Assessment**

A desktop wetland assessment will be undertaken using 1:50 000 topographic maps and aerial photographs where preliminary wetland boundaries will be delineated. Each of the identified wetlands will be classified according to their hydrogeomorphic (HGM) determinants based on modification of the system proposed by Brinson (1993), and modified for use by Marneweck and Batchelor (2002) and subsequently revised by Kotze *et al* (2004).

#### **6.1.7.2. On-site Wetland Assessment**

The actual site wetland assessment will include an evaluation of the wetlands condition and the associated vegetation structure. This includes the ecological state assessment of the wetlands as well as the general functions provided by the wetlands. The wetland delineation procedure takes into account (according to DWA guidelines for wetland delineations, 2005) the following attributes to determine the limitations of the wetland:

- Terrain Unit Indicator – helps to identify those parts of the landscape where wetlands are more likely to occur;
- Soil Form Indicator – identifies the soil forms, which are associated with prolonged and frequent saturation;
- Soil Wetness Indicator – identifies the morphological “signatures” developed in the soil profile as a result of prolonged and frequent saturation; and
- Vegetation Indicator – identifies hydrophilic vegetation associated with frequently saturated soils.

#### **6.1.8. Aquatic Survey**

The River Health Programme is the national monitoring programme used to monitor and assess the freshwater resources within South Africa. In order to determine the ecological integrity of the aquatic environment, individual biophysical attributes of the streams will be assessed. These biophysical attributes refer to the drivers and biological responses of an aquatic ecosystem. The selected drivers and biological responses for this study include:

- The abiotic driver assessment:
  - The assessment of physio - chemical variables of the water; and
  - Invertebrate Habitat Assessment System (IHAS).
- The biotic response indicator assessment:
  - South African Scoring System version 5 (SASS5); and
  - The Average Score Per Taxon (ASPT).

The identified river FEPAs achieve biodiversity targets for river ecosystems and threatened/ near-threatened fish species, and were identified in rivers that are currently in a good condition (WRC, 2011). These selected FEPAS should remain in a good condition in order to

contribute to national biodiversity goals and support sustainable use of water resources. River FEPAs make reference to the entire sub-quaternary catchment, although FEPA status applies to the actual river reach within such a sub-quaternary catchment. The surrounding land and smaller stream network need to be managed in a way that maintains the good condition of the river reach (WRC, 2011). Recommendations have been proposed in light of the associated FEPAs for the respective mining operation and land uses.

#### **6.1.8.1. Biomonitoring**

The biomonitoring programme will include a low flow and high flow survey. The low flow assessment will be conducted between July/ August 2013, with the high flow assessment being conducted between November/ December 2013. A memorandum will be submitted to the client after the low flow survey describing initial findings and project components. The final consolidated biomonitoring report will be submitted during December 2013.

#### **6.1.9. Surface Water Investigation**

A desktop assessment will be conducted to achieve the following objectives:

- Catchment description including the water users downstream of the site and the land use (and water use) practices in the area around the site;
- Surface water environment characterization using available information such as Water Research Commission (WRC) Reports and Geographical information Systems (GIS) to determine the regional and local drainage network;
- Selection of water quality sampling location (6 water samples to be collected) up and downstream of the site to determine the baseline of the surface water environment pre-mining. The baseline will be used to evaluate the impacts that arise from the project on the downstream surface water resources and water users; and
- Hydrological assessment will be conducted to determine the base flow, 1:50 and 1:100 year flood volumes.

The site visit will be conducted to confirm the site characterization and to collect surface water quality samples. The collected samples will be submitted to a South African National Accreditation Systems (SANAS) accredited laboratory for physical and chemical analysis.

The report compilation process will detail the following:

- Site characterization, catchment and water use description;
- Hydrology report on the base flow, 1:50 and 1:100 peak flow flood volumes;
- Water quality baseline status of the laboratory data benchmarked against the South African National Standard (SANS) 241 for drinking water or Resource Water Quality Objectives set out by the Department of Water Affairs (DWA) if available;
- Impact assessment of the impacts that could arise from the proposed project description and weighting of the significance of the impacts (using a Digby Wells developed methodology);
- Recommendation of mitigation measures to minimise or reduce the significance of the impacts on the surface water quantity and quality;

- Development of a surface water management plan indicating where possible the placement of water conveyances and containment facilities guided by the DWA Best practise guidelines; and
- Development of a surface water quality monitoring programme indicating areas to be monitored, frequency of monitoring, database management and reporting.

#### **6.1.10. Groundwater Investigation**

The report will include all data, information and findings, recommendations and a full risk assessment derived from the transient simulations for life of project and post closure, as well as a groundwater monitoring protocol.

##### **6.1.10.1. Hydrocensus:**

A hydrocensus of the study area will be overseen by Digby Wells. During the hydrocensus important data pertaining to the current groundwater conditions and use will be collected. This will include localities of current groundwater abstraction points (boreholes, hand dug wells or springs), ownership, current usage volumes and types, equipment and groundwater levels. Hydrochemical samples will also be taken from selected boreholes. The data collected will serve as a reference point against historical and future groundwater conditions in the area.

The area covered will span a suitable radius from the proposed mining area and will take into account the sub-catchment boundaries in which mining and processing activities takes place.

##### **6.1.10.2. Detailed Baseline Study**

This phase comprises detailed investigations to a definitive level to enable accurate project planning and to comply with regulatory requirements. All the previous work conducted is culminated into a decision tool used to plan the intrusive stage where more accurate characterisation of the hydrogeological system is conducted to outline and define the aquifer system/s in the area.

##### **6.1.10.3. Geophysics**

A ground geophysical survey is necessary to complete the study to delineate weathered zones and identify possible linear structures that could act as preferred groundwater flow paths. Digby Wells proposes to apply the magnetic and electromagnetic (EM34 - 3) geophysical techniques. This should not exceed three days field surveying. Interpretation and processing will then be conducted to finalise the drilling targets necessary for the study.

##### **6.1.10.4. Drilling**

The drilling programme will be performed using the rotary air percussion method with initial drilling performed at a diameter of 165mm inner diameter (ID) and reamed or enlarged if high yielding boreholes are intercepted. The depth for characterisation boreholes will not exceed 60m. The method of construction for the characterization boreholes is based on previous experience of drilling in similar lithologies to similar depths

#### **6.1.10.5. Aquifer Testing**

It is imperative that the most strategic and successful boreholes drilled during this investigation be aquifer tested to determine responses and to calculate the parameters presenting the aquifer hydro dynamics underlying the investigation area. All boreholes will be calibration tested prior to conducting the constant discharge tests.

#### **6.1.10.6. Chemical Analyses**

Water quality samples will be collected following each aquifer test for chemical analysis and will be sent to a SANAS accredited laboratory.

#### **6.1.10.7. Conceptual Model**

This is a vital step in the process, and the development of a good conceptual model will ensure reasonable results. The conceptual model aims to describe the groundwater environment in terms of the following:

The groundwater system:

- Aquifers - these are rock units or open faults and fractures within rock units that are sufficiently permeable (effectively porous) to allow water flow;
- Interconnections between aquifers;
- Boundaries that result in the change or interruption of groundwater flow; and
- Hydrostratigraphic units - these are formations, parts of formations, or a group of formations displaying similar hydrologic characteristics that allow for a grouping into aquifers and associated confining layers.

The groundwater flow system;

- Precipitation, evapotranspiration;
- Runoff, groundwater head data which yields groundwater flow;
- Hydraulic parameters;
- Recharge and discharge areas, exchange of groundwater and surface water; and
- Geochemical data.

#### **6.1.10.8. Numerical Modelling**

The conceptual hydrogeological model will be encoded into a numerical model. It is proposed to utilise MODFLOW as modelling code and PM - WIN 8 will be used as data pre and post processor. This will allow future upgrading of the numerical model as MODFLOW is the most widely used modelling code.

A numerical model must be viewed as an asset that is maintained over the life of the project and upgraded as required.

The model domain will extend to the closest groundwater boundaries not expected to be impacted by construction. These could be groundwater divides (the same as surface water in the absence of dewatering) or groundwater controls.

The model will be calibrated to the latest water levels (steady state), as well as historic water level monitoring (transient). Once calibrated the model will be utilised to run the required scenario's to determine the likely impacts from the mine or later seepage; impacts from the open pit mining, as well as water resources well fields of the project. The scenario modelling will cover all current and future project plans as well as a period over the next 50 years.

#### **6.1.10.9. Hydrogeological Monitoring**

Continued monitoring of the boreholes in the area will be recommended following the intrusive phase. This will involve the quarterly sampling of the boreholes

#### **6.1.10.10. Reporting**

A comprehensive report, including all relevant EIA/ EMP sections, will be compiled detailing:

- Findings and results of the field investigation, including current water use, aquifer and geology characterisation and groundwater quality;
- Update on the hydrogeological conceptual model (regional hydrology and hydrogeology of the area);
- Results of the numerical modelling process, including expected groundwater inflow volumes, drawdown cones, contaminant migration, and interaction between mine receiving environment;
- Impact assessment, including the cumulative impacts on the region by the proposed project;
- Discussion on best management practises, advantages and mitigation measures; and
- Proposed monitoring programme.

#### **6.1.11. Heritage Resources Management**

As part of the EIA, a Heritage Statement is required as part of the Scoping Process. Once the Heritage Statement has been compiled; the relevant heritage authority will be notified with a Notice of Intent to Develop (NID) which will be informed by the Heritage Statement.

The Heritage Impact Assessment process can be divided into four stages, namely:

- NID;
- Phase 1 Heritage Impact Assessment;
- Phase 2 Heritage Impact Assessment; and
- Phase 3 Heritage Site Management Plans

Each stage above can – and should – be implemented within certain stages of the EIA process. For instance, the first stage, Notification, should be undertaken and completed at the earliest moment possible and coincide with general public announcement of the project. The second stage, Phase 1 HIA should be undertaken during the specialist assessment stage of the EIA and included in the EIA/EMP report. Findings and recommendations that result from the Phase 1 HIA must be included in the EMP phase, as implementable activities. In addition, should certain heritage resources be considered highly valuable or

significant, Phase 3 Heritage Site Management Plans may need to be compiled, submitted to SAHRA for comment and acceptance, and included in the EMP phase.

#### **6.1.12. Social Investigation**

A social impact assessment (SIA) will be conducted during the impact assessment phase of the EIA. The objectives of the SIA will be as follows:

- To describe the baseline socio- economic conditions of the project-affected area;
- To identify and assess the likely social impacts of the proposed project; and
- To design appropriate mitigation measures to reduce and, where possible, avoid negative impacts, as well as to enhance positive impacts.

These objectives will be met by employing the following methodology:

- Conducting a reconnaissance site visit in order to gain an understanding of the socio-economic conditions surrounding the proposed project site, as well as an indication of the density and number of human settlements in the vicinity of the proposed project;
- During the site visit, collecting primary data from key informants by means of interviews and/ or focus group discussions. Key informants could include directly and indirectly affected community members, land owners, land occupants, local authorities and if relevant, traditional leaders.
- Based on primary information collected, compiling a baseline socio-economic profile of the project-affected area, including a spatially-referenced exposition of the site-specific area. The baseline profile will consider, inter alia, the demographics of the project-affected populations, educational levels, employment and income statistics, the availability of basic and social services, as well as common land uses and prominent economic sectors and activities.
- On the basis of the baseline socio-economic profile, identifying, describing and assessing potential social impacts that may arise as a result of the proposed project.
- Developing feasible and cost-effective mitigation/ enhancement measures in order to reduce the severity of negative impacts and enhance the positive ones.

#### **6.1.13. Closure Costing**

Rehabilitation is the process used to repair the impacts of mining on the environment.

In order to set objectives and manage and rehabilitate the mine to obtain a closure certificate at the end of the decommissioning phase of the mine, a closure guideline will be compiled (Closure Costing Guideline Document) taking legislation and regulations into consideration.

The closure cost assessment involves the quantification of mining and infrastructure components and applying rates to rehabilitate each component. One of the aims of the closure cost assessment is to determine the cost to rehabilitate the mine as it stands at present, in order to achieve a “lights-out” or a “snapshot” scenario.



**MSO1805**

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The environmental liability will be described in monetary terms in order for a financial provision to be set-aside in a dedicated fund for closure rehabilitation purposes for the lights out scenario.



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## B. IDENTIFICATION OF REPORT

The report on the results of consultation must, at the end of the report include a certificate of identification as follows:

**Herewith I, the person whose name and identity number is stated below, confirm that I am the person authorised to act as representative of the applicant in terms of the resolution submitted with the application, and confirm that the above reports comprises the result of consultation as contemplated in Section 16 (4) (b) or 27 (5) (b) of the act, as the case may be.**

Full name and surname	Thomas Andrew Marshall
Identity number	5412315004087

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## Appendix 1: PPP

Appendix 1: Proof of formal announcement:

- BID;
- Announcement letter;
- Registration and comment sheet;
- Pamphlets; and
- Land Claims.

28 February 2013

Ms Thabile Mkhabele  
Department of Rural Development and Land Reform  
Land Claims Commission  
Private Bag X11330  
Nelspruit  
1200

**LAND CLAIMS ENQUIRY: ON THE FARMS LOCATED WITHIN THE MSUKALIGWA LOCAL MUNICIPALITY AND ALBERT LUTHULI LOCAL MUNICIPALITY IN THE GERT SIBANDE DISTRICT MUNICIPALITY WITHIN THE MPUMALANGA PROVINCE.**

Dear Ms Mkhabele

Xstrata South Africa (Pty) Ltd (Xstrata Coal) is proposing to undertake mining activities on the Consbrey (made up of Consbrey A and Consbrey areas) and Harwar areas. The proposed Consbrey Colliery is made up of Consbrey 'A' & Consbrey area. The proposed Consbrey mining site was granted prospecting rights in 2008 under the previous ownership of Breyten Coal Farms (Pty) Ltd, a subsidiary of Xstrata South Africa (Pty) Ltd (Xstrata Coal), for Consbrey A and Xstrata Coal for Consbrey. The proposed Harwar mining site was granted prospecting rights in 2008 under the previous ownership of Duiker Mining (Pty) Ltd, a subsidiary of Xstrata Coal South Africa. The proposed projects will entail open cast and underground mining methods for Consbrey and open cast mining methods for Harwar.

Digby Wells Environmental (Digby Wells) has been appointed as the independent Environmental Assessment Practitioner (EAP) responsible for undertaking the Mining Right Application process for the proposed collieries.

As part of the Mining Right Application, Digby Wells would like to enquire if there has been any land claims lodged on the following Consbrey and Hawar farms:

**Consbrey: (DMR application: MP30/5/1/1/2/820PR), Consbrey A (DMR application: pending)**

Farm Name	Portion	Local Municipality	District Municipality
Bankfontein 215 IS	Ptn 2 Ptn 6/4 Ptn 11/1 Ptn 14/6	Msukaligwa Local Municipality	Gert Sibande District Municipality
Bosmanskrans 217 IS	Re Ptn 5 Ptn 7/1 MA1 on Ptn 7/1	Msukaligwa Local Municipality	Gert Sibande District Municipality
De Wittekrans 218 IS	MA4 of MA1 on Re Ptn 1 MA2 on Re Ptn 3 MA3 on Ptn 9	Albert Luthuli Local Municipality	Gert Sibande District Municipality
Dwarstrek 216 IS	Re Farm Re Ptn 1	Msukaligwa Local Municipality	Gert Sibande District Municipality

Digby Wells & Associates (Pty) Ltd. Co. Reg. No. 1999/05985/07. Fern Isle, Section 10, 359 Pretoria Ave Randburg Private Bag X10046, Randburg, 2125, South Africa  
Tel: +27 11 789 9495, Fax: +27 11 789 9498, [info@digbywells.com](mailto:info@digbywells.com), [www.digbywells.com](http://www.digbywells.com)

Directors: AR Wilke, LF Koeslag, PD Tanner (British)\*, AJ Reynolds (Chairman) (British)\*, J Leaver\*, GE Trusler (C.E.O)  
\*Non-Executive



	Ptn 2 Ptn 4/3 Ptn 6		
Hartbeesfontein 239 IS	Ptn 3/1 Re Ptn 5/1 Re Ptn 6 Ptn 9/5	Msukaligwa Local Municipality	Gert Sibande District Municipality
Klipfontein 241 IS	Ptn 6/1	Msukaligwa Local Municipality	Gert Sibande District Municipality
Morgenster 204 IS	MA1 on Ptn 2 MA2 on Ptn 3	Albert Luthuli Local Municipality	Gert Sibande District Municipality
Op Goedenhoop 205 IS	Ptn 3 MA2 of MA 1 on Ptn 4 Ptn 13/3	Albert Luthuli Local Municipality	Gert Sibande District Municipality
Smutsoog 214 IS	Re Ptn 3 (Area 1) Re Ptn 3 (Area 2)	Msukaligwa Local Municipality	Gert Sibande District Municipality
Welgemeend 206 IS	Ptn 5 Ptn 6	Albert Luthuli Local Municipality	Gert Sibande District Municipality
Krogshoop 213 IS	Ptn 4	Albert Luthuli Local Municipality	Gert Sibande District Municipality

**Harwar: (DMR application – MP30/5/1/1/2/78PR)**

Farm Name	Portion	Local Municipality	District Municipality
De Goedeverwachting 57 IT	MA/1 on Ptn 5 MA/2 on Ptn 10 Ptn 6	Albert Luthuli Local Municipality	Gert Sibande District Municipality
Harwar 58 IT	MA/1 on Re Farm	Albert Luthuli Local Municipality	Gert Sibande District Municipality
Vryheid 59 IT	Farm	Albert Luthuli Local Municipality	Gert Sibande District Municipality
Tevreden 56 IT	Ptn 4 (of Ptn 1) Ptn 6 (of Ptn 1) Ptn 9 (of Ptn 5)	Albert Luthuli Local Municipality	Gert Sibande District Municipality
Mooifontein 35 IT	Ptn 2	Albert Luthuli Local Municipality	Gert Sibande District Municipality

Should you require additional information please do not hesitate to contact me.

Yours Sincerely,

**Nathalie Kalele**

Social Consultant

**DIGBY WELLS ENVIRONMENTAL**

Tel: 011 789 9495

Fax: 011 789 9498

Email: Nathalie.kalele@digbywells.com







28 February 2013

Ms Thabile Mkhabele  
Department of Rural Development and Land Reform  
Land Claims Commission  
Private Bag X11330  
Nelspruit  
1200

**LAND CLAIMS ENQUIRY: ON THE FARMS LOCATED WITHIN THE MSUKALIGWA LOCAL MUNICIPALITY AND ALBERT LUTHULI LOCAL MUNICIPALITY IN THE GERT SIBANDE DISTRICT MUNICIPALITY WITHIN THE MPUMALANGA PROVINCE.**

Dear Ms Mkhabela

Xstrata South Africa (Pty) Ltd (Xstrata Coal) is proposing to undertake mining activities on the Consbrey (made up of Consbrey A and Consbrey areas) and Harwar areas. The proposed Consbrey Colliery is made up of Consbrey 'A' & Consbrey area. The proposed Consbrey mining site was granted prospecting rights in 2008 under the previous ownership of Breyten Coal Farms (Pty) Ltd, a subsidiary of Xstrata South Africa (Pty) Ltd (Xstrata Coal), for Consbrey A and Xstrata Coal for Consbrey. The proposed Harwar mining site was granted prospecting rights in 2008 under the previous ownership of Duiker Mining (Pty) Ltd, a subsidiary of Xstrata Coal South Africa. The proposed projects will entail open cast and underground mining methods for Consbrey and open cast mining methods for Harwar.

Digby Wells Environmental (Digby Wells) has been appointed as the independent Environmental Assessment Practitioner (EAP) responsible for undertaking the Mining Right Application process for the proposed collieries.

As part of the Mining Right Application, Digby Wells would like to enquire if there has been any land claims lodged on the following Consbrey and Hawar farms:

**Consbrey: (DMR application: MP30/5/1/1/2/820PR), Consbrey A (DMR application: pending)**

Farm Name	Portion	Local Municipality	District Municipality
Bankfontein 215 IS	Ptn 2 Ptn 6/4 Ptn 11/1 Ptn 14/6	Msukaligwa Local Municipality	Gert Sibande District Municipality
Bosmanskrans 217 IS	Re Ptn 5 Ptn 7/1 MA1 on Ptn 7/1	Msukaligwa Local Municipality	Gert Sibande District Municipality
De Wittekrans 218 IS	MA4 of MA1 on Re Ptn 1 MA2 on Re Ptn 3 MA3 on Ptn 9	Albert Luthuli Local Municipality	Gert Sibande District Municipality
Dwarstrek 216 IS	Re Farm Re Ptn 1	Msukaligwa Local Municipality	Gert Sibande District Municipality

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Directors: AR Wilke, LF Koeslag, PD Tanner (British)\*, AJ Reynolds (Chairman) (British)\*, J Leaver\*, GE Trusler (C.E.O)  
\*Non-Executive



	Ptn 2 Ptn 4/3 Ptn 6		
Hartbeesfontein 239 IS	Ptn 3/1 Re Ptn 5/1 Re Ptn 6 Ptn 9/5	Msukaligwa Local Municipality	Gert Sibande District Municipality
Klipfontein 241 IS	Ptn 6/1	Msukaligwa Local Municipality	Gert Sibande District Municipality
Morgenster 204 IS	MA1 on Ptn 2 MA2 on Ptn 3	Albert Luthuli Local Municipality	Gert Sibande District Municipality
Op Goedenhoop 205 IS	Ptn 3 MA2 of MA 1 on Ptn 4 Ptn 13/3	Albert Luthuli Local Municipality	Gert Sibande District Municipality
Smutsoog 214 IS	Re Ptn 3 (Area 1) Re Ptn 3 (Area 2)	Msukaligwa Local Municipality	Gert Sibande District Municipality
Welgemeend 206 IS	Ptn 5 Ptn 6	Albert Luthuli Local Municipality	Gert Sibande District Municipality
Krogshoop 213 IS	Ptn 4	Albert Luthuli Local Municipality	Gert Sibande District Municipality

**Harwar: (DMR application – MP30/5/1/1/2/78PR)**

Farm Name	Portion	Local Municipality	District Municipality
De Goedeverwachting 57 IT	MA/1 on Ptn 5 MA/2 on Ptn 10 Ptn 6	Albert Luthuli Local Municipality	Gert Sibande District Municipality
Harwar 58 IT	MA/1 on Re Farm	Albert Luthuli Local Municipality	Gert Sibande District Municipality
Vryheid 59 IT	Farm	Albert Luthuli Local Municipality	Gert Sibande District Municipality
Tevreden 56 IT	Ptn 4 (of Ptn 1) Ptn 6 (of Ptn 1) Ptn 9 (of Ptn 5)	Albert Luthuli Local Municipality	Gert Sibande District Municipality
Mooifontein 35 IT	Ptn 2	Albert Luthuli Local Municipality	Gert Sibande District Municipality

Should you require additional information please do not hesitate to contact me.

Yours Sincerely,

**Nathalie Kalele**

Social Consultant

**DIGBY WELLS ENVIRONMENTAL**

Tel: 011 789 9495

Fax: 011 789 9498

Email: Nathalie.kalele@digbywells.com

Dear stakeholder

## **MINING RIGHT APPLICATION FOR THE PROPOSED CONSBREY COLLIERY, NEAR BREYTEN, MPUMALANGA PROVINCE**

(Consbrey A: DMR Ref. No.: MP 30/5/1/1/2/10060 MR)

(Consbrey: DMR Ref. No.: Pending)

Xstrata South Africa (Pty) Ltd (Xstrata Coal) is applying for mining rights at the proposed Consbrey Colliery. The proposed project is located 10 km northwest of the town of Breyten in the Msukaligwa and the Albert Luthuli Local Municipalities, under the jurisdiction of the Gert Sibande district municipality, Mpumalanga Province.

The proposed Consbrey Colliery is made up of Consbrey 'A' & Consbrey area. Should a Mining Right be granted to Xstrata Coal to undertake the proposed mining activities, Consbrey Colliery will become part of the greater Spitzkop Operations. The proposed Consbrey mining site was granted prospecting rights in 2008 under the previous ownership of Breyten Coal Farms (Pty) Ltd, a subsidiary of Xstrata South Africa (Pty) Ltd (Xstrata Coal), for Consbrey A and Xstrata Coal for Consbrey. Should the Mining Rights be granted by DMR they will be transferred from Xstrata and its subsidiaries to Msobo Coal in terms of section 11 of the MPRDA. Xstrata Coal submitted a Mining Right Application (MRA) to the Mpumalanga Department of Mineral Resources (DMR) in November 2012, for the proposed Consbrey Colliery located on the farms:

Opgoedenhoop 205 IS	Hartbeestfontein 239 IS
Welgemeend 206 IS	Bankfontein 215 IS
Dwarstrek 216 IS	Klipfontein 241 IS
Morgenster 204 IS	Smutsoog 214 IS
De Wittekrans 218 IS	Bosmanskrans 217 IS

This Notification is being given in compliance with the terms of Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA), which requires that landowners and people in control of land be notified of Msobo Coal's intention to obtain the mining right to establish the proposed Consbrey Colliery.

Digby Wells Environmental (Digby Wells) has been appointed as the independent Environmental Assessment Practitioner (EAP) responsible for the EIA and Public Participation processes to be undertaken in support of the MRA for the proposed coal mining activities of Consbrey Colliery.

The Scoping Report will be available for public review from **Wednesday, 6 March – Tuesday, 9 April 2013** at the following public places:

Location	Address	Contact
<b>Printed Copies</b>		
Ermelo Public Library	Cnr Church and Smut Street, Msukaligwa Municipal Building, Ermelo, 2350	Mr T.S Dondolo
Breyten Public Library	Cnr Breytenbach & Oos Streets	Mr C Joseph
Chrissiesmeer Public Library	Edward street, Chrissiesmeer	Mr J Hadebe
Carolina Public Library	28 Kerk Street, c/o Voortrekker and Versvelds Street, Carolina	Mr Sisiso Zwane
<b>Electronic Copies</b>		
www.digbywells.com Phone and request a CD copy at (011) 789 9495		

You are hereby invited to attend any of the following public meetings:

**Date & time:** Tuesday, 26 March 2013, 10:00 – 12:00  
**Venue:** Chrissiesmeer Community Hall  
 151 King Edward Street, Kwachibhibikhulu

**Date & time:** Tuesday, 26 March 2013, 14:00 – 17:00  
**Venue:** Breyten Town / Municipality Hall  
 Cnr Oustrobleer & Breytenbach Streets, Breyten

For your participation, you are encouraged to register as an I&AP, and submit any comments, questions or issues of concern that you may have about the proposed project to Digby Wells Environmental:

Telephone: (011) 789-9495 or Fax number: (011) 789-9498;  
 Email: [nathalie.kalele@digbywells.com](mailto:nathalie.kalele@digbywells.com) or [nestus.bredenhann@digbywells.com](mailto:nestus.bredenhann@digbywells.com)  
 Postal address: Private Bag X10046, Randburg, 2125.

Yours sincerely



Nathalie Kalele  
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Geagte Belanghebbende

**MYNREGAANSOEK VIR DIE VOORGESTELDE CONSBREY-STEENKOOLMYN, NABY  
BREYTON, PROVINSIE MPUMALANGA**

(Consbrey A: DMB-verwysing: MP 30/5/1/1/2/10060 MR)

(Consbrey: DMB-verwysing: Hangende)

Xstrata South Africa (Pty) Ltd (Xstrata Coal) doen aansoek vir mynregte op die voorgestelde Consbrey-steenkolmyn. Die voorgestelde projek is geleë 10 km noordwes van die dorp Breyton in die Msukaligwa en die Albert Luthuli plaaslike munisipaliteite, onder jurisdiksie van die Gert Sibande-distriksmunisipaliteit, provinsie Mpumalanga.

Die voorgestelde Consbrey-steenkolmyn bestaan uit Consbrey 'A' en Consbrey-gebied. Indien 'n Mynreg aan Xstrata Coal verleen word om die voorgestelde mynbedrywighede te onderneem, sal die Consbrey-steenkolmyn deel van die groter Spitzkop Operations word. Die voorgestelde Consbrey-mynterrein het in 2008 prospekterregte verkry onder die vorige eienaarskap van Breyton Coal Farms (Pty) Ltd, 'n filiaal van Xstrata South Africa (Pty) Ltd (Xstrata Coal) vir Consbrey A en Xstrata Coal vir Consbrey. Indien die Mynregte deur DMB toegeken word, sal dit van Xstrata en sy filiale oorgedra word aan Msobo Coal ingevolge artikel 11 van die MPRDA. Xstrata Coal het in November 2012 'n Mynregaansoek (MRA) aan Mpumalanga se Departement van Minerale Bronne (DMB) voorgelê vir die voorgestelde Consbrey-steenkolmyn, geleë op die plase

Opgoedehoop 205 IS	Hartbeestfontein 239 IS
Welgemeend 206 IS	Bankfontein 215 IS
Dwarstrek 216 IS	Klipfontein 241 IS
Morgenster 204 IS	Smutsoog 214 IS
De Wittekrans 218 IS	Bosmanskrans 217 IS

Hierdie kennisgewing word uitgereik ingevolge die bepaling van die Mineral and Petroleum Resources Development Act, 2002 (Wet No. 28 van 2002) (MPRDA), wat vereis dat grondeienaars en mense in beheer van grond in kennis gestel moet word van Msobo Coal se voorneme om die mynreg te verkry om die voorgestelde Consbrey-steenkolmyn op te rig.

Digby Wells Environmental (Digby Wells) is aangestel as die onafhanklike Omgewingsbepalingspraktisyn (OBP) wat verantwoordelik is vir die OIB en Prosesse van Openbare Deelname wat ter staving van die MRA vir die voorgestelde steenkoolmynbedrywighede van die Consbrey-steenkolmyn vereis word.

Die Omvangbepalingsverslag sal van **Woensdag 6 Maart tot Dinsdag 9 April 2013** op die volgende openbare plekke beskikbaar wees ter insae deur die publiek:

Plek	ADRES	Kontak
<b>Gedrukte eksemplare</b>		
Ermelo Openbare Biblioteek	h.v. Kerk- en Smutsstraat, Msukaligwa Munisipale Gebou, Ermelo, 2350	Mnr T.S Dondolo
Breyten Openbare Biblioteek	h.v. Breytenbach- en Oosstraat	Mnr C Joseph
Chrissiesmeer Openbare Biblioteek	Edwardstraat, Chrissiesmeer	Mnr J Hadebe
Carolina Openbare Biblioteek	28 Kerkstraat, h/v Voortrekker- en Versveldstraat, Carolina	Mnr Sisiso Zwane
<b>Elektroniese eksemplare</b>		
www.digbywells.com Skakel asb 011 789 9495 en vra vir 'n eksemplaar op CD .		

U word hierby uitgenooi om enige van die volgende openbare vergaderings by te woon:

**Datum en tyd** Dinsdag, 26 Maart 2013, 10:00 – 12:00  
**Plek** Chrissiesmeer Gemeenskapsaal  
 King Edwardstraat 151, Kwachibhibikhulu

**Datum en tyd** Dinsdag, 26 Maart 2013, 14:00 – 17:00  
**Plek** Breyten Dorpsaal/Munisipaliteitsaal  
 H.v. Oustrobleer- en Breytenbachstraat, Breyten

Vir u deelname word u aangemoedig om as 'n B&GP te registreer en enige kommentaar, vrae of kwellings oor die voorgestelde projek aan Digby Wells Environmental voor te lê:

Telefoon: (011) 789-9495 of Faksnommer: (011) 789-9498;  
 E-pos: [nathalie.kalele@digbywells.com](mailto:nathalie.kalele@digbywells.com) of [nestus.bredenhann@digbywells.com](mailto:nestus.bredenhann@digbywells.com)  
 Posadres: Privaat Sak X10046, Randburg, 2125

Met vriendelike groete



Nathalie Kalele  
 Sosiale Konsultant  
**DIGBY WELLS ENVIRONMENTAL**  
 Tel: 011-789 9495  
 E-pos: [nathalie.kalele@digbywells.com](mailto:nathalie.kalele@digbywells.com)

Appendix 2: I&AP Database



**MINING RIGHT APPLICATION FOR THE PROPOSED CONSBREY COLLIERY,  
MPUMALANGA PROVINCE**

**STAKEHOLDER DATABASE FOR SCOPING REPORT**

<b>Landowners</b>		
Daniel	Neethling	Landowner
Johannes	Botha	Landowner
Stella	Zivny	Landowner
Daniel	Neethling	Landowner
SJ	Nguni	Landowner
R	Hamman	Landowner
JJ	Roets	Landowner
IA	Cockcroft	Landowner
WC	Jennings	Landowner
WS	Barnett	Landowner
AT	Barnett	Landowner
C	Brink	Landowner
L	Uys	Landowner
JJ	Pretorius	Landowner
JS	Rautenbach	Landowner
L	Naude	Landowner
F	Barnett	Landowner
P	Weideman	Landowner
J	Spies	Landowner
EH	du Toit	Landowner
JWR	Roets	Landowner
J	Swanepoel	Landowner
D	Swanepoel	Landowner
PJ	Barnard	Landowner
DJ	Steyn	Landowner
JP	Lombard	Landowner
GJ	Van Niekerk	Landowner
S	Mnguni	Landowner
FJ	Combrink	Landowner
Pieter	Honeyborne	Landowner
J	Meintjies	Landowner
JH	Grobler	Landowner
MD	Van Aswegen	Landowner
J	Nkosi	Landowner
EH	Du Toit	Landowner
CP	Els	Landowner
DJP	Terblanche	Landowner
	Filter	Landowner

L	Naude	Landowner
Neels	Van Schalkwyk	Landowner
CJ	Van Schalkwyk	Landowner
J	Rautenbach	Landowner
PN	Stoop	Landowner
	Pretorius	Landowner
A	Kleyn	Landowner
Gideon	Van Heerden	Landowner
Christo	Coetzee	Landowner
Johanna	Nortje	Landowner
Adrian	Otto	Landowner
Maria	Van Schalkwyk	Landowner
Moses	Zwane	Landowner
Cilliers	Swangelene	Landowner
Karel	Doyer	Landowner
Anton	Uys	Landowner
John	De Jager	Landowner
Johannes	Du Preez	Landowner
Jacobus	Davel	Landowner
Jacobus	Nel	Landowner
Johannes	Botha	Landowner
Ockert	Steyn	Landowner
Catherina	Roux	Landowner
Vincent	Schulze	Landowner
Pieter	Landman	Landowner
Hannelie	Botha	Landowner
Lourens	Neethling	Landowner
Dyndre Prop		Landowner
National Government of the Republic of South Africa		Landowner
Bank Appels Boerdery Pty Ltd		Landowner
Anvin Beleggings Trust		Landowner
M J C van der Merwe Beleggings Trust		Landowner
Dirk Steyn Testamentere Trust		Landowner
Adan van Niekerk Trust		Landowner
Coko Trust		Landowner
Mgudlwa Communal Prop Assoc		Landowner
Mrabheli Communal Prop Assoc		Landowner
Lambrechts, Daniel George (Gawie Volschenk)		Landowner
Libomvu Mkhweli Pondwe-Trustee		Landowner
Jan-Elma Trust		Landowner
Johan Botha Trust		Landowner
Zivny Vera Stella		Landowner

Botha Lodewikus Johannes		Landowner
Benicon Coal Pty Ltd		Landowner
Consolidated Collieries Ltd		Landowner
Steenkamp & Terblanche Trust		Landowner
Morgenster Trust		Landowner
Chanaan Boerdery		Landowner
Baltimor Familietrust		Landowner
Worldwide Coal Carolina		Landowner
Fanie Nel Testamentary Trust		Landowner
Marling Trust		Landowner
Johan Botha Trust		Landowner
Hannes Botha Trust		Landowner
Fransmar Trust		Landowner
<b>Government Departments</b>		
Ria	Ntuli	Department of Agriculture
Trevor	Balzer	Department of Water Affairs
Ria	Barhuizen	SA National Roads Agency
Phillip	Hine	South African Heritage Resources Agency
Paul	Meulenbeld	Department of Water Affairs
Neo	January	South African Heritage Resources Agency
N.L	Sithole	Department of Agriculture, Rural Development and Land Administration
N.J	Dladla	Department of Agriculture, Rural Development and Land Administration
Moses	Mahunonyane	Department of Water Affairs
Miriam	Motsepe	Department of Environmental Affairs
Linda	Poll -Jonker	Department of Environmental Affairs
Bethuel	Matodzi	Department of Mineral Resources
Aubrey	Tshivhadekano	Department of Mineral Resources
Thabile	Mkhabele	Department of Rural Development and Land Reform
Kiewiet	Botha	Mpumalanga Department of Public Works, Roads & Transport
Bhekinkosi	Mndawe	Mpumalanga Department of Public Works, Roads & Transport
Andre	Hoffman	Mpumalanga Department of Economic Development, Environment and Tourism
	Moloi	Mpumalanga Department of Economic Development, Environment and Tourism
	Malatji	Mpumalanga Tourism and Parks Agency
<b>Government Municipalities</b>		
B	Van der Merwe	Msukaligwa Municipality
K	Trolip	Hendrina Municipality
AB	Jina	Albert Luthuli Ward Councillor
Elliot	Mahlangu	Albert Luthuli Ward Councillor (Carolina) & Confederation of Farmers' Association
Zifozonke	Zwane	Msukaligwa Local Municipality
Wonder	Mkhwanazi	Albert Luthuli Local Municipality

Walter	Mngomezulu	Albert Luthuli Local Municipality
Tiki	Malaza	Msukaligwa Local Municipality
Thami Bafana	Dlamini	Msukaligwa Local Municipality
Stanley	Marsh	Msukaligwa Local Municipality
Ntombifuthi	Xaba	Msukaligwa Local Municipality
Nkosi	Velephi	Albert Luthuli Local Municipality
Netti	Shongwe	Msukaligwa Local Municipality
Mpatata	Blose	Msukaligwa Local Municipality
Monica	Phakathi	Albert Luthuli Local Municipality
Mkhumbi	Mkhonza	Msukaligwa Local Municipality
M.A	Ngcobo	Gert Sibande District Municipality
Khandizwe	Makhubu	Msukaligwa Local Municipality
Johan	Du Plooy	Gert Sibande District Municipality
Herman	Swart	Msukaligwa Local Municipality
Gerhardus	Greyling	Msukaligwa Local Municipality
Fana Themba	Yende	Msukaligwa Local Municipality
Dumisano	Nkomo	Msukaligwa Local Municipality
DR	Mango	Albert Luthuli Local Municipality
Dan	Hlanyane	Gert Sibande District Municipality
D	Stander	Msukaligwa Local Municipality
C	Habile	Gert Sibande District Municipality
Busisiwe	Nkosi	Msukaligwa Local Municipality
Bongani	Zwani	Msukaligwa Local Municipality
Ben	Nkosi	Msukaligwa Local Municipality
Bee	Maseko	Msukaligwa Local Municipality
Busisiwe	Shiba	Albert Luthuli Local Municipality
MPP	Hhlabathi	Gert Sibande District Municipality
<b>Non-governmental Organisations</b>		
Pam	Barrett	Birdlife SA
A	Beetge	Working for Wetlands
Theuns	Niewoudt	Chairman Water Forum
Marianna	Niewoudt	Olifants River Forum
Koos	Pretorius	Federation of Sustainable Environment
James	Cooks	Upper Vaal Catchment Forum
Athol	Stark	Grass and Wetlands Regional Tourism Organisation
At	Nel	Green Trust
Andries	Janse van Rensburg	Transvaalse Landbou Agriculture Unie (TLU)
David	Shipley	Chissiesmeer urban Conservancy
Marietjie	Blignaut	Chissiesmeer urban Conservancy
Ray	Mathenjwa	SANCO
Johan	Els	Afgri

Amanda	Mabilisa	Mpumalanga Mine Crisis Committee
Doctor	Malaza	Breyton Undergraduate Youth Organisation (B.U.Y.O)
Carolyn	Ah Shene	Birdlife SA
	Hlabane	Environmental Monitoring Group (EMG)
Phillip	Dexter	Mpumalanga Development Corporation
Angus	Burns	Ekangala Grasslands Trust
Anique	Greyling	The Endangered Wildlife Trust (EWT)
Malcolm	Suttill	The Wildlife and Environmental Society of SA (WESSA)
Abe	Sibiya	Mpumalanga Tourism and Parks Agency
Rodney	February	The World Wildlife Federation-SA (WWF-SA)
Mbavhi	Mukhorro	Working for Wetlands
Siyabulela	Malaza	Land Claim Commission
Chris	Williams	The Rural Action Committee - Mpumalanga (TRAC)
<b>Organisations</b>		
Bonginkosi	Nyembe	Eskom
Danisa	Malope	Eskom
Phillip	de Klerk	Spoornet
Karen	Chetty	Rand Water

Appendix 3: Proof of Adverts Placed

**MINING RIGHT APPLICATION FOR THE PROPOSED CONSBREY AND CONSBREY A COLLIERIES AND HARWAR COLLIERY, SITUATED 10 KM NORTHWEST AND 15 KM EAST OF THE TOWN OF BREYTEN RESPECTIVELY IN THE MSUKALIGWA AND THE ALBERT LUTHULI LOCAL MUNICIPALITIES, UNDER THE JURISDICTION OF THE GERT SIBANDE DISTRICT MUNICIPALITY, MPUMALANGA PROVINCE.**

*Consbrey A Colliery – (DMR Ref. No.: MP 30/5/1/1/2/10060 MR)*

*Consbrey Colliery – (DMR Ref. No.: Pending) Harwar Colliery – (DMR Ref. No.: MP 30/5/1/1/2/78 PR)*

An environmental authorisation is required for the proposed Consbrey and Consbrey A Collieries (hereafter collectively referred to as Consbrey), and Harwar Colliery. The proposed projects will entail open cast and underground mining methods for Consbrey and open cast mining methods for Harwar. Mining Right Applications (MRAs) were submitted to the Mpumalanga Department of Mineral Resources (DMR), by Breyten Coal Farm (Pty) Ltd (for the proposed Consbrey A Colliery), Xstrata South Africa (Pty) Ltd (for the proposed Consbrey) and Duiker Mining (Pty) Ltd (for the proposed Harwar Colliery) in terms of section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA). Breyten Coal Farm (Pty) Ltd and Duiker Mining (Pty) Ltd are wholly owned subsidiaries of Xstrata South Africa (Pty) Ltd (Xstrata Coal). Once the Mining Rights have been granted by DMR they will be transferred from Xstrata and its subsidiaries to Msobo Coal in terms of section 11 of the MPRDA. Applications were submitted for the areas in question during November 2012. Digby Wells Environmental (Digby Wells) has been appointed as the independent Environmental Assessment Practitioner (EAP) responsible for the EIAs and Public Participation Processes required in support of the MRA for the proposed projects.

**PROJECT LOCATION**

The proposed Consbrey Colliery is located on the farms Opgoedehoop 205 IS, Welgemeend 206 IS, Dwarstrek 216 IS, Morgenster 204 IS, De Wittekrans 218 IS, Bosmanskrans 217 IS, Hartbeestfontein 239 IS, Bankfontein 215 IS, Klipfontein 241 IS and Smutsoog 214 IS; and the proposed Harwar Colliery is located on the farms De Goedeverwachting 57 IT, Harwar 58 IT, Vryheid 59 IT, Tevreden 56 IT and Mooifontein 35 IT in the Msukaligwa in the Msukaligwa and the Albert Luthuli local Municipalities, under the jurisdiction of the Gert Sibande district municipality, Mpumalanga Province.

**AVAILABILITY OF THE SCOPING REPORTS**

Printed Copies	
Ermelo Public library	Breyten Public Library
Chrissiesmeer Public Library	Carolina Public Library
Electronic Copies	
www.digbywells.com	
Phone and request a CD copy at (011) 789 9495	

**YOU ARE HEREBY INVITED TO ATTEND ANY OF THE FOLLOWING PUBLIC MEETINGS:**

Venue	Date & Time	Address
Chrissiesmeer Community Hall	Tuesday, 26 March 2013, 10:00 – 12:00	151 King Edward Street, Kwachibhibikhulu
Breyten Town / Municipality Hall	Tuesday, 26 March 2013, 14:00 – 17:00	Cnr Oustrobleer & Breytenbach Streets, Breyten

**REGISTRATION AS AN INTERESTED AND/OR AFFECTED PARTY**

A Public Participation Process has been initiated as a legal requirement for this project with the purpose of sharing project information and gathering issues, concerns and objections about the proposed project from all Interested and Affected Parties (I&APs). Should you wish to be registered as an I&AP, obtain additional information or comment on the proposed development, please contact:



**Digby Wells Environmental**  
 Nathalie Kalele and Nestus Bredenhann  
 Tel: 011 789 9495, Fax: 011 789 9498  
 Email: nathalie.kalele@digbywells.com  
 Postal Address: Private Bag X 10046, Randburg 2125  
 Physical Address: 359 Pretoria Avenue, Randburg, 2125



**MYNREGAANSOEK VIR DIE VOORGESTELDE CONSBREY- EN CONSBREY A-STEENKOOLOGYNE EN HARWAR-STEENKOOLOGYN, GELEË 10 KM NOORDWES EN 15 KM OOS VAN DIE DORP BREYTEN IN ONDERSKEIDELIK DIE MSUKALIGWA EN DIE ALBERT LUTHULI PLAASLIKE MUNISIPALITEITE, ONDER JURISDIKSIE VAN DIE GERT SIBANDE-DISTRIKSMUNISIPALITEIT, PROVINSIE MPUMALANGA**

*Consbrey A-steenkoolmyn – (DMB-verwysing: MP 30/5/1/1/2/10060 MR)*

*Consbrey–steenkoolmyn – (DMB-verwysing: Hangend)*

*Harwar-steenkoolmyn – (DMR-verwysing: MP 30/5/1/1/2/78 PR)*

Omgewingsmagtigting word vereis vir die voorgestelde Consbrey- en Consbrey A-steenkoolmyne (hierna gesamentlik Consbrey genoem) en Harwar-steenkoolmyn. Die voorgestelde projekte sal oopgroef- en ondergrondse mynboumetodes behels vir Consbrey en oopgroefmynboumetodes vir Harwar. Mynregsaansoeke (MRA's) is aan Mpumalanga se Departement van Minerale Bronne (DMB) voorgelê deur Breyten Coal Farm (Pty) Ltd (vir die voorgestelde Consbrey A-steenkoolmyn), Xstrata South Africa (Pty) Ltd (vir die voorgestelde Consbrey-steenkoolmyn) en Duiker Mining (Pty) Ltd (vir die voorgestelde Harwar-steenkoolmyn) ingevolge artikel 22 van die Mineral and Petroleum Resources Development Act, 2002 (Wet No. 28 van 2002) (MPRDA). Breyten Coal Farm (Pty) Ltd en Duiker Mining (Pty) Ltd is volfiliale van Xstrata South Africa (Pty) Ltd (Xstrata Coal). Sodra die Mynregte deur DMB toegeken is, sal dit van Xstrata en sy filiale oorgedra word aan Msobo Coal ingevolge artikel 11 van die MPRDA. Aansoeke is in November 2012 vir die betrokke gebiede ingedien. Digby Wells Environmental (Digby Wells) is aangestel as die onafhanklike Omgewingsbepalingspraktisyn (OBP) wat verantwoordelik is vir die OIBs en Prosesse van Openbare Deelname wat vir die MRA vir die voorgestelde projekte vereis word.

**LIGGING VAN PROJEKTE**

Die voorgestelde Consbrey-steenkoolmyne is geleë op die plase Opgooedenhoop 205 IS, Welgemeend 206 IS, Dwarstrek 216 IS, Morgenster 204 IS, De Wittekrans 218 IS, Bosmanskrans 217 IS, Hartbeestfontein 239 IS, Bankfontein 215 IS, Klipfontein 241 IS en Smutsoog 214 IS; en die voorgestelde Harwar-steenkoolmyn is geleë op die plase De Goedeverwachting 57 IT, Harwar 58 IT, Vryheid 59 IT, Tevreden 56 IT en Mooifontein 35 IT in die Msukaligwa en die Albert Luthuli Plaaslike Munisipaliteite, onder jurisdiksie van die Gert Sibande-distriksmunisipaliteit, Provinsie Mpumalanga.

**BESKIKBAARHEID VAN DIE OMVANGBEPALINGSVERSLAE**

Gedrukte eksemplare	
Ermelo Openbare Biblioteek	Breyten Openbare Biblioteek
Chrissiesmeer Openbare Biblioteek	Carolina Openbare Biblioteek
Elektroniese eksemplare	
www.digbywells.com	
Skakel asb 011 789 9495 en vra vir 'n eksemplaar op CD .	

**U WORD HIERBY UITGENOOI OM ENIGE VAN DIE VOLGENDE OPENBARE VERGADERINGS BY TE WOON:**

Plek	Datum en tyd	Adres
Chrissiesmeer Gemeenskapsaal	Dinsdag, 26 Maart 2013, 10:00 – 12:00	King Edwardstraat 151, Kwachibhibikhulu
Breyten Dorpsaal/ Munisipaliteitsaal	Dinsdag, 26 Maart 2013, 14:00 – 17:00	H.v. Oustrobler- en Breytenbachstraat, Breyten

**REGISTRASIE AS 'N BELANGHEBBENDE EN/OF GEAFFEKTEERDE PARTY**

Daar is begin met 'n Proses van Openbare Deelname as 'n wetsvereiste vir hierdie projek, met die doel om projekinligting te deel en kwessies, kwellings en besware rakende die voorgestelde projek van alle Belanghebbende en Geaffekteerde Partye (B&GP's) te verkry. Indien u as 'n B&GP geregistreer wil word, bykomende inligting wil kry of kommentaar op die voorgestelde ontwikkeling wil lewer, skakel asb met:



**Digby Wells Environmental**  
 Nathalie Kalele en Nestus Bredenhann  
 Tel: 011 789 9495, Faks: 011 789 9498  
 E-pos: nathalie.kalele@digbywells.com  
 Posadres: Privaat Sak 10046, Randburg, 2125  
 Fisiese adres: Pretoriaaan 359, Randburg, 2125





Appendix 4 Proof of Site Notices

**MINING RIGHT APPLICATION FOR THE PROPOSED CONSBREY AND CONSBREY A COLLIERIES, SITUATED 10 KM NORTHWEST OF THE TOWN OF BREYTEN IN THE MSUKALIGWA AND THE ALBERT LUTHULI LOCAL MUNICIPALITIES, UNDER THE JURISDICTION OF THE GERT SIBANDE DISTRICT MUNICIPALITY, MPUMALANGA PROVINCE.  
(Consbrey A: DMR Ref. No.: MP 30/5/1/1/2/10060 MR) (Consbrey: DMR Ref. No.: Pending)**

An environmental authorisation is required for the proposed Consbrey and Consbrey A Collieries (hereafter collectively referred to as Consbrey Colliery). The proposed project will entail open cast and underground mining methods. A Mining Right Application was submitted by Breyten Coal Farms (Pty) Ltd (a subsidiary of Xstrata South Africa (Pty) Ltd (Xstrata Coal) for Consbrey A and Xstrata Coal for Consbrey in terms of section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA) to the Mpumalanga Department of Mineral Resources (DMR) in November 2012. Should the Mining Rights have been granted by DMR they will be transferred from Xstrata and its subsidiaries to Msobo Coal in terms of section 11 of the MPRDA. Digby Wells Environmental (Digby Wells) has been appointed as the independent Environmental Assessment Practitioner (EAP) responsible for the EIA and Public Participation processes to be undertaken in support of the MRA for the proposed coal mining activities of Consbrey Colliery.

# PUBLIC COMMENT INVITED

**PROJECT LOCATION**

The proposed Consbrey Colliery is located on the farms Opgoedenhoop 205 IS, Welgemeend 206 IS, Dwarstrek 216 IS, Morgenster 204 IS, De Wittekrans 218 IS, Bosmanskrans 217 IS, Hartbeestfontein 239 IS, Bankfontein 215 IS, Klipfontein 241 IS and Smutsoog 214 IS, in the Msukaligwa and the Albert Luthuli local Municipalities, under the jurisdiction of the Gert Sibande District Municipality, Mpumalanga Province.

**AVAILABILITY OF THE SCOPING REPORT**

Printed Copies	
Ermelo Public library	Breyten Public Library
Chrissiesmeer Public Library	Carolina Public Library
Electronic Copies	
www.digbywells.com	
Phone and request a CD copy at (011) 789 9495	

**YOU ARE HEREBY INVITED TO ATTEND ANY OF THE FOLLOWING PUBLIC MEETINGS:**

Venue	Date & Time	Address
Chrissiesmeer Community Hall	Tuesday, 26 March 2013, 10:00 – 12:00	151 King Edward Street, Kwachibhibikhulu
Breyten Town / Municipality Hall	Tuesday, 26 March 2013, 14:00 – 17:00	Cnr Oustrobler & Breytenbach Streets, Breyten

**REGISTRATION AS AN INTERESTED AND/OR AFFECTED PARTY**

A Public Participation Process has been initiated as a legal requirement for this project with the purpose of sharing project information and gathering issues, concerns and objections about the proposed project from all Interested and Affected Parties (I&APs). Should you wish to be registered as an I&AP, obtain additional information or comment on the proposed development, please contact:



**Digby Wells Environmental**  
Nathalie Kalele and Nestus Bredenhann  
Tel: 011 789 9495, Fax: 011 789 9498  
Email: nathalie.kalele@digbywells.com  
Postal Address: Private Bag X 10046, Randburg 2125  
Physical Address: 359 Pretoria Avenue, Randburg, 2125



**MYNREGAANSOEK VIR DIE VOORGESTELDE CONSBREY- EN CONSBREY A-STEENKOOLOGYNE, GELEË 10 KM NOORDWES VAN DIE DORP BREYTEN IN DIE MSUKALIGWA EN DIE ALBERT LUTHULI PLAASLIKE MUNISIPALITEITE, ONDER JURISDIKSIE VAN DIE GERT SIBANDE-DISTRIKSMUNISIPALITEIT, PROVINSIE MPUMALANGA**  
(*Consbrey A: DMB-verwysing: MP 30/5/1/1/2/10060 MR*) (*Consbrey: DMB-verwysing: Hangende*)

Omgewingsmagtigting word vereis vir die voorgestelde Consbrey- en Consbrey A-steenkolmyne (hierna gesamentlik Consbrey-steenkolmyn genoem). Die voorgestelde projek sal oopgroef- en ondergrondse mynboumetodes behels. 'n Mynregansoek is in November 2012 deur Breyten Coal Farms (Pty) Ltd ('n filiaal van Xstrata South Africa (Pty) Ltd (Xstrata Coal) vir Consbrey A en deur Xstrata Coal vir Consbrey ingevolge artikel 22 van die Mineral and Petroleum Resources Development Act, 2002 (Wet No. 28 van 2002) (MPRDA) voorgelê aan Mpumalanga se Departement van Minerale Bronne (DMB). Indien die Mynregte deur DMB toegeken word, sal dit van Xstrata en sy filiale oorgedra word aan Msobo Coal ingevolge artikel 11 van die MPRDA. Digby Wells Environmental (Digby Wells) is aangestel as die onafhanklike Omgewingsbepalingspraktisyn (OBP) wat verantwoordelik is vir die OIB en Proses van Openbare Deelname wat ter staving van die MRA vir die voorgestelde steenkoolmynbedrywighede van die Consbrey-steenkolmyn vereis word.

# KOMMENTAAR AANGEVRA

## LIGGING VAN PROJEKTE

Die voorgestelde Consbrey-steenkolmyn is geleë op die plase Opgoedehoop 205 IS, Welgemeend 206 IS, Dwarstrek 216 IS, Morgenster 204 IS, De Wittekrans 218 IS, Bosmanskrans 217 IS, Hartbeestfontein 239 IS, Bankfontein 215 IS, Klipfontein 241 IS en Smutsoog 214 IS in die Msukaligwa en die Albert Luthuli Plaaslike Munisipaliteit, onder jurisdiksie van die Gert Sibande-distriksmunisipaliteit, provinsie Mpumalanga.

## BESKIKBAARHEID VAN DIE OMVANGBEPALINGSVERSLAG

Gedrukte eksemplare	
Ermelo Openbare Biblioteek	Breyten Openbare Biblioteek
Chrissiesmeer Openbare Biblioteek	Carolina Openbare Biblioteek
Elektroniese eksemplare	
www.digbywells.com	
Skakel asb 011 789 9495 en vra vir 'n eksemplaar op CD.	

## U WORD HIERBY UITGENOOI OM ENIGE VAN DIE VOLGENDE OPENBARE VERGADERINGS BY TE WOON:

Plek	Datum en tyd	Adres
Chrissiesmeer Gemeenskapsaal	Dinsdag, 26 Maart 2013, 10:00 – 12:00	King Edwardstraat 151, Kwachibhibikhulu
Breyten Dorpsaal/Munisipaliteitsaal	Dinsdag, 26 Maart 2013, 14:00 – 17:00	H.v. Oustrobler- en Breytenbachstraat, Breyten

## REGISTRASIE AS 'N BELANGHEBBENDE EN/OF GEAFFEKTEERDE PARTY

Daar is begin met 'n Proses van Openbare Deelname as 'n wetsvereiste vir hierdie projek, met die doel om projekinligting te deel en kwessies, kwellings en besware rakende die voorgestelde projek van alle Belanghebbende en Geaffekteerde Partye (B&GP's) te verkry. Indien u as 'n B&GP geregistreer wil word, bykomende inligting wil kry of kommentaar op die voorgestelde ontwikkeling wil lewer, skakel asb met:



**Digby Wells Environmental**  
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