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Environmental Authorisation Process to Decommission a Conveyor Belt Servitude, Road and Quarry at Twistdraai East Colliery, Secunda, Mpumalanga Province

Notification of Intent to Develop

Project Number:

SAS5544

Prepared for:

Sasol Mining (Pty) Ltd

April 2019

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Project Name:	Environmental Authorisation Process to Decommission a Conveyor Belt Servitude, Road and Quarry at Twistdraai East Colliery, Secunda, Mpumalanga Province
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Appendix A: Specialist CV

1 Introduction

Sasol Mining (Pty) Ltd (hereinafter Sasol Mining) propose to decommission existing infrastructure within the Twistdraai East Shaft (hereinafter Twistdraai East) (“the Project”). This infrastructure includes all infrastructure located within the conveyor belt servitude including roads, pipelines and culverts as well as a quarry and the access road to the Twistdraai East, as such, Sasol Mining require Environmental Authorisation (EA) before they can decommission infrastructure at these points.

To this effect, Sasol Mining appointed Digby Wells Environmental (hereinafter Digby Wells) to undertake a Basic Assessment (BA) process in support of the required EA and in compliance with the requirements encapsulated in:

- The National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA);
- The NEMA Environmental Impact Assessment (EIA) Regulations (Government Notice Regulations [GN R] 982 as amended by GN R 326); and
- The National Water Act, 1998 (Act No. 36 of 1998) (NWA).

This document serves as the Notification of Intent to Develop (NID) and Request for Exemption (RfE) from further heritage assessment in compliance with Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA).

2 Project details

2.1 Project location

The Project is located approximately 10 km south of Secunda, in the Govan Mbeki Local Municipality (GMLM) within the Gert Sibande District Municipality (GSDM) of the Mpumalanga Province. Table 1 presents a summary of the details of the Project area and Plan 1 illustrates the regional and local setting of the Project. Table 2 summarises the details of the owners of the affected properties.

Table 1: Project location details

Name of property/ies	Twistdraai Colliery
Street address or location (e.g.: Off R44)	E Mine Belt Road between Twistdraai East and Twistdraai Export Plant. North of Mynpad Road off the N17 National Route.

Erf or farm number/s	<ul style="list-style-type: none"> ■ Bosjesspruit 291 IS: Portions 4 Remainder (Rem), 7 (Rem), 15 (Rem), 19 and Remaining Extent (RE); ■ Frischgewaagd 294 IS: Portions 1 (Rem), 4, 7 (Rem), 35, 52, 53 and RE; ■ Goedehoop 290 IS: Portions 1 (Rem), 5 (Rem), 6 (Rem), 8 (Rem), 19 (Rem) and 34; ■ Grootvlei 293 IS: Portion 13, 29 (Rem), 31 and RE; and ■ Poverty Acres 585 IS: RE.
Coordinates of approximate centre of project area	26°33'47.94" S
	29°16 24'90"E
Town or District	Secunda
Responsible Municipality	GMLM in GSDM, Mpumalanga
Extent of property	Twistdraai East: 13 787 hectares (ha)
Maximum extent of proposed development	Conveyor belt servitude with associated infrastructure to be decommissioned: 16.2 km Access road to Twistdraai East to be decommissioned: 1.24 km Total length of Pipeline: 16.2 km ¹ Quarry to be rehabilitated: less than 1 ha
Current use	Decommissioned mine / inactive mining infrastructure to be decommissioned.
Predominant land use/s of surrounding properties	Mining, agriculture, mixed urban land use (residential, industrial)

Table 2: Landowner details

Name	Property	Notified²
Frederik Johannes Gerhardus Visser	Portions 1 (Rem) and 19 (Rem) of Goedehoop 290 IS	Pending
Jacobus Nicolaas Boshoff	Portions 1 (Rem), 7 (Rem) and 35 of Frischgewaagd 294 IS	Pending
JNB Familie Trust	Portion 4 of Frischgewaagd 294 IS	Pending
Johannes Corneluis Jacobus Joubert	Portion 52 of Frischgewaagd 294 IS	Pending

¹ Only above-ground sections of the pipeline will be decommissioned. Refer to Section 2.3 for more information.

² All landowners will be notified of the proposed Project during the Public Participation Process (PPP) required as a component of the EIA process. The PPP has not been undertaken to date.

Name	Property	Notified ²
Louis Hendrik Ludik	Poverty Acres 585 IS	Pending
Republic of South Africa	Portion 19 of Bosjesspruit 291 IS	Pending
Sasol Chemiese Nywerhede Ltd	Portion 15 (Rem) of Bosjesspruit 291 IS	N/A
Sasol Mining (Pty) Ltd	Portions 7 (Rem) and RE of Bosjesspruit 291 IS RE of Frischgewaagd 294 IS Portion 6 (Rem) and 34 of Goedeheop 290 IS Portion 13 and 29 (Rem) of Grootvlei 293 IS	N/A
Sasol South Africa (Pty) Ltd	Portion 4 (Rem) of Bosjesspruit 291 IS Portion 5 (Rem) and 8 (Rem) of Goedeheop 290 IS	Pending
Vukani Networks CC	Portion 53 of Frischgewaagd 294 IS Portion 31 of Grootvlei 293 IS	Pending
WF TE Water Senior Trust	RE of Grootvlei 293 IS	Pending

2.2 Project background

Sasol presently own and operate six coal mines to supply feedstock for the Sasol Synfuels and Sasolburg Operations. These mines include the following:

- Bosjesspruit, Brandspruit, Middelbult, Syferfontein and Twistdraai Collieries which form the Secunda Complex; and
- Sigma Colliery, which constitutes the Sasolburg Complex.

Sasol Mining owns a converted new order mining right which is a consolidated mining right which includes the former prospecting and mining rights known as the Secunda Complex Mining Right³. The shafts within the Secunda Complex have been subdivided for day-to-day management of the mine and each shaft area has its own Environmental Management Programme (EMPr⁴).

This BA process relates specifically to decommissioning activities proposed at Twistdraai East which requires EA. The Twistdraai Colliery includes three separate shafts: Twistdraai West Shaft, Twistdraai East and Twistdraai Central Shaft. Twistdraai Central and West have been decommissioned, rehabilitated and renovated for other purposes. The Central Shaft was converted into a training facility and accommodation while land from the West Shaft was

³ Department of Mineral Rights Reference Number: MP 30/5/1/2/3/2/1/138 MR.

⁴ The Twistdraai Colliery EMPr was amended and submitted to the DMR in 2010 with reference number MP 30/5/1/2/3/2/1(138) EM. The DMR approved the EMPr Amendment in 2012 (hereinafter "Amended EMPr").

given back to the farmer. Twistdraai East is the last shaft to be decommissioned and this process is ongoing in compliance with the Amended and approved EMPr.

2.3 Project description

The Project will include the following activities as part of the Twistdraai East decommissioning process:

- Decommissioning and rehabilitation of an access road and associated culverts which was constructed between Mynpad Road and Twistdraai East which permits access to the Shaft;
- Decommissioning of the conveyor belt and rehabilitation of the associated servitude including: access road, water supply pipeline and culverts. The conveyor was previously utilised to transport coal from Twistdraai Colliery to Twistdraai Export Plant; and
- Decommissioning and rehabilitation of a mine water supply pipeline located within the conveyor belt servitude.












It must be noted that the water supply pipelines will only be decommissioned where they daylight over various tributaries. The remaining pipelines, which are located beneath ground level, will not be disturbed or removed during the decommissioning process.

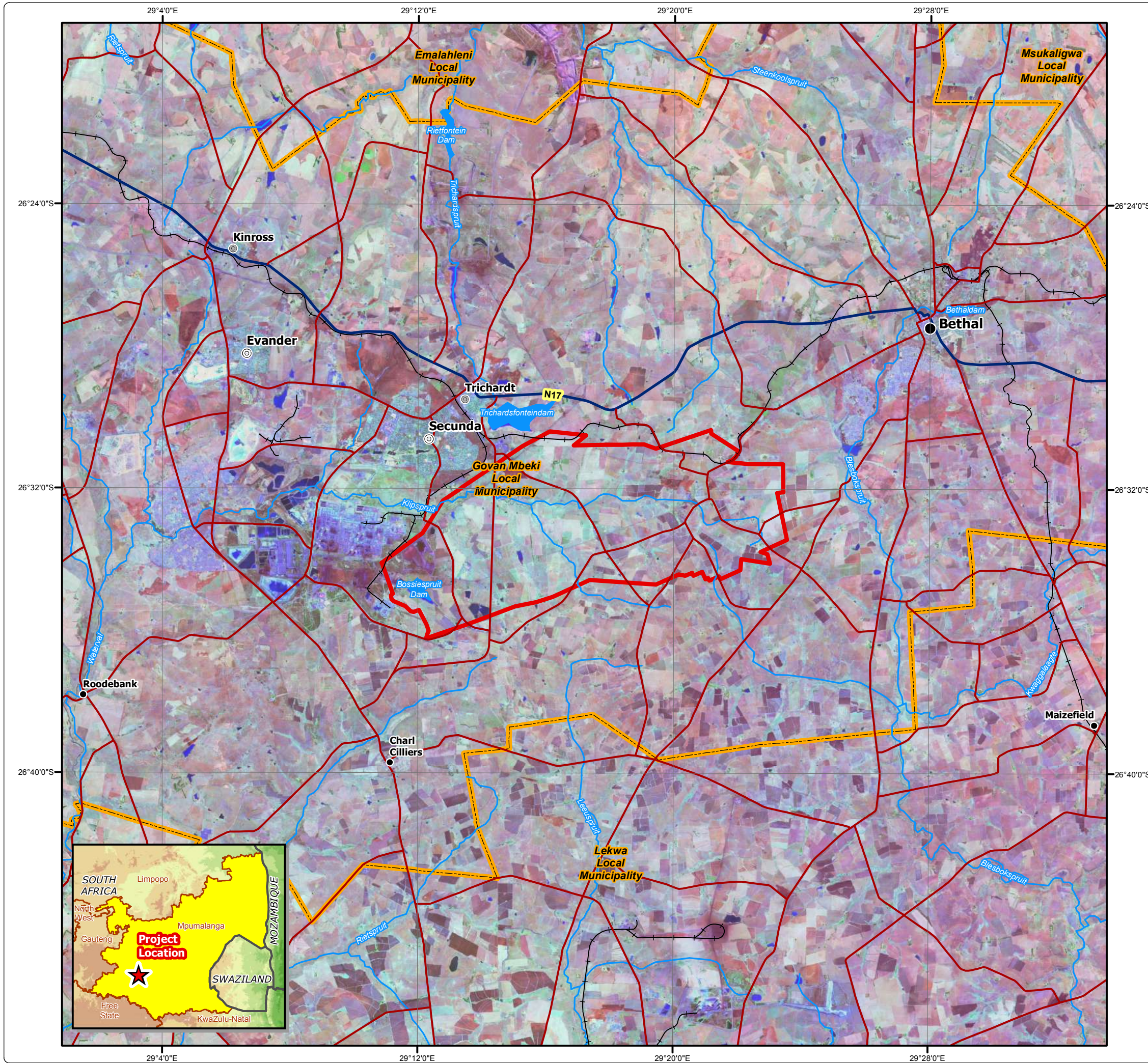
The proposed project is a decommissioning and rehabilitation project with the aim to ensure all mining infrastructure is removed with minimal impact to the surrounding environment and to ensure the area is rehabilitated to a more natural state. The project aims to have an overall positive impact on the surrounding environment. Plan 2 illustrates the layout of the affected infrastructure.

It must be noted that most of the decommissioning of the above has been undertaken. Decommissioning has not yet been undertaken where this infrastructure crosses water courses and wetlands, as this requires EA. The quarry has yet to be backfilled and rehabilitated.

Sasol Twistdraai Road and Conveyor Decommissioning Regional Locality

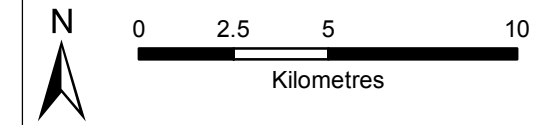
Legend

-  Defunct Twistdraai EMP Boundary
-  Major Town
-  Secondary Town
-  Other Town
-  Settlement
-  Main Road
-  Arterial / National Route
-  Railway Line
-  Perennial Stream
-  Dam
-  Local Municipality (2016)



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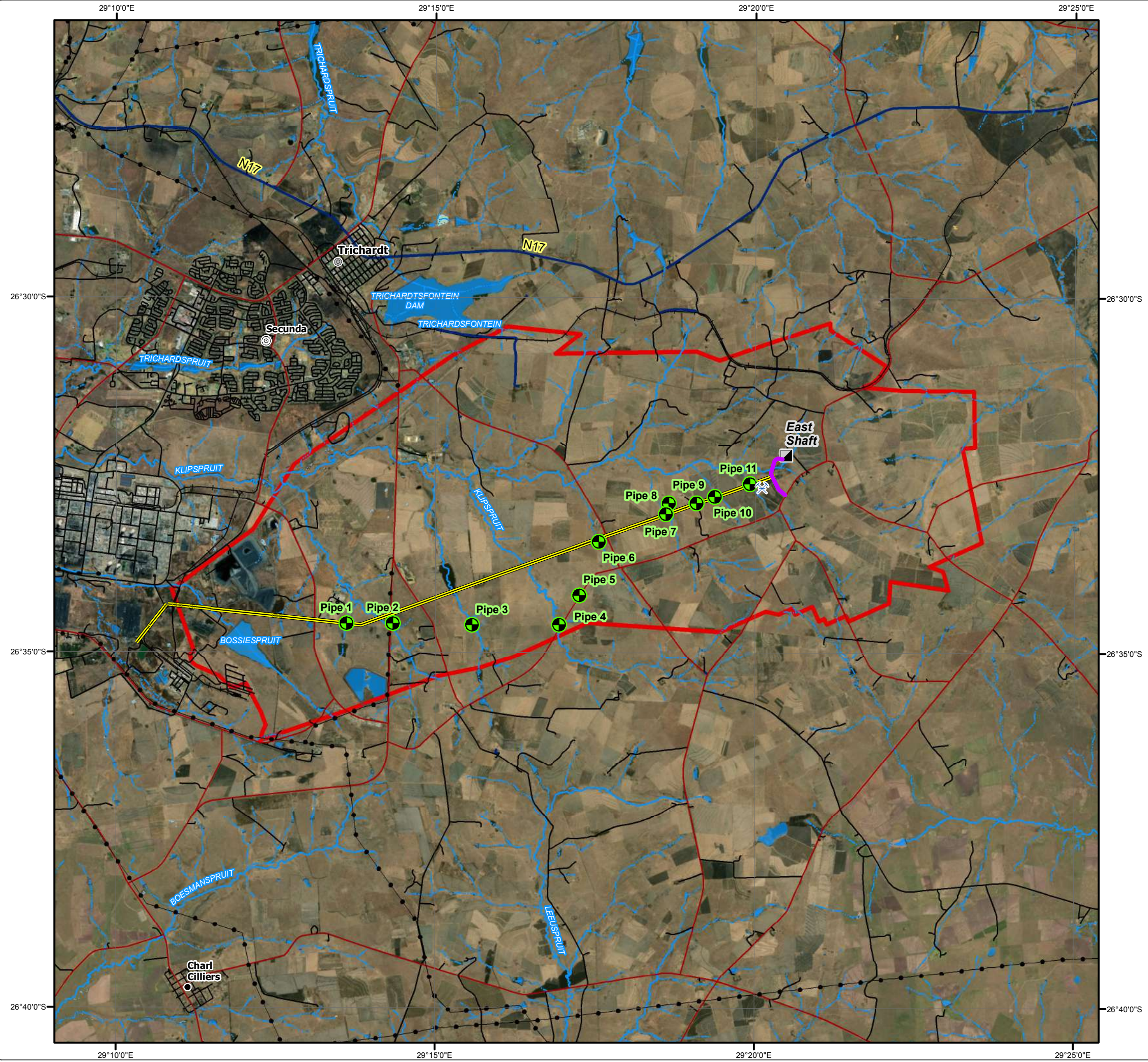


Sasol Twistdraai Road and Conveyor Decommissioning

Local Setting

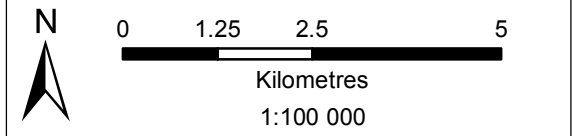
Legend

- Twistdraai EMP Boundary
 - Secondary Town
 - Other Town
 - Settlement
- #### Infrastructure to be Decommissioned
- East Shaft
 - Pipeline (Daylight Area)
 - Quarry
 - East Shaft Access
 - Conveyor Servitude (Culverts and Service / Access Road)
 - Power Line
 - Arterial / National Route
 - Main Road
 - Minor Road
 - Railway Line
 - Dam Wall
 - Non-Perennial Stream
 - Perennial Stream
 - Dam / Lake
 - Non-Perennial Pan / Stream
 - Perennial Pan
 - Wetland



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3 Cultural heritage baseline description⁵

This section makes reference to site-specific, local and regional study areas. The regional study area refers to the area bounded by the district municipality demarcation, in this case the GSDM. The local study area refers to the area bounded by the local municipality demarcation, in this case, the GMLM. The local and regional study areas offer a backdrop to the cultural-historical and socio-economic conditions and planning context within which the Project is situated. In this case, the affected infrastructure is linear and so the site-specific study area refers to the linear extent of the Project and a 200 m buffer of either side of the proposed development footprint.

Anthropogenic activities have largely disturbed the site-specific study area and immediate surroundings over time. These activities include the development of historical farmsteads, the establishment and growth of the town of Secunda and the operation of Twistdraai East, including the development and operation of the conveyor belt servitude, pipeline, quarry and road to be decommissioned. The following cultural landscape baseline must be read within this context.

Mpumalanga's geological history takes place over 3 600 million years (Johnson, et al., 2006; Groenewald & Groenewald, 2014). The province is underlain by valuable geological formations, both in terms of mineral and fossil wealth. Briefly, these comprise:

- The Karoo Supergroup;
- The Bushveld Complex; and
- Transvaal Supergroup.

The regional and local study areas comprise a part of the Highveld Coalfield, which extends across approximately 7 000 km². The Main Karoo Basin is the predominant geological feature to underlie this area. The Main Karoo Basin comprises the lithostratigraphic units associated with the Karoo Supergroup, which dates to the Late Carboniferous to Middle Jurassic periods (between ~320 and 145 million years ago [mya]).

Within the Karoo Supergroup, the sediments of the Ecca Group are the most paleontologically sensitive of the geological layers. The Ecca Group dates to the Permian Period and overlies the *Dwyka Formation* (labelled 'D' in Figure 1). The Ecca Group dates to the Permian Period and overlies the *Dwyka Formation*. The Ecca Group sediments are well-known for the wealth of plant fossils, characterised by assemblage of the *Glossopteris* flora (plant species which occur together and are typified by the dominant fossil leaves that belong to the glossopterid group). These layers also contain significant coal reserves (Groenewald & Groenewald, 2014).

⁵ This palaeontological baseline description has been reviewed and accepted by a qualified and accredited palaeontologist.

Formations within the Ecca Group include:

- The *Pietermaritzburg Formation*, which rarely forms good outcrops and fossils are rare and difficult to find. This formation is of moderate palaeontological sensitivity;
- The *Vryheid Formation*, which is the main coal-producing formation in South Africa. This formation has produced a number of fossils, including extensive *Glossopteris* assemblages. Other fossils reported from this formation include: trace fossils, rare insects, possible conchostracans (bivalve crustaceans and shrimp clams, which are presently still extant), non-marine bivalves and fish scales; and
- The *Volksrust Formation*: monotonous sequence of grey shale. Fossils are significant but rare and include: temnospondyl amphibian remains, invertebrates and minor coal with plant remains, petrified wood and trace fossils assemblages (Groenewald & Groenewald, 2014).

The site-specific study area is associated with Karoo dolerites and the *Vryheid Formation* (Rubidge, 2008; Rubidge, 2013a; Rubidge, 2013b). The Karoo dolerites are intrusive diatremes⁶ classified as plutonic igneous rocks. These features include no fossiliferous material and their palaeo-sensitivity is negligible (Rubidge, 2013a; 2013b; SAHRA, 2013). The Karoo dolerite suite is therefore not considered further in this report.

The *Vryheid Formation* has a very-high palaeo-sensitivity (SAHRA, 2013) and is the primary potential fossil-bearing layer underlying the site-specific study area. The formation corresponds to the basal unit of the Ecca Group, which was deposited roughly 280 mya in a deltaic⁷ environment. Shales, sandstones, mudstones and coal feature all form part of this formation (Bamford, 2016).

Coal is formed through compression and heat alteration of plant matter. During the formation of coal, alteration happens to such an extent that potential plant fossil remains are no longer recognisable. The shales between the coal horizons, however, have the potential to preserve very good examples of plant fossils (Bamford, 2014; 2016). To a lesser extent, the sandstone surface outcrops may also preserve fossil plants. Common fossil plants that could be expected within the *Vryheid Formation* include *Glossopteris* leaves, roots and inflorescences; and *Calamites* stems. Coal deposits can potentially also include fossils of mammal-like reptiles and amphibians. These are however, rarely, if ever, preserved with plant fossils (Bamford, 2012; 2016).

⁶ These formations are created when rising magma comes into contact with groundwater, which potentially results in gaseous explosions and a volcanic 'pipe' (diatreme).

⁷ This occurs when lithologies are deposited onto an alluvial plain through river action.

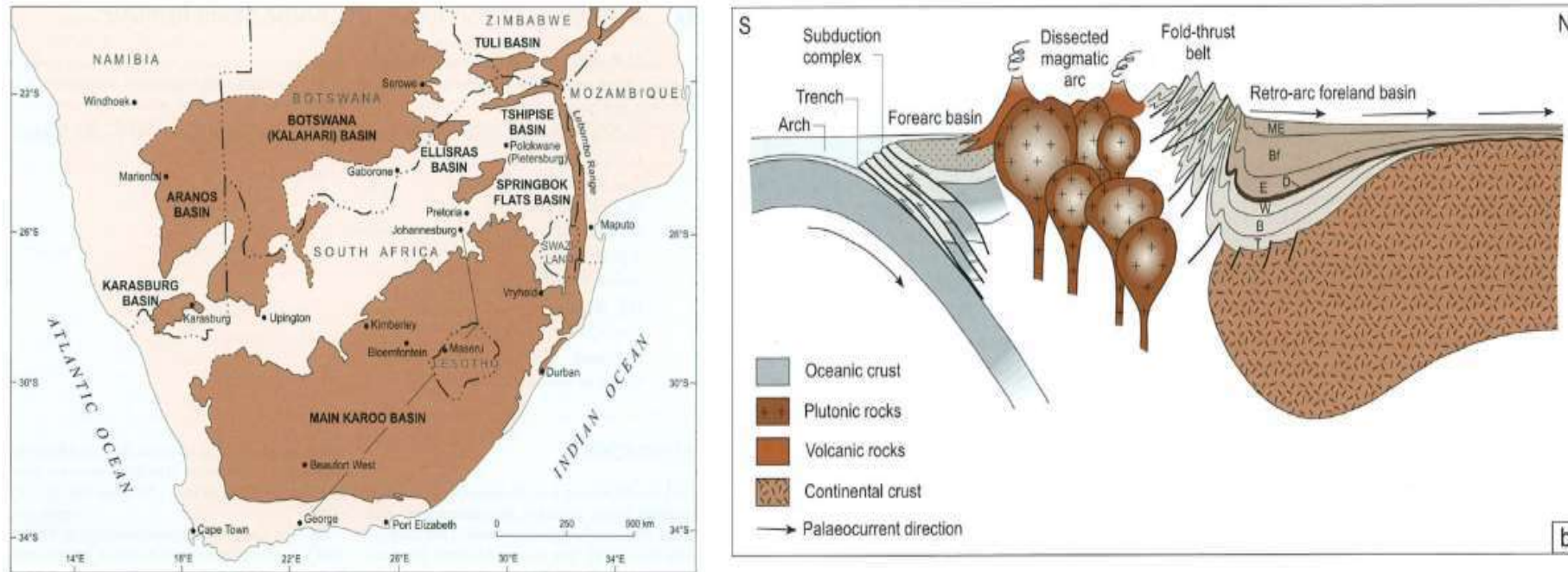


Figure 1: Location and envisaged plate tectonic setting of the Main Karoo Basin during the Late Triassic. E = Ecca Group (adapted from Johanson, *et al.*, 2006)

Table 3: Geological sequence and palaeontological sensitivity for the local study area

Eon	Era	Period	Mya	Lithographic Units			Significance	Fossils
				Supergroup	Group	Formation		
Phanerozoic	Mesozoic	Jurassic	145			Karoo dolerites	Negligible	None
			200					
	Palaeozoic	Permian		300	Karoo Supergroup	Ecca Group	Volksrust	High
Vryheid							Very-high	Abundant plant fossils of Glossopteris and other plants. Trace fossils. The reptile Mesosaurus has been found in the southern part of the Karoo Basin. Rich fossil plant assemblages of the Permian <i>Glossopteris</i> Flora (lycopods, rare ferns and horsetails, abundant glossopterids, cordaitaleans, conifers, ginkgoaleans), rare fossil wood, diverse palynomorphs. Abundant, low diversity trace fossils, rare insects, possible conchostracans, non-marine bivalves, fish scales.

Table 4: Archaeological periods in Mpumalanga, adapted from Esterhuysen & Smith (2007)

The Stone Age	Earlier Stone Age (ESA)	2 million years ago (mya) to 250 thousand years ago (kya)
	Middle Stone Age (MSA)	250 kya to 20 kya
	Later Stone Age (LSA)	20 kya to 500 CE (Common Era ⁸)
There appears to be a gap in the record in Mpumalanga between approximately 7000 and 2000 BCE.		
Farming Communities	Early Farming communities (EFC)	500 to 1400 CE
	Late Farming Communities (LFC)	1100 to 1800 CE
Historical Period⁹	-	1500 CE to 1850 (Behrens & Swanepoel, 2008)

The reviewed literature included no reports of archaeological material representing the ESA or EFC periods. As such, these will not be described further in this report. Figure 2 provides a breakdown of the cultural heritage resources identified through the literature. The cultural landscape comprises of the historical built environment and burial grounds and graves, although the MSA, LSA and LFC periods are also represented. The reviewed literature also included references to palaeontologically significant material.

Plan 3 presents a spatial distribution of heritage resources previously identified within the greater study area.

⁸ Common Era (CE) refers to the same period as *Anno Domini* ("In the year of our Lord", referred to as AD): i.e. the time after the accepted year of the birth of Jesus Christ and which forms the basis of the Julian and Gregorian calendars. Years before this time are referred to as 'Before Christ' (BC) or, here, BCE (Before Common Era).

⁹ The author acknowledges that in southern Africa, especially in Mpumalanga, the last 500 years represents a formative period that is marked by enormous internal economic invention and political experimentation that shaped the cultural contours and categories of modern identities outside of European contact. This period is currently not well documented and is being explored through the 500 year initiative (Swanepoel, et al., 2008).

Sasol Twistdraai Road and Conveyor Decommissioning

HRM Matrix

Legend

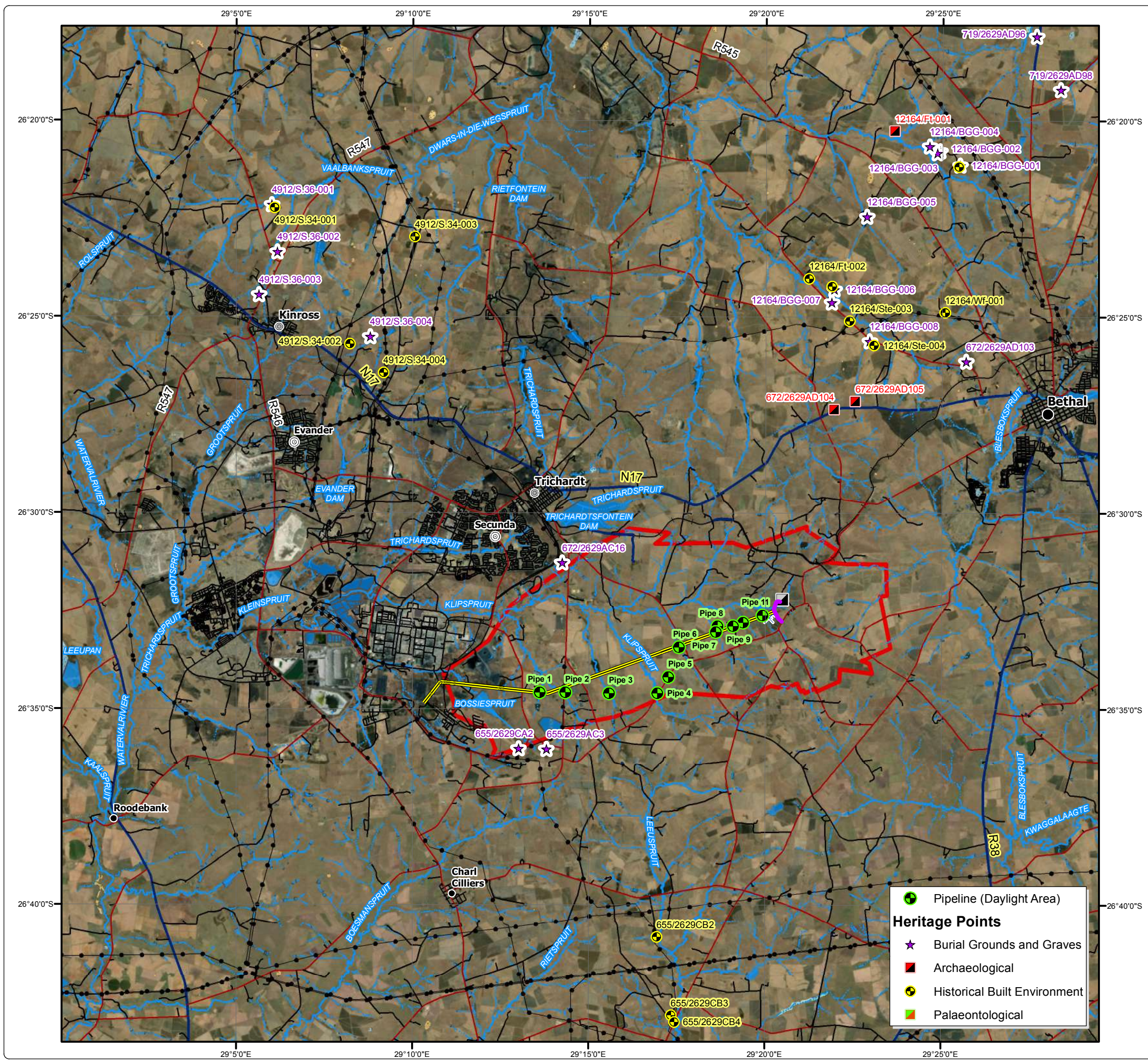
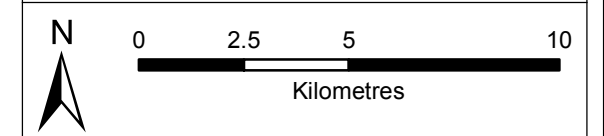
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 - Perennial Pan
 - Wetland

- Pipeline (Daylight Area)
- Heritage Points**
- Burial Grounds and Graves
 - Archaeological
 - Historical Built Environment
 - Palaeontological



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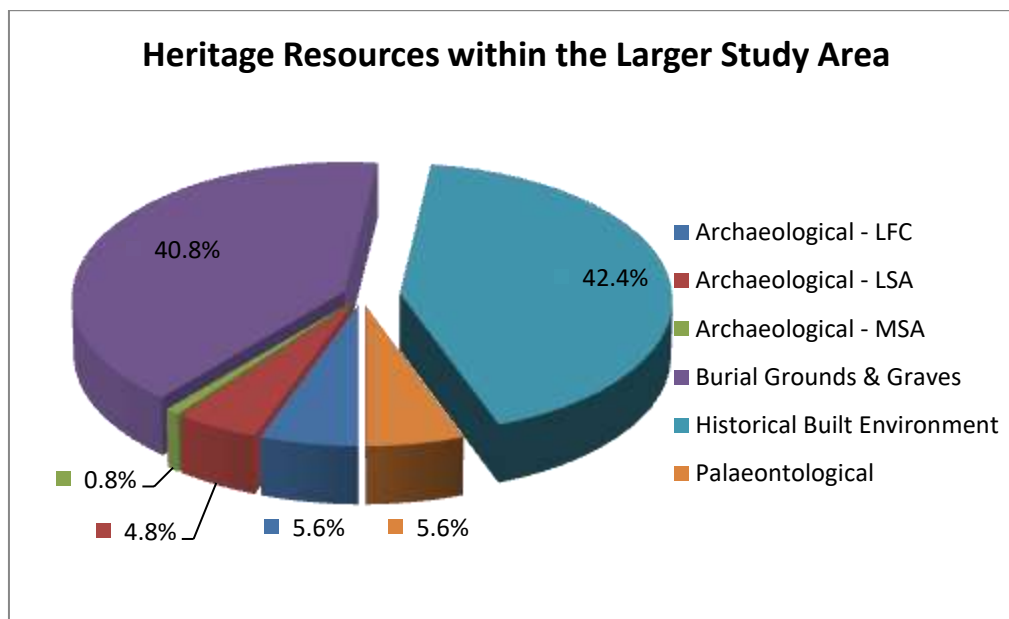


Figure 2: Cultural Heritage Resources identified within the Study Area under consideration

The Stone Age includes three periods defined by the production of lithic tools by various hominid species: the ESA, MSA and LSA. The MSA dates from approximately 250 to 20 kya. High proportions of minimally-modified blades (represented by the Levallois Technique) characterise the lithic industries of the early MSA (Clark, 1982). In general, however, the MSA is defined by blades and points which were produced using good-quality raw materials, the use of bone tools, ochre, beads and pendants (Deacon & Deacon, 1999). A single isolated artefact represents the MSA (du Piesanie, et al., 2013).

The LSA occurred between approximately 40 kya and the historical period. LSA lithic tools are specialised and specific tools are created for specific purposes (Mitchell, 2002). The inclusion of bone tools in the archaeological is also characteristic of this period. LSA sites commonly include diagnostic artefacts, such as microlithic scrapers and segments. In southern Africa, the LSA is closely associated with hunter-gatherer groups, such as the San. Due to the nomadic nature of LSA people, open sites are usually poorly preserved and difficult to identify. Regional hunter-gatherer is well documented (refer to Potgieter [1955]) for a description of the San occupying the Chrissiesmeer Lake District, which is approximately 100 km northeast of the Project area).

The LSA is further characterised by evidence of ritual practises and complex societies (Deacon & Deacon, 1999). This can be expressed through rock art. Within Mpumalanga, three rock art painting traditions occur. These traditions are widely dispersed and are associated with particular cultural groups. These include:

- Fine line painting associated with autochthonous LSA hunter-gatherer groups. This tradition is the first and oldest tradition and produced using fine brushes, quills or sticks. These images are predominantly painted in red, white and black and, more

rarely, in bichrome or polychrome. Images generally include realistic and proportionally-correct animals such as various antelope species, human figures and symbolic beings (Eastwood, et al., 2002);

- Finger paintings associated with the later arrival of pastoralists. This tradition was first described by Ben Smith and Sven Ouzman (Smith & Ouzman, 2004) and is typified by finger-painted geometric images. These include circles, finger lines, finger dots and handprints and are mostly created in red pigment. Images are sometimes created in red and white pigments and occasionally only in white. The tradition extends in linear bands following the proposed migration routes of the pastoralists from southern Angola and western Zambia to the southern Cape (Smith & Ouzman, 2004; Eastwood, et al., 2002; Smith & Zubieta, 2007); and
- Finger paintings associated with much later, possibly historic, farming communities. No expressions of this tradition are known to occur within the study area under consideration.

Within the larger study area, rock art represents the LSA period (Van Schalkwyk, 2003a; du Piesanie, et al., 2013) and accounts for 4.8% of the identified heritage resources. No other representations of the LSA were identified in the reviewed literature.

The Farming Community period correlates to the movements of Bantu-speaking agropastoralists into southern Africa. The results of the literature review demonstrate heritage resources associated only with the LFC. These records account for 5.6% of the identified heritage resources.

The LFC is represented by stonewalling or through secondary tangible indicators such as ceramics and evidence for domestic animals, including dung deposits and faunal remains. Within the larger study area, the LFC is represented by the following:

- Ash middens, which are most likely the remains of old cattle kraals (Van Schalkwyk, 2003b);
- Potsherds (du Piesanie, et al., 2013; Karodia, et al., 2013);
- A site with multiple components (du Piesanie, et al., 2013); and
- Stonewalling (Van Schalkwyk, 2003b; du Piesanie, et al., 2013; du Piesanie & Nel, 2018).

Stonewalling is the most visible indicator of LFC settlements. Several types of stonewalling have been described through decades of research and, within the larger study area, the most common is Type V. Maggs (1976) first described these settlements, which consist of many primary enclosures grouped around a ring. The enclosures may be contiguous or linked by secondary walling to form a secondary enclosure. There is no surrounding perimeter wall, although there may be additional free-standing structures around the periphery of the settlement.

Huffman (2007) provides a reference for the possible distribution of ceramic facies within the regional study area. Table 5 provides an overview of these ceramic facies.

Table 5: Common ceramic facies found in Mpumalanga

Facies	Period	Key Characteristics
Uitkomst	1650 CE – 1820 CE	Stamped arcades, appliqué and blocks of parallel incisions, stamping and chord impressions
Rooiberg	1650 CE – 1750 CE	Stamped rim band, mixture of stamped and incised bands, arcades and triangles in the neck
Icon	1300 CE – 1500 CE	Multiple incised bands separated by colour and lip decorations on bowls
Madikwe	1500 CE – 1700 CE	Multiple bands of cord impressions, incisions, stabs and punctates separated by colour
Letaba	1600 CE – 1840 CE	Hatched bands on shoulder, below black and red triangles
Klingbeil	1000 CE – 1200 CE	Triangles in neck bordered with slashes, punctates on shoulder

The historical period is commonly regarded as exclusively associated with contact between Europeans and Bantu-speaking African groups, and consequent *written* records. This period, however, overlaps with the Farming Community period and the division between the two is in many ways artificial.

The period of transition between the LFC and the historical period, and the historical period itself, is characterised by the rise of power blocs with a range of political centralisation and waves of violent population displacements, especially on the Mpumalanga Highveld (Makhura, 2007). Processes of migration, population growth, climatic variation and trade to the east significantly impacted the Pedi, Koni and other groups in this area. Through their system of centralisation, where subordinate communities retained their local independence under some tributary obligations, the Pedi emerged through escalating conflict and violence as the strongest power in the north-east (Delius, et al., 2014).

A similar process played out in the Nguni area, resulting in large aggressive states emerging, including the Ndwandwe, the Mthethwa, the Swazi and the Zulu Kingdom (Delius, et al., 2014). The strife amongst the various groups culminated in the several battles, pillaging of settlements and movement of groups into the interior with tragic consequences for the Pedi and Koni alike. Constant skirmishes and battles left the Mpumalanga Highveld vulnerable to intrusive groups such as the Swazi and *Voortrekkers*.

Voortrekkers moved into the Highveld in reaction to increased British liberalism and the resultant abolishment of slavery and pass laws (Delius & Cope, 2007; The Voortrekkers, 2014). The first *Voortrekkers* to move through the area were the Robert Schoon Party in

1836. The first permanent settlement established as Ohrigstad in 1845. During their movements into the interior (known as the *Groot Trek*, or Great Trek) the intruding *Voortrekkers* exacerbated the existing volatile landscape, frequently resulting in conflict with remnant groups of Pedi, Nduzundza Ndebele and Kopa.

Soon after settling in the area, the *Voortekkers* (now generally referred to as Boer farmers) discovered and exploited Highveld Coalfield deposits, initially only for domestic use. The discovery of gold on the Witwatersrand in 1886 increased the need for coal exponentially (Brodie, 2008; Pistorius, 2008a; 2008b). The increased demand for coal drove the commercial exploitation of the resource; until it was stunted with the onset of the South African War of 1899 – 1902 (*also referred to as the Second Anglo-Boer War*).

The South African War officially started on 9 October 1899 as a result of tensions and conflicting political agendas between the Boers and the British. Regionally, there were two notable battles associated with the South African War, namely the Battles of Lake Chrissie and Bakenlaagte on 6 February and 30 October 1901 respectively (Delius & Cope, 2007; von der Heyde, 2013). No battlefields were identified in proximity to the Project area.

Following the end of the South African War, activities within the regional study area comprised mostly of agriculture and increased coal mining. Several small towns were proclaimed within the regional study area to service local inhabitants and the newly-established coal mining industry.

The town of Secunda is relatively young and was established in the 1970s. The establishment of the town is intrinsically linked with the history of Sasol, as the town was established to service their second extraction refinery after Sasol 1 at Sasolburg. The name of the town reflects this, as it is derived from the Latin *secundus* meaning 'second' (Schirmer, 2007).

The historical period is represented in the regional study area by:

- Burial grounds and graves, which range in size from single graves to approximately one hundred graves (Van Schalkwyk, 1998; 2002; 2003a; 2003b; Van Schalkwyk & Moifatswane, 2003; Fourie & van der Walt, 2007; Pistorius, 2011; du Piesanie, et al., 2013; Karodia, et al., 2013; Pelser, 2013a; 2013b; Higgitt & Karodia Khan, 2014; du Piesanie & Nel, 2016; 2018); and
- Historical buildings which include structural remains and the remains of *werwe* (farmsteads) (Van Schalkwyk, 1998; Van Schalkwyk & Moifatswane, 2003; Fourie & van der Walt, 2007; Pistorius, 2011; du Piesanie, et al., 2013; Karodia, et al., 2013; Pelser, 2013a; 2013b; Higgitt & Karodia Khan, 2014; du Piesanie & Nel 2016, 2018).

3.1 Data Sources

Section 7 includes a detailed list of the published literature consulted to compile this report. Table 6 presents all other data sources consulted to inform this NID, including sources for historical imagery. The unpublished reports listed above were sourced primarily from the South African Heritage Resources Information System (SAHRIS).

Table 6: Secondary data sources

Databases					
University of the Witwatersrand (WITS) Archaeological Database (2010)			SAHRIS		
Genealogical Society of South Africa (GSSA) database (2011)					
SAHRIS Cases					
Case ID 5472	Case ID 1724		Map ID 672		
Case ID 9404	Case ID 1487		Map ID 710		
Case ID 1277	Case ID 4309		Map ID 1025		
Case ID 12164	Map ID 659		Map ID 719		
Case ID 6251	Map ID 719		Map ID 655		
Case ID 1722	Map ID 622		Map ID 756		
Aerial Photographs					
Job No	Flight Plan	Photo No.	Area	Date	Ref
326	Row 02	03789	2628 East Rand / 2728 Frankfort	1953	326/1953
326	Row 03	03763	2628 East Rand / 2728 Frankfort	1953	326/1953
326	Row 03	03761	2628 East Rand / 2728 Frankfort	1953	326/1953
326	Row 03	03760	2628 East Rand / 2728 Frankfort	1953	326/1953

3.2 Current natural environment

The current environment within the Project area is largely disturbed through anthropomorphic activities, including the afore-mentioned agriculture and mining. The Project area includes several wetland areas, although many of these have been artificially re-created or constructed.

At the time of the site visit, the conveyor belt had been dismantled and remnants of the infrastructure were observed within the servitude. The road and pipeline to be decommissioned and the quarry to be rehabilitated showed no evidence that decommission activities had taken place as yet. Figure 3 summarises the environment at the time of the site visit.

3.3 Pre-disturbance Survey

Shannon Hardwick completed a pre-disturbance survey of the affected infrastructure footprints on 11 December 2018. The quarry and water-crossing points were all inspected on foot. The survey aimed to identify any tangible heritage resources that could potentially be impacted by the decommissioning of the pipeline, road and conveyor belt servitude and the rehabilitation of the quarry. The tracks of the pre-disturbance survey are provided in Plan 4.

Table 7 provides descriptions of the heritage resources identified during the pre-disturbance survey. Figure 4 includes photographs of some of these heritage resources. No heritage resources were identified near the quarry or at any of the water crossing points.

Table 7: Heritage Resources identified through the pre-disturbance survey¹⁰

Site Name	Description
BGG-001	A small graveyard demarcated with a fence. The graveyard includes two graves, both of which are double graves. The first double-grave belongs to the Snyman family and dates to 1924 and 1938. This grave includes a granite headstone with cement fittings. The other includes members of the Snyman and Kruger families and dates to 1894 and 1930. This grave has a marble headstone with cement and iron fittings.
BGG-002	Burial ground including approximately 15 visible graves, most of which are marked by soil, brick and stone heaps. Two of the graves are marked with brick fittings and a cement headstone and one other grave was marked with a cement headstone and fittings. One grave was partially legible and belonged to the Nkosi family. The headstone dated to either 1955 or 1965. Demarcated by servitude fence.
BGG-003	Burial ground of approximately ten graves, of which 2 have headstones. Both these graves have cement headstones and one of these graves had cement fittings as well. The other graves are marked by stone and soil heaps. No headstones were legible. Demarcated by servitude fence.

BGG-001 is located near the sealed Twistdraai East ventilation shaft. Sasol Mining has proactively demarcated the graveyard to prevent risk of direct negative damage to the graves during the operation of the colliery. To date, there is no evidence suggesting that the graves have been damaged by the mining activities. The fence will remain around the graves while the mine is decommissioned and until the final land use is achieved. Sasol Mining have communicated that visitors will be allowed access to the graveyard should this be required.

BGG-002 and BGG-003 occur in areas that should be considered part of the conveyor belt servitude. The boundary fence between the conveyor servitude and the neighbouring farms has been redirected to encompass the burial grounds and separate them from any Project-related activities. The burial grounds are located on the farm side of the boundary fence in both instances. Sasol Mining excluded the burial grounds from the servitude area for ease of access should any Next of Kin (NoK) wish to visit either graveyard and to minimise or avoid the risk of negative impact to the graves during the operational and decommissioning phases.

¹⁰ In accordance with new SAHRA procedures, the GPS co-ordinates of these heritage resources have not been included in documents available to the public.

3.4 Results of historical layering

The historical imagery shows similar land use as seen in the present environment. The landscape is predominantly agricultural with several fields and roads within the present-day Project area. The historical landscape includes several small watercourses, many of which appear to be present in the current landscape.

One potential historical structure was identified through the historical imagery. However, this was not ground-truthed by heritage specialist, as it falls outside the Project area (i.e. it is more than 200 m from the conveyor servitude). The Project presents no risk of direct negative impact to this potential heritage resource. No potential historical structures were identified within the Project area.

4 Illustrative Material

Illustrative material is provided in Plan 1 to Plan 4. This material demonstrates the general Project locality and the results of the pre-disturbance survey.

Figure 3 provides an overview of the current environment and Figure 4 provides a representative sample to illustrate the heritage identified during the pre-disturbance survey.

Sasol Twistdraai Road and Conveyor Decommissioning Identified Heritage Resources



Legend

- Twistdraai EMP Boundary
 - Secondary Town
 - Other Town
 - Identified Heritage Resource
 - Field Track
- ### Infrastructure to be Decommissioned
- East Shaft
 - Pipeline (Daylight Area)
 - Quarry
 - East Shaft Access Road
 - Conveyor Servitude (Culverts and Service / Access Road)
 - Power Line
 - Arterial / National Route
 - Main Road
 - Minor Road
 - Railway Line
 - Dam Wall
 - Non-Perennial Stream
 - Perennial Stream
 - Dam / Lake
 - Perennial Pan



• Sustainability • Service • Positive Change • Professionalism • Future Focused • Integrity

Projection: Transverse Mercator Ref #: ajm.SAS5544.201901.166
 Datum: Cape Revision Number: 1
 Central Meridian: 29°E Date: 25/01/2019

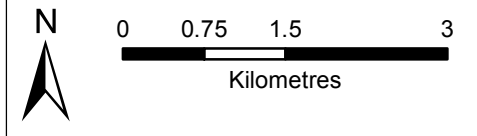




Figure 3: Images showing the present environment within the Project area

A.) The sealed Twistdraai East Main Ventilation Shaft; B.) Present environment at the ventilation shaft; C.) and D.) the quarry to be decommissioned and E.) and F.) examples of the existing water crossings.

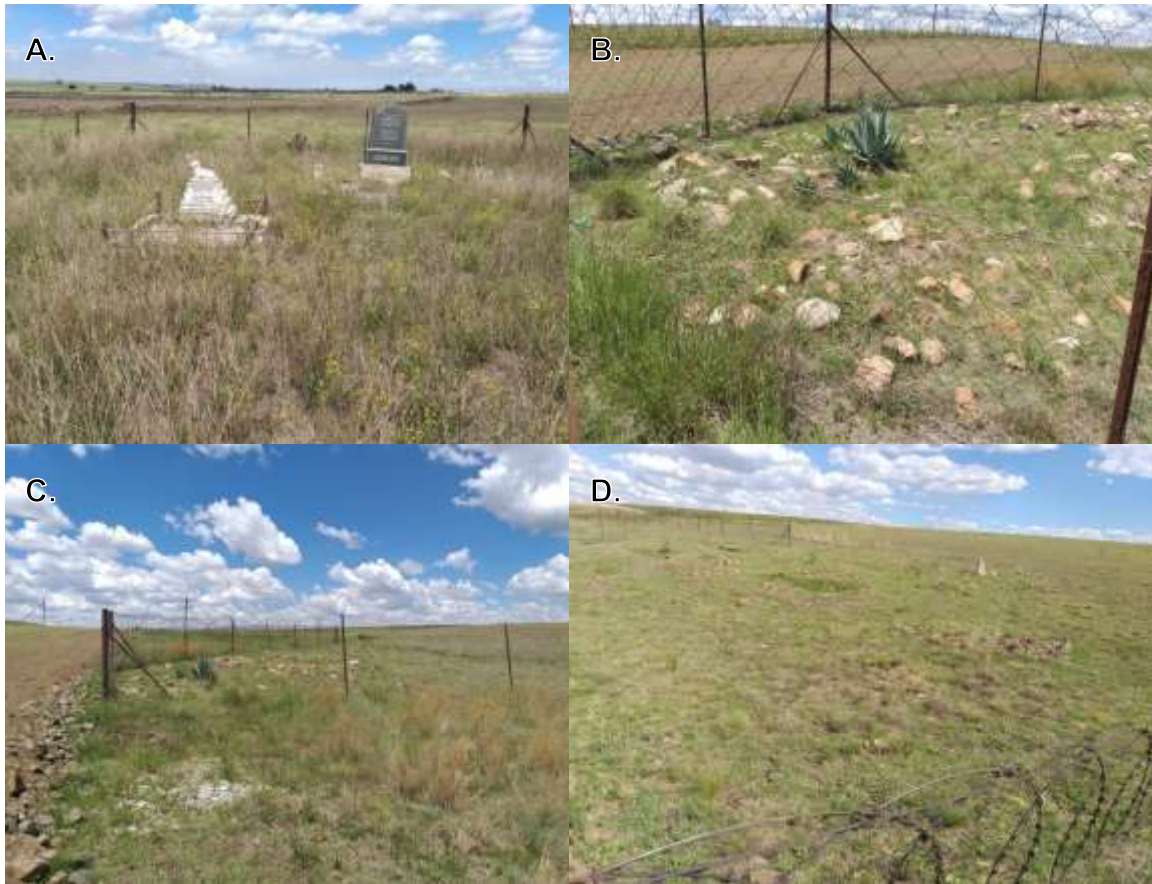


Figure 4: Heritage resources identified during the pre-disturbance survey

A.) BGG-001; B.) BGG-002 (photograph taken through the servitude fence); C.) BGG-002 (demarcated by the servitude fence); and D.)

5 Assessment process

Table 8 summarises the impact assessment processes that are currently being conducted for the Project.

Table 8: Current assessment processes

Legislation (e.g. NEMA, MPRDA, etc.)	Current phase of assessment process (e.g. Scoping, EIA, etc.)	Authorities who has / will receive information	Capacity of Authorities
NEMA	Pre-application	Department of Mineral Resources (DMR)	Licensing Authority
NWA	Pre-application	Department of Water and Sanitation (DWS)	Licensing Authority
NHRA	NID & RfE	South African Heritage Resources Agency (SAHRA)	Commenting
	NID & RfE	Mpumalanga Provincial Heritage Resources Authority (MPRHA)	Noting

These assessments are required in terms of legislated and / or regulated activities outlined in Sections 5.1 to 5.3 below.

5.1 EIA Regulations listed activities

The proposed development will include the following activities listed in the EIA Regulations, which generally require impact assessments:

Table 9: Identified listed activities

NEMA Activity No.	NHRA Trigger	Description	Expected duration/phase
Listing Notice 1 Activity 19	38(1)(e)	<p>The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.</p> <p>The access road and servitude road located within the conveyor belt servitude is located over multiple water courses. The removal of the road, culverts and associated rehabilitation may result in the removal of more than 10cm³ of soil from the water course</p>	Decommissioning

5.2 NHRA Section 38(1) activities

The proposed development will include the following activities listed in Section 38(1) of the NHRA, which generally require heritage assessments be undertaken.

Table 10: NHRA Section 38 triggers

NHRA Section 38 (1) Activities / Triggers		Summary description (e.g. 500 m conveyor belt, open cast pit, etc.)	
<input checked="" type="checkbox"/>	a	Any linear development or barrier >300 m	The pipeline, conveyor belt and pipeline are all linear developments longer than 300 m.
<input type="checkbox"/>	b	Any bridge or similar structure >50 m	
<input type="checkbox"/>	c	Any development or activity that will change the character of a site:	
<input type="checkbox"/>	i	≥5 000m ² in extent	
<input type="checkbox"/>	ii	Involving ≥3 existing erven/ subdivisions	
<input type="checkbox"/>	iii	Involving ≥3 or more erven/ divisions consolidated within past 5 years.	
<input type="checkbox"/>	d	Rezoning of a site ≥10 000m ² in extent.	
<input checked="" type="checkbox"/>	e	Other triggers, e.g.: in terms of other legislation, (i.e.: National Environment Management Act, etc.)	NEMA, NWA

5.3 Identified and known heritage resources and potential impacts

Certain categories of heritage resource, if existing and identified, generally require heritage assessments to be completed before any development may take place. These categories may be formally or generally protected in terms of the NHRA. Table 11 presents an overview of such heritage resources identified within the Project area.

Table 11: Identified heritage resources in terms of Section 3 of the NHRA

Section	Description
<input type="checkbox"/>	<p>Places, buildings, structures and equipment of cultural significance</p> <p>Description of resource: While structures afforded general protection under Section 34 of the NHRA constitute an important part of the broader cultural landscape, no such resources were identified in proximity to the Project.</p> <p>Potential impact: None.</p>

	Section	Description
<input type="checkbox"/>	3(2)(b)	Places to which oral traditions are attached or which are associated with living heritage
		Description of resource: None identified.
		Potential impact: None.
<input type="checkbox"/>	3(2)(c)	Historical settlements and townscapes
		Description of resource: The nearby town of Secunda is not yet older than 60 years.
		Potential impact: None.
<input type="checkbox"/>	3(2)(d)	Landscapes and natural features of cultural significance
		Description of resource: None identified.
		Potential impact: None.
<input checked="" type="checkbox"/>	3(2)(e)	Geological resources of scientific or cultural importance
		Description of resource: Geological formations of palaeontological sensitivity include the <i>Vryheid Formation</i> .
		Potential impact: No impact to the fossil heritage is envisaged.
<input type="checkbox"/>	3(2)(f)	Archaeology and/or palaeontology (<i>Including archaeological sites and material, fossils, rock art, battlefields & wrecks</i>)
		Description of resource: None identified.
		Potential impact: None.
<input checked="" type="checkbox"/>	3(2)(g)	Graves and burial grounds (<i>e.g. ancestral graves, graves of victims of conflict, historical graves & cemeteries</i>)
		Description of resource: Three burial grounds and graves were identified in proximity to the Project.
		Potential impact: No direct or indirect impacts to these heritage resources are envisaged.
<input type="checkbox"/>	3(2)(h)	Other human remains
		Description of resource: None identified
		Potential impact: None
<input type="checkbox"/>	3(2)(i)	Sites of significance relating to the history of slavery in South Africa
		Description of resource: None identified
		Potential impact: None
<input type="checkbox"/>	3(2)(j)	Movable objects
		Description of resource: None identified
		Potential impact: None

6 Recommendations

Table 12 presents a summary and motivation of the specialist recommendations.

Table 12: Specialist heritage recommendations

Is a Heritage Impact Assessment required?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<p>If NO, provide motivation:</p> <p>Sasol Mining is proposing to decommission and rehabilitate existing infrastructure at Twistdraai East where listed activities have been triggered in accordance with the EIA Regulations 2014 (as amended). The infrastructure to be decommissioned and rehabilitated include infrastructure located within the conveyor belt servitude including access road and pipeline as well as the access road to the shaft and an existing quarry in close proximity to the conveyor belt.</p> <p>This project is a decommissioning and rehabilitation project with the aim to reduce the impact to the environment as caused by previous mining activities and to have an overall positive impact on the surrounding environment. The rehabilitation aspect implies that no new excavations will be made, but rather old infrastructure will be removed and the area covered with soils and revegetated.</p> <p>A baseline description as presented in Section 3 above demonstrates that the greater study area comprises a cultural landscape that is associated predominantly with burial grounds, graves and the historical built environment. Burial grounds and graves carry a very high significance and much of the archaeology in the regional area is of low significance as determined in heritage studies completed previously.</p> <p>Shannon Hardwick completed a pedestrian pre-disturbance survey of the affected infrastructure on 11 December 2018. The aim of this survey was to identify any tangible heritage resources that may be impacted upon by project-related activities. Three burial grounds and graves were identified in proximity to Project activities. No impact to these heritage resources by Project-related activities is envisaged as they have all been demarcated and fenced off from Project activities. No other heritage resources were recorded within the Project area. This is most likely due to the highly-disturbed nature of the Project area, which has a history of mining, agriculture and associated activities.</p> <p>Considering the cultural landscape baseline, review of previously-completed heritage studies within the general study area, the results of the pre-disturbance survey and understanding of the Project, Digby Wells is of the opinion that no further heritage assessment in terms of Section 38 of the NHRA is required.</p> <p>Digby Wells therefore submits a RfE as part of this NID for the proposed decommissioning of mine infrastructure and the rehabilitation of a quarry, from further heritage assessments, including a specialised Palaeontological Impact Assessment (PIA). This RfE is on condition that:</p> <ul style="list-style-type: none"> ■ The proponent develops a project-specific Chance Find Protocol (CFP) and Fossil Finds Procedure (FFP) for implementation during decommissioning activities, should such protocols not be included in the EMPr already; and ■ Sasol Mining immediately informs SAHRA of any chance finds identified and enlists the services of a qualified and accredited archaeologist and/or palaeontologist to assess and recommend appropriate mitigation measures as required. 		

If YES, provide suggested components that may be required or undertaken during HIA.

<input type="checkbox"/>	Archaeology	<input type="checkbox"/>	Architecture
<input type="checkbox"/>	Built Environment	<input type="checkbox"/>	Burial Grounds and Graves
<input type="checkbox"/>	Palaeontology	<input type="checkbox"/>	Public Participation
<input type="checkbox"/>	Townscapes	<input type="checkbox"/>	Visual Impact
<input type="checkbox"/>	Other:		

Recommendation made by:

Name: Shannon Hardwick

Name: Justin du Piesanie

Capacity: Assistant Heritage Resources Management Consultant

Capacity: Divisional Manager: Social and Heritage Services

7 Works Cited

- Bamford, M., 2012. *Palaeontological Impact Assessment for Majuba Underground Coal Gasification Project, Mpumalanga*, Mpumalanga: Royal HaskoningDHV.
- Bamford, M., 2014. *Best Practice for Palaeontological Chance Finds: Proposed extension into adjacent Block 4 reserve of Syferfontein Mine (Sasol), Mpumalanga*, Unpublished Report: The Evolutionary Studies Institute.
- Bamford, M., 2016. *Environmental Authorisation for the Proposed Invula Mine: Palaeontological Impact Assessment addendum to the Heritage Impact Assessment*, Johannesburg: Digby Wells Environmental.
- Behrens, J. & Swanepoel, N., 2008. Historical archaeologies of southern Africa: precedents and prospects. In: N. Swanepoel, A. Esterhuysen & P. Bonner, eds. *Five Hundred Years Rediscovered: South African precedents and prospects*. Johannesburg: Wits University Press, pp. 23-39.
- Brodie, N., 2008. *The Joburg Book: A Guide to the City's History, People & Places*. Johannesburg: Sharp Sharp Media.
- Clark, J., 1982. The cultures of the Middle Palaeolithic/Middle Stone Age. In: J. Clark, ed. *The Cambridge History of Africa, Volume 1: From the Earliest Times to c. 500 BC*. Cambridge: Cambridge University Press, pp. 248-341.
- Deacon, H. & Deacon, J., 1999. *Human Beginnings in South Africa*. Cape Town: David Phillip.
- Delius, P. & Cope, R., 2007. Hard-fought frontiers: 1845 - 1883. In: P. Delius, ed. *Mpumalanga: History and Heritage*. Pietermaritzburg: University of KwaZulu-Natal Press, pp. 137 - 199.
- Delius, P., Maggs, T. & Schoeman, A., 2014. *Forgotten World: The Stone-Walled Settlements of the Mpumalanga Escarpment*. 1st ed. Johannesburg: Wits University Press.
- du Piesanie, J. & Nel, J., 2013. *Heritage Impact Assessment for the Consbrey Colliery Project, 2629BB and 2629 BD, Mpumalanga Province*, Digby Wells Environmental: Unpublished Report (CaseID: 1722).
- du Piesanie, J. & Nel, J., 2016. *Environmental Impact Assessment for the Proposed Hendrina Underground Coal Mine, Mpumalanga: Heritage Scoping Report*, Johannesburg: Unpublished Report (CaseID: 9404).
- du Piesanie, J. & Nel, J., 2018. *Heritage Impact Assessment: Environmental Regulatory Process in terms of the Thubelisha, Trichardtsfontein and Vaalkop Mining Right areas*, Digby Wells Environmental: Unpublished report prepared for Sasol Mining (Pty) Ltd. Case ID 12164.

du Piesanie, J., Nel, J., Karodia, S. & Higgit, N., 2013. *Heritage Impact Assessment for the Consbrey Colliery Project, 2629BB and 2629BD, Mpumalanga Province*, Digby Wells Environmental: Unpublished report prepared for Msobo Coal (Pty) Ltd. Case ID: 1277.

Eastwood, E., Van Schalkwyk, J. & Smith, B., 2002. Archaeological and rock art survey of the Makgabeng Plateau, Limpopo Basin. *The Digging Stick*, 19(1), pp. 1-3.

Esterhuysen, A. & Smith, J., 2007. Stories in stone. In: P. Delius, ed. *Mpumalanga: History and Heritage: reclaiming the past, defining the future*. Pietermaritzburg: University of KwaZulu-Natal Press, pp. 41-67.

Fourie, W. & van der Walt, J., 2007. *Nucoal Mining Archaeological Impact Assessment: Proposed coal mining on portions of the farm Op Goedenhoop 205 IS, Hendrina, Mpumalanga Province*, Johannesburg: Unpublished Report (MapID: 01025).

Genealogical Society of South Africa, 2011. *Google Earth Cemetery Initiative*. Google Earth Database: Genealogical Society of South Africa Database.

Groenewald, G. & Groenewald, D., 2014. *Palaeontological Heritage of Mpumalanga*, Clarens: Unpublished SAHRA Palaeotechnical Report.

Higgit, N. & Karodia Khan, S., 2014. *Environmental Impact Assessment for the Weltevrede Open Cast Coal Mine, Weltevrede 381 JT, Belfast, Mpumalanga*, Digby Wells Environmental: Unpublished report prepared for Northern Coal (Pty) Ltd.

Huffman, T., 2007. *The Handbook to the Iron Age: The Archaeology of Pre-Colonial Farming Societies in Southern Africa*. Pietermaritzburg: University of KwaZulu-Natal Press.

Johnson, M. R., Anhaeuser, C. R. & Thomas, R. J., 2006. *The Geology of South Africa*. 2009 Reprint (with minor corrections) ed. Johannesburg: Council for Geosciences.

Karodia, S., Higgit, N., du Piesanie, J. & Nel, J., 2013. *Heritage Impact Assessment for the Harwar Colliery, 2630AA and 2630AC, Mpumalanga Province*, Digby Wells Environmental: Unpublished report prepared for Msobo Coal (Pty) Ltd. Case ID 1724.

Maggs, T. M., 1976. *Iron Age Communities of the Southern Highveld*. Pietermaritzburg: Natal Museum.

Makhura, T., 2007. Early inhabitants. In: P. Delius, ed. *Mpumalanga: History and Heritage*. Pietermaritzburg: University of KwaZulu-Natal Press, pp. 91-135.

Mitchell, P., 2002. *The Archaeology of Southern Africa*. Cambridge: Cambridge University Press.

Pelzer, A., 2013a. *A Revision of Phase 1 HIA for the Proposed Wonderfontein Colliery near Belfast in Mpumalanga*, Pretoria: Unpublished Report (CaseID: 1487).

Pelzer, A., 2013b. *A Report on a Heritage Assessment for the Proposed Vaalbult Mining Project on portions of the farm Vaalbult 3 IT, Gert Sibande District Municipality, West of Carolina, Mpumalanga Province*, Pretoria: Unpublished Report (CaseID: 4309).

Pistorius, J. C., 2008a. *A Phase 1 Heritage Impact Assessment (HIA) Study for the Total Coal South Africa's (TCSA) Proposed New Expansion of the Dorsfontein Coal Mine (DCM) near Kriel on the Eastern Highveld in the Mpumalanga Province of South Africa*, Unpublished Report for: Total Coal Ground Water Consulting Services (2008-SAHRA-0054).

Pistorius, J. C., 2008b. *A Phase 1 Heritage Impact Assessment (HIA) Study for Sasols proposed new shaft complex on Strybult 542 and for the North Block on the Eastern Highveld in the Mpumalanga Province of South Africa*, Unpublished Report prepared for: Clean Stream Environmental and Sasol Secunda.

Potgieter, E. F., 1955. *The disappearing Bushmen of Lake Chrissie: a preliminary survey*. Pretoria: Van Schaik.

Rubidge, B., 2008. *Secunda Sasolburg pipeline*, Johannesburg: BPI for Palaeontological Research.

Rubidge, B., 2013a. *Palaeontological Scoping Report - Dolerite burrow pits Sasol Mining (Pty) Ltd*, Delmas: JMA Consulting (Pty) Ltd.

Rubidge, B., 2013b. *Palaeontological Scoping Report - Sasol Shondoni conveyor*, Delmas: JMA Consulting (Pty) Ltd.

SAHRA, 2013. *SAHRIS Fossil Heritage Layer Browser*. [Online] Available at: <https://www.sahra.org.za/sahris/fossil-heritage-layer-browser> [Accessed 20 November 2018].

SAHRA, 2017. *Palaeosensitivity Map*. [Online] Available at: <http://www.sahra.org.za/sahris/map/palaeo> [Accessed 08 January 2019].

Schirmer, S., 2007. Enterprise and exploitation in the 20th century. In: P. Delius, ed. *Mpumalanga: History and Heritage*. Scottsville: University of KwaZulu-Natal Press, pp. 291-350.

Smith, B. & Ouzman, S., 2004. Taking Stock: identifying Khoekhoen Herder Rock Art in southern Africa. *Current Anthropology*, 45(4), pp. 499-526.

Smith, B. & Zubieta, L., 2007. The power of ancient art. In: P. Delius, ed. *Mpumalanga: History and Heritage*. Pietermaritzburg: University of KwaZulu-Natal Press, pp. 69-90.

Swanepoel, N., Esterhuysen, A. B. & Bonner, P., 2008. *Five Hundred Years Rediscovered: Southern African Precedents and Prospects*. Johannesburg: Wits University Press.

The Voortrekkers, 2014. *The Great Trek - South Africa 1835 - 1845*. [Online] Available at: <http://www.voortrekker-history.co.za/index.php#.VOBq3a8cTIU> [Accessed 21 January 2019].

Van Schalkwyk, J., 1998. *A survey of Cultural Resources for the proposed Escom Rail Line, Highveld Ridge District, Mpumalanga*, National Cultural History Museum: Unpublished report prepared for L & M Environmental. Map ID 655.

Van Schalkwyk, J., 2002. *A survey of cultural resources for the Zondagsfontein Mining Development, Witbank District, Mpumalanga Province*, National Cultural History Museum: Unpublished report prepared for Oryx Environmental.

Van Schalkwyk, J., 2003a. *Archaeological survey of a section of the Secunda-Mozambique Gas Pipeline, Carolina District, Mpumalanga*, National Cultural History Museum: Unpublished report prepared for GLMC Joint Venture. Map ID 659.

Van Schalkwyk, J., 2003b. *Archaeological survey of a section of the Secunda-Mozambique Gas Pipeline, Bethal and Highveld Ridge Districts, Mpumalanga*, National Cultural History Museum: Unpublished report prepared for GLMC Joint Venture. Map ID 672.

van Schalkwyk, J. C., 2012. *Heritage Assessment Report for the Underground Coal Gasification Project and Associated Infrastructure in support of Co-Firing of Gas at the Majuba Power Station, Amersfort, Mpumalanga*, Pretoria: Unpublished Report (CaseID: 756).

Van Schalkwyk, J. & Moifatswane, S., 2003. *Goedehoop Mine, Mpumalanga: Archaeological and cultural historical survey and impact assessment*, National Cultural History Museum: Unpublished report prepared for Oryx Environmental.

von der Heyde, N., 2013. *Field Guide to the Battlefields of South Africa*. Cape Town: Random House Struik.

WITS, 2010. *Archaeological Site Database*, Johannesburg: Department of Geography, Archaeology and Environmental Science.

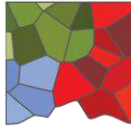
Notification of Intent to Develop

Environmental Authorisation Process to Decommission a Conveyor Belt Servitude, Road and Quarry at Twistdraai East Colliery, Secunda, Mpumalanga Province

SAS5544



Appendix A: Specialist CV



DIGBY WELLS

ENVIRONMENTAL

Miss Shannon Hardwick
Assistant Heritage Resources Management Consultant
Social and Heritage Services Department
Digby Wells Environmental

1 Education

Date	Degree(s) or Diploma(s) obtained	Institution
2013	MSc (Archaeology)	University of the Witwatersrand
2010	BSc (Honours) (Archaeology)	University of the Witwatersrand
2009	BSc	University of the Witwatersrand
2006	Matric	Rand Park High School

2 Language Skills

Language	Written	Spoken
English	Excellent	Excellent
Afrikaans	Basic	Basic

3 Employment

Period	Company	Title/position
2018 to present	Digby Wells Environmental	Assistant Heritage Resources Management Consultant
2017-2018	Digby Wells Environmental	Intern: Heritage Resources Management
2016-2017	Tarsus Academy	Facilitator
2011-2016	University of the Witwatersrand	Teaching Assistant
2011	University of the Witwatersrand	Collections Assistant

4 Experience

Shannon joined the Digby Wells team in May 2017 as a Heritage Management Intern, and has subsequently been appointed as an Assistant Heritage Resources Management Consultant. Shannon is an archaeologist who obtained a Master of Science (MSc) degree from the University of the Witwatersrand in 2013, specialising in historical archaeobotany in the Limpopo Province. She is a published co-author of one paper in *Journal of Ethnobiology*. Since joining Digby Wells, Shannon has gained generalist experience through the compilation of Notification of Intent to Develop (NID) applications as well as Heritage Basic Assessment Reports (HBARs), Heritage Scoping Reports (HSRs) and Heritage Impact Assessment (HIA) reports. Her other experience includes compiling a Community Health, Safety and Security Management Plan (CHSSMP) and researching Artisanal and Small-Scale Mining for input into a Livelihood Restoration Framework (LRF). Shannon's experience in the field includes pre-disturbance surveys in South Africa and fieldwork in Malawi.

5 Project Experience

My project experience is listed in the table below:

Project Title	Project Location	Date:	Description of the Project	Name of Client
Kilbarchan Colliery Environmental Authorisations and Closure Study	Newcastle, KwaZulu-Natal, South Africa	Ongoing	Heritage Impact Assessment	Eskom Holdings SOC Limited



Project Title	Project Location	Date:	Description of the Project	Name of Client
Belfast Implementation Project	Mpumalanga Province, South Africa	Ongoing	Section 34 Permit Application	Exxaro Coal Mpumalanga (Pty) Ltd
The South African Radio Astronomy Observatory Square Kilometre Array Heritage Impact Assessment and Conservation Management Plan Project	Northern Cape Province, South Africa	Ongoing	Heritage Impact Assessment and Conservation Management Plan	The South African Radio Astronomy Observatory (SARAO)
Heritage Resources Management Process for the Exxaro Matla Mine	Mpumalanga Province, South Africa	January 2018	Heritage Impact Assessment	Exxaro Coal Mpumalanga (Pty) Ltd
Newcastle Landfill Project	Newcastle, KwaZulu-Natal, South Africa	March 2018	Heritage Impact Assessment	GCS Water and Environmental Consultants
Tharisa Apollo (UG1) Plant	Marikana, North-West Province, South Africa	Ongoing	Heritage Impact Assessment	GCS Water and Environmental Consultants
National Heritage Resources Act, 1999 (Act No. 25 of 1999) Section 34 Permit Application Process for the Davin and Queens Court Buildings on Erf 173 and 174, West Germiston, Gauteng Province	Johannesburg, Gauteng, South Africa	April 2018	Section 34 Permit Application	IDC Architects
Environmental Impact Assessment for the proposed Future Developments within the Sun City Resort Complex	North West Province, South Africa	Ongoing	Heritage Impact Assessment	Sun International (Pty) Ltd
Basic Assessment and Environmental Management Plan for the Proposed pipeline from the Mbali Colliery to the Tweefontein Water Reclamation Plant, Mpumalanga Province	Mpumalanga Province, South Africa	January 2018	Heritage Basic Assessment Report	HCI Coal (Pty) Ltd (Mbali Colliery)



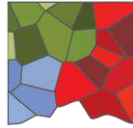
Project Title	Project Location	Date:	Description of the Project	Name of Client
Environmental Fatal Flaw Analysis for the Mabula Filling Station	Waterberg, Limpopo Province, South Africa	November 2017	Fatal Flaw Analysis	Mr van den Bergh
Zuurfontein NID	Ekurhuleni, Johannesburg, South Africa	July 2017	Notification of Intent to Develop	Shuma Africa Projects
Liwonde Additional Studies	Liwonde, Southern Region, Malawi	Ongoing	Resettlement Action Plan, Community Health, Safety and Security Management Plan	Mota-Engil Africa
National Heritage Resources Act, 1999 (Act No. 25 of 1999) Section 35 Archaeological Investigations, Lanxess Chrome Mine, North-West Province	Rustenburg, North West Province, South Africa	July 2017	Phase 2 Mitigation Assessment	Lanxess Chrome Mines (Pty) Ltd
Environmental and Social Input for the Pre-Feasibility Study	Bougouni, southern Mali	July 2017	Pre-Feasibility Study	Birimium Gold

6 Professional Registrations

Position	Professional Body	Registration Number
Member	Association for Southern African Professional Archaeologists (ASAPA)	451

7 Publications

Esterhuysen, A.B. & Hardwick, S.K. 2017. Plant remains recovered from the 1854 siege of the Kekana Ndebele, Historic Cave, Makapan Valley, South Africa. *Journal of Ethnobiology* 37(1): 97-119.



DIGBY WELLS

ENVIRONMENTAL

Mr. Justin du Piesanie
Manager: Heritage Resources Management
Social and Heritage Services Department
Digby Wells Environmental

1 Education

Date	Degree(s) or Diploma(s) obtained	Institution
2015	Continued Professional Development, Intermediate Project Management Course	PM.Ideas: A division of the Mindset Group
2013	Continued Professional Development Programme, Architectural and Urban Conservation: Researching and Assessing Local Environments	University of Cape Town
2008	MSc	University of the Witwatersrand
2005	BA (Honours) (Archaeology)	University of the Witwatersrand
2004	BA	University of the Witwatersrand
2001	Matric	Norkem Park High School

2 Language Skills

Language	Written	Spoken
English	Excellent	Excellent
Afrikaans	Proficient	Good

3 Employment

Period	Company	Title/position
2016 to present	Digby Wells Environmental	Unit Manager: Heritage Resources Management
2011-2016	Digby Wells Environmental	Heritage Management Consultant: Archaeologist
2009-2011	University of the Witwatersrand	Archaeology Collections Manager
2009-2011	Independent	Archaeologist
2006-2007	Maropeng & Sterkfontein Caves UNESCO World Heritage Site	Tour guide

4 Experience

I joined the company in August 2011 as an archaeologist and was subsequently made unit manager in the Social and Heritage Services Department in 2016. I obtained my Master of Science (MSc) degree in Archaeology from the University of the Witwatersrand in 2008, specialising in the Southern African Iron Age. I further attended courses in architectural and urban conservation through the University of Cape Town's Faculty of Engineering and the Built Environment Continuing Professional Development Programme in 2013. I am a professional member of the Association of Southern African Professional Archaeologists (ASAPA), and accredited by the association's Cultural Resources Management (CRM) section. I am also a member of the International Council on Monuments and Sites (ICOMOS), an advisory body to the UNESCO World Heritage Convention. I have over 10 years combined experience in HRM in South Africa, including heritage assessments, archaeological mitigation, grave relocation, and NHRA Section 34 application processes. I gained further generalist experience since my appointment at Digby Wells in Botswana, Burkina Faso, the Democratic Republic of Congo, Liberia and Mali on projects that have required compliance with IFC requirements such as Performance Standard 8: Cultural Heritage. Furthermore, I have acted as a technical expert reviewer of HRM projects undertaken in Cameroon and Senegal. My current focus at Digby Wells is to develop the HRM process as an integrated discipline following international HRM principles and standards. This approach aims to provide clients with comprehensive, project-specific solutions that promote ethical heritage management and assist in achieving strategic objectives.

5 Project Experience

Please see the following table for relevant project experience:

Project Title	Project Location	Date:		Description of the Project	Name of Client
Klipriviersberg Archaeological Survey	Meyersdal, Gauteng, South Africa	2005	2006	Archaeological surveys	ARM
Sun City Archaeological Site Mapping	Sun City, Pilanesberg, North West Province, South Africa	2006	2006	Phase 2 Mapping	Sun International
Witbank Dam Archaeological Impact Assessment	Witbank, Mpumalanga, South Africa	2007	2007	Archaeological survey	ARM
Archaeological Assessment of Modderfontein AH Holdings	Johannesburg, Gauteng, South Africa	2008	2008	Heritage Basic Assessment	ARM
Heritage Assessment of Rhino Mines	Thabazimbi, Limpopo Province, South Africa	2008	2008	Heritage Impact Assessment	Rhino Mines
Cronimet Project	Thabazimbi, Limpopo Province, South Africa	2008	2008	Archaeological surveys	Cronimet
Eskom Thohoyandou SEA Project	Limpopo Province, South Africa	2008	2008	Heritage Statement	Eskom
Wenzelrust Excavations	Shoshanguve, Gauteng, South Africa	2009	2009	Phase 2 Excavations	Heritage Contracts Unit
University of the Witwatersrand Parys LIA Shelter Project	Parys, Free State, South Africa	2009	2009	Phase 2 Mapping	University of the Witwatersrand
Transnet NMPP Line	Kwa-Zulu Natal, South Africa	2010	2010	Heritage survey	Umlando Consultants
Archaeological Impact Assessment – Witpoortjie Project	Johannesburg, Gauteng, South Africa	2010	2010	Archaeological Impact Assessment	ARM
Der Brochen Archaeological Excavations	Steelpoort, Mpumalanga, South Africa	2010	2010	Phase 2 Excavations	Heritage Contracts Unit
De Brochen and Booyensdal Archaeology Project	Steelpoort, Mpumalanga, South Africa	2010	2010	Phase 2 Mapping	Heritage Contracts Unit
Eskom Thohoyandou Electricity Master Network	Limpopo Province, South Africa	2010	2010	Heritage Statement	Strategic Environmental Focus
Bathhako Mine Expansion	North-West Province, South Africa	2010	2010	Phase 2 Mapping	Heritage Contracts Unit
Kibali Gold Project Grave Relocation Plan	Oriental Province, Democratic Republic of Congo	2011	2013	Grave Relocation	Randgold Resources Limited



Project Title	Project Location	Date:		Description of the Project	Name of Client
Kibali Gold Hydro-Power Project	Oriental Province, Democratic Republic of Congo	2012	2014	Heritage Impact Assessment	Randgold Resources Limited
Everest North Mining Project	Steelpoort, Mpumalanga, South Africa	2012	2012	Heritage Impact Assessment	Aquarius Resources
Environmental Authorisation for the Gold One Geluksdal TSF and Pipeline	Gauteng, South Africa	2012	2012	Heritage Impact Assessment	Gold One International
Platreef Burial Grounds and Graves Survey	Mokopane, Limpopo Province, South Africa	2012	2012	Burial Grounds and Graves Survey	Platreef Resources
Resgen Boikarabelo Coal Mine	Limpopo Province, South Africa	2012	2012	Phase 2 Excavations	Resources Generation
Bokoni Platinum Road Watching Brief	Burgersfort, Limpopo Province, South Africa	2012	2012	Watching Brief	Bokoni Platinum Mine
SEGA Gold Mining Project	Burkina Faso	2012	2013	Socio Economic and Asset Survey	Cluff Gold PLC
Everest North Mining Project	Steelpoort, Mpumalanga, South Africa	2012	2015	Heritage Impact Assessment	Aquarius Resources
SEGA Gold Mining Project	Burkina Faso	2013	2013	Technical Reviewer	Cluff Gold PLC
Consbrey and Harwar Collieries Project	Breyton, Mpumalanga, South Africa	2013	2013	Heritage Impact Assessment	Msobo
New Liberty Gold Project	Liberia	2013	2014	Grave Relocation	Aureus Mining
Falea Uranium Mine Environmental Assessment	Falea, Mali	2013	2013	Heritage Scoping	Rockgate Capital
Putu Iron Ore Mine Project	Petroken, Liberia	2013	2014	Heritage Impact Assessment	Atkins Limited
Sasol Twistdraai Project	Secunda, Mpumalanga, South Africa	2013	2014	Notification of Intent to Develop	ERM Southern Africa
Daleside Acetylene Gas Production Facility	Gauteng, South Africa	2013	2013	Heritage Impact Assessment	ERM Southern Africa
Exxaro Belfast GRP	Belfast, Mpumalanga, South Africa	2013	-	Grave Relocation	Exxaro Coal Mpumalanga (Pty) Ltd
Nzoro 2 Hydro Power Project	Oriental Province, Democratic Republic of Congo	2014	2014	Social consultation	Randgold Resources Limited
Eastern Basin AMD Project	Springs, Gauteng, South Africa	2014	2014	Heritage Impact Assessment	AECOM
Soweto Cluster Reclamation Project	Soweto, Gauteng, South Africa	2014	2014	Heritage Impact Assessment	Ergo (Pty) Ltd



Project Title	Project Location	Date:		Description of the Project	Name of Client
Klipspruit South Project	Ogies, Mpumalanga, South Africa	2014	2014	Heritage Impact Assessment	BHP Billiton
Klipspruit Extension: Weltevreden Project	Ogies, Mpumalanga, South Africa	2014	2014	Heritage Impact Assessment	BHP Billiton
Ergo Rondebult Pipeline Basic Assessment	Johannesburg, South Africa	2014	2014	Heritage Basic Assessment	Ergo (Pty) Ltd
Kibali ESIA Update Project	Oriental Province, Democratic Republic of Congo	2014	2014	Heritage Impact Assessment	Randgold Resources Limited
GoldOne EMP Consolidation	Westonaria, Gauteng, South Africa	2014	2014	Gap analysis	Gold One International
Yzermite PIA	Wakkerstroom, Mpumalanga, South Africa	2014	2014	Palaeontological Assessment	EcoPartners
Sasol Mooikraal Basic Assessment	Sasolburg, Free State, South Africa	2014	2014	Heritage Basic Assessment	Sasol Mining
Oakleaf ESIA Project	Bronkhorstspruit, Gauteng, South Africa	2014	2015	Heritage Impact Assessment	Oakleaf Investment Holdings
Rea Vaya Phase II C Project	Johannesburg, Gauteng, South Africa	2014	2014	Heritage Impact Assessment	ILISO Consulting
Imvula Project	Kriel, Mpumalanga, South Africa	2014	2015	Heritage Impact Assessment	Ixia Coal
Sibanye WRTRP	Gauteng, South Africa	2014	2016	Heritage Impact Assessment	Sibanye
VMIC Vanadium EIA Project	Mokopane, Limpopo, South Africa	2014	2015	Heritage Impact Assessment	VM Investment Company
NLGM Constructed Wetlands Project	Liberia	2015	2015	Heritage Impact Assessment	Aureus Mining
ERPM Section 34 Destruction Permits Applications	Johannesburg, Gauteng, South Africa	2015	2015	Section 34 Destruction Permit Applications	Ergo (Pty) Ltd
JMEP II EIA	Botswana	2015	2015	Heritage Impact Assessment	Jindal
Gino's Building Section 34 Destruction Permit Application	Johannesburg, Gauteng, South Africa	2015	2016	Heritage Impact Assessment and Section 34 Destruction Permit Application	Bigen Africa Services (Pty) Ltd
EDC Block Refurbishment Project	Johannesburg, Gauteng, South Africa	2015	2016	Heritage Impact Assessment and Section 34 Permit Application	Bigen Africa Services (Pty) Ltd
Namane IPP and Transmission Line EIA	Steenbokpan, Limpopo Province, South Africa	2015	2016	Heritage Impact Assessment	Namane Resources (Pty) Ltd
Temo Coal Road Diversion and Rail Loop EIA	Steenbokpan, Limpopo Province, South Africa	2015	2016	Heritage Impact Assessment	Namane Resources (Pty) Ltd
Groningen and Inhambane PRA	Limpopo Province, South Africa	2016	2016	Heritage Basic Assessment	Rustenburg Platinum Mines Limited



Project Title	Project Location	Date:	Description of the Project	Name of Client
NTEM Iron Ore Mine and Pipeline Project	Cameroon	2014 2016	Technical Review	IMIC plc
Palmietkuilen MRA	Springs, Gauteng, South Africa	2016 2016	Heritage Impact Assessment	Canyon Resources (Pty) Ltd
Copper Sunset Sand Mining S.102	Free State, South Africa	2016 2016	Heritage Basic Assessment	Copper Sunset Sand (Pty) Ltd
Grootvlei MRA	Springs, Gauteng, South Africa	2016 2016	Notification of Intent to Develop	Ergo (Pty) Ltd
Lambda EMP	Mpumalanga, South Africa	2016 2016	Palaeontological Impact Assessment	Eskom Holdings SOC Limited
Kilbarchan Basic Assessment and EMP	Newcastle, KwaZulu-Natal, South Africa	2016 2016	Heritage Basic Assessment	Eskom Holdings SOC Limited
Grootegeluk Amendment	Lephalale, Limpopo Province, South Africa	2016 2016	Notification of Intent to Develop	Exxaro
Garsfontein Township Development	Pretoria, Gauteng, South Africa	2016 2016	Notification of Intent to Develop	Leungo Construction Enterprises
Massawa EIA	Senegal	2016 2017	Technical Reviewer Heritage Impact Assessment	Randgold Resources Limited
Louis Botha Phase 2	Johannesburg, Gauteng, South Africa	2016 2016	Phase 2 Excavations	Royal Haskoning DHV
Beatrix EIA and EMP	Welkom, Free State, South Africa	2016 2017	Heritage Impact Assessment	Sibanye Gold Ltd
Sun City Heritage Mapping	Pilanesberg, North-West Province, South Africa	2016 2016	Phase 2 Mapping	Sun International
Sun City Chair Lift	Pilanesberg, North-West Province, South Africa	2016 2017	Notification of Intent to Develop and Heritage Basic Assessment	Sun International
Hendrina Underground Coal Mine EIA	Hendrina, Mpumalanga, South Africa	2016 2017	Heritage Impact Assessment	Umcebo Mining (Pty) Ltd
Elandsfontein EMP Update	Clewer, Mpumalanga, South Africa	2016 2017	Heritage Impact Assessment	Anker Coal
Eskom Northern KZN Strengthening	KwaZulu-Natal, South Africa	2016 -	Heritage Impact Assessment	ILISO Consulting
Thabametsi GRP	Lephalale, Limpopo Province, South Africa	2017 -	Grave Relocation	Exxaro Resources Ltd
Grootegeluk Watching Brief	Lephalale, Limpopo Province, South Africa	2017 2017	Watching Brief	Exxaro Resources Ltd
Matla HSMP	Kriel, Mpumalanga Province, South Africa	2017 2017	Heritage Site Management Plan	Exxaro Coal Mpumalanga (Pty) Ltd
Ledjadja Coal Borrow Pits	Lephalale, Limpopo Province, South Africa	2017 2017	Heritage Basic Assessment	Ledjadja Coal (Pty) Ltd
Exxaro Belfast Implementation Project PIA	Belfast, Mpumalanga, South Africa	2017 2017	Palaeontological Impact Assessment	Exxaro Coal Mpumalanga (Pty) Ltd

Project Title	Project Location	Date:	Description of the Project	Name of Client
Lanxess Chrome Mine Archaeological Mitigation	Rustenburg, North West Province, South Africa	2017 2017	Phase 2 Excavations	Lanxess Chrome Mine (Pty) Ltd
Goulamina EIA Project	Goulamina, Sikasso Region, Mali	2017 2017	Heritage Impact Assessment	Birimian Limited
Zuurfontein Residential Establishment Project	Ekurhuleni, Gauteng, South Africa	2017 2017	Notification of Intent to Develop	Shuma Africa Projects
Kibali Grave Relocation Training and Implementation	Oriental Province, Democratic Republic of Congo	2017 -	Grave Relocation	Randgold Resources Limited
Exxaro Matla HRM	Kriel, Mpumalanga	2017 -	Heritage Impact Assessment	Exxaro Coal Mpumalanga (Pty) Ltd

6 Professional Registrations

Position	Professional Body	Registration Number
Member	Association for Southern African Professional Archaeologists (ASAPA); ASAPA Cultural Resources Management (CRM) section	270
Member	International Council on Monuments and Sites (ICOMOS)	14274
Member	Society for Africanist Archaeologists (SAfA)	N/A
Member	International Association of Impact Assessors (IAIA) South Africa	5494

7 Publications

Huffman, T.N. & du Piesanie, J.J. 2011. Khami and the Venda in the Mapungubwe Landscape. *Journal of African Archaeology* 9(2): 189-206

du Piesanie, J.J., 2017. Book Review: African Cultural Heritage Conservation and Management. *South African Archaeological Bulletin* 72(205)