



**HERITAGE STATEMENT**

**FOR**

**THE CONSBREY COLLIERY**

**MSOBO COAL**

**FEBRUARY 2013**

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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

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**DIGBY WELLS**  
 ENVIRONMENTAL

This document has been prepared by **Digby Wells Environmental**.

**Report Title:** Heritage Statement for the Consbrey Colliery  
**Project type:** NHRA Section 38(8) in terms of MPRDA EIA/EMP Scoping  
**Project Number:** MSO1805

Name	Responsibility	Signature	Date
Shahzaadee Karodia Justin du Piesanie <i>Archaeologists</i>	Specialists & Report Compiler	 	2013-03-06
Johan Nel <i>CRM Unit Manager</i>	1 <sup>st</sup> Reviewer		2013-03-06

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## EXECUTIVE SUMMARY

Msobo Coal (Pty) Ltd (Msobo Coal) has commissioned Digby Wells Environmental (Digby Wells) to conduct environmental and social studies in support of a Mining Right Application (MRA) in accordance with the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA).

Based on legislative requirements and international and national minimum standards, a Heritage Statement was compiled for the Project Area.

Based on relevant previous impact assessment reports, literature reviews and historical sources, the cultural landscape of the project area was described as a primarily agrarian landscape with deep time depth. The cultural landscape therefore comprises natural and cultural heritage such as historical, archaeological and rock art sites. Significantly, the topography is conducive to providing suitable shelters for archaeological and historical groups that have occupied the landscape in the past. Evidence of one such shelter is found on the western boundary of the project area.

The predominant rocks are the sedimentary rocks of the Ecca Group which contains the arenaceous strata of the coal-bearing *Vryheid Formation*. Fossil plants are the predominant palaeontological resource that has been found in this region of South Africa. Around Ermelo, in particular, there are exposures of Permian rocks of the *Vryheid Formation* which contain fossil plants of the *Glossopteris* flora but no vertebrates.

It is recommended that a Heritage Impact Assessment (HIA) be conducted for the Consbrey Project. Due to the extent of the proposed project area it is recommended that the HIA field surveys focus on footprint areas as impacts will occur both on the surface and underground.

The HIA must consider the following:

- Archaeological Impact Assessments (AIA) on footprint areas where infrastructure will be constructed or where any change in the landscape topography will occur, such as open-cast pit areas;
- A detailed palaeontological desktop assessment, with ground-truthing, employing existing, current geological reports to determine the palaeontological potential of footprint areas;
- Built environment assessments of any structures protected in terms of Section 34 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA), where such may exist in or near footprint areas;
- An AIA focussing on the De Wittekrans Site Complex that should integrate results of relevant specialist studies that may contribute to identifying direct, indirect, induced and cumulative environmental impacts that could potentially cause negative changes to the site. Specialist studies that should be considered may include:
  - Visual assessment aimed at assessing negative change to the genius loci of the De Wittekrans Site Complex;

- Hydrogeological assessment aimed at assessing effects of dewatering on the surface geology of the site that may change the physical integrity of the rock surface;
- Air quality assessment aimed at assessing the effects of air pollution and dust on the rock art;
- Seismic assessment aimed at assessing effects of blasting and other activities that will cause seismic activity that may change the integrity of the physical site; and
- Socio-economic assessment, including a tourism assessment, to assess the potential of the De Wittekrans Site Complex as a viable, sustainable socio-economic cultural attraction.
- A Conservation Management Plan should be drafted, based on identified impacts and recommended integrated mitigation measures aimed at providing feasible management measures of the site.

## GLOSSARY OF ABBREVIATIONS AND TERMS

<b>AIA</b>	Archaeological Impact Assessment
<b>BGGS</b>	Burial Grounds and Graves Survey
<b>BP</b>	Before Present
<b>CE</b>	Common Era
<b>DMR</b>	Department of Mineral Resources
<b>EA</b>	Environmental Authorisation
<b>EAP</b>	Environmental Authorisation Policy
<b>EHS</b>	Environmental Health and Safety
<b>EIA</b>	Environmental Impact Assessment
<b>EMP</b>	Environmental Management Plan
<b>EP</b>	Equator Principle
<b>EPFI</b>	Equator Principles Financial Institutions
<b>ESA</b>	Early Stone Age
<b>HIA</b>	Heritage Impact Assessment
<b>IFC</b>	International Finance Corporation
<b>IWULA</b>	Integrated Water Use License Application
<b>LSA</b>	Later Stone Age
<b>MJS</b>	Major Jackson Series
<b>MRA</b>	Mining Right Application
<b>MPHRA</b>	Mpumalanga Provincial Heritage Resources Agency
<b>MPRDA</b>	Mineral and Petroleum Resources Development Act, 2002 (Act. No 28 of 2002)
<b>MSA</b>	Middle Stone Age
<b>Mya</b>	Million years ago
<b>NEMA</b>	National Environmental Management Act, 1998 (Act No. 107 of 1998)
<b>NEMWA</b>	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
<b>NHRA</b>	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
<b>NID</b>	Notification of Intent to Develop
<b>NWA</b>	National Water Act, 1998 (Act No. 36 of 1998)
<b>OECD</b>	Organisation of Economic Co-operation and Development
<b>OP</b>	Operational Policies
<b>PIA</b>	Palaeontological Impact Assessment
<b>PPP</b>	Public Participation Process
<b>SAHRA</b>	South African Heritage Resources Agency
<b>SEP</b>	Stakeholder Engagement Plan
<b>SoER</b>	State of Environment Report
<b>SoW</b>	Scope of Work
<b>VIA</b>	Visual Impact Assessment
<b>ZAR</b>	<i>Zuid Afrikaansche Republiek</i>

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## 1 INTRODUCTION

Msobo Coal (Pty) Ltd (Msobo Coal) has commissioned Digby Wells Environmental (Digby Wells) to conduct environmental and social studies in support of a Mining Right Application (MRA) in accordance with the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA).

As per the MPRDA, an Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) will be compiled and submitted to the Department of Mineral Resources (DMR).

## 2 PROJECT BACKGROUND

### 2.1 Project Details

The Consbrey Project is proposed to be an extension of Msobo Coal's existing Tselentis operation in Mpumalanga. Both underground and opencast mining methods are proposed for the Consbrey area. The proposed project area is currently a greenfield area (not including the current prospecting activities). The site was granted prospecting rights in 2008 under the previous ownership of Xstrata Coal (then known as Duiker Mining).

### 2.2 Description of Property and/or Affected Environment

#### 2.2.1 Location data

The project site is located northwest of the town of Breyten, and southwest of Carolina in the Mpumalanga Province. The total Project covers an area of approximately 10 000 ha in size. The affected farms are presented in Table 2-1 below.

**Table 2-1: List of directly affected farms in the Consbrey Project Area**

Mongerster 204 IS
Opgoedenhoop 205 IS
Welgemeend 206 IS
Smutsoog 214 IS
Bankfontein 215 IS
Dwarstrek 216 IS
Bosmanskrans 217 IS
Dewittekrans 218 IS

Hartbeestfontein 239 IS
Klipfontein 241 IS

### 2.2.2 Location maps

Location maps are provided in Appendix B: Location and Site Maps. Plan 1 to Plan 3 places the project area within the regional and local context. Plan 4 displays the geological context of the project area.

### 2.2.3 Site maps

The site map is provided in Appendix B: Location and Site Maps as Plan 5: . The site map depicts identified heritage resources from a survey of historical aerial photographs, as well as the photograph points recorded during ground truthing.

### 2.2.4 Type of development

The Consbrey Project is proposed to be an extension of Msobo Coal's existing Tselentis operation in Mpumalanga. Both underground and opencast mining methods are proposed for the Consbrey area.

### 2.2.5 Rezoning and/or land subdivision

The Consbrey area is currently a greenfield area and will have to be rezoned for mining.

## 2.3 Relevant Contact Details

### 2.3.1 Developer/client

**Table 2-2: Contact details of the client**

ITEM	COMPANY CONTACT DETAILS
Company	Msobo Coal
Contact person	Mashudu Gangazhe
Tel no	017 861 8012
Fax no	086 240 1861
Cell no	082 432 1006
E-mail address	<a href="mailto:mashudu.gangazhe@msobo.co.za">mashudu.gangazhe@msobo.co.za</a>
Postal address	50 Hoy Street, Breyten, 2330

### 2.3.2 Consultant

**Table 2-3: Contact details of the consultant**

ITEM	COMPANY CONTACT DETAILS
<b>Company</b>	Digby Wells Environmental
<b>Contact person</b>	Marcelle Radyn
<b>Tel no</b>	011 789 9495
<b>Fax no</b>	011 789 9498
<b>Cell no</b>	082 442 1405
<b>E-mail address</b>	<a href="mailto:Marcelle.radyn@digbywells.com">Marcelle.radyn@digbywells.com</a>
<b>Postal address</b>	Private Bag X10046, Randburg, 2125

### 2.3.3 Land owners

Land owners that have been notified to date are presented in Table 2-4 below. The remaining land owner contact details will be verified during the course of the EIA process.

**Table 2-4: Contact details of the land owners**

Contact person	Tel/Cell no	Email address	Postal address	Farm Portion
Karel Pieter Landman	013 293 7909 083 287 6126	<a href="mailto:kp.landman@vodamail.co.za">kp.landman@vodamail.co.za</a>	PO Box 400, Hendrina, 1095	Mongenster 204 IS Portion 2
				Dewittekrans 218 IS Portion 9
Gawie Volschenk	013 293 0280 0842404413	<a href="mailto:gawie@estancia.co.za">gawie@estancia.co.za</a>	PO Box 289, Middleburg (Mpumalanga, Hendrina, 1095)	Mongenster 204 IS Portion 3
Hannelie Botha	013 293 8068 079 493 5820	<a href="mailto:hanneliebotha@vodamail.co.za">hanneliebotha@vodamail.co.za</a>	PO Box 959, Hendrina, 1095	Welgemeend 206 IS Portion 6
Dyndre Prop CC	011 475 4551			Bankfontein 215 IS Portion 1
G Xaba Bheki Nyathikazi	017 819 2076	<a href="mailto:goxaba@mpg.gov.za">goxaba@mpg.gov.za</a> <a href="mailto:nyathikazibw@mpg.gov.za">nyathikazibw@mpg.gov.za</a>		Smutsoog 214 IS Portion 3
				Bankfontein 215 IS Portion 2
				Dwarstrek 216 IS Portion 2
				Dwarstrek 216 IS Portion 6
Ockert Steyn	0827840461	<a href="mailto:ockert@sisgroup.co.za">ockert@sisgroup.co.za</a>		Bankfontein 215 IS Portion 6
Alettha Catharina Roux	017 687 2426 082 844 5195	<a href="mailto:rroux@yebo.co.za">rroux@yebo.co.za</a>	PO Box 1268, Kinross, 2270	Bosmanskrans 217 IS Portion 1
				Bosmanskrans 217 IS Portion 5
Vincent Schulze	013 293 7800 083 628 8213	<a href="mailto:anvin@lantic.net">anvin@lantic.net</a>	PO Box 639, Hendrina, 1095	Dewittekrans 218 IS RE
				Dewittekrans 218 IS Portion 3

## 3 TERMS OF REFERENCE

### 3.1 Legislative Framework

The Heritage Statement is governed by national legislation and standards; and International Best Practise. These are discussed below.

#### 3.1.1 Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA)

The MPRDA stipulates under section 5(4) No person may prospect for or remove, mine, conduct technical co-operation operations, reconnaissance operations, explore for and produce any mineral or petroleum or commence with any work incidental thereto on any area without (a) an approved environmental management programme or approved environmental management plan, as the case may be.

#### 3.1.2 National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA)

The NEMA stipulates under section 2(4)(a) that sustainable development requires the consideration of all relevant factors including (iii) the disturbance of landscapes and sites that constitute the nation's cultural heritage must be avoided, or where it cannot be altogether avoided, is minimised and remedied.

In addition to the NEMA, the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) (NEMPA) may also be applicable. This act applies to world heritage sites, declared as such in terms of the World Heritage Convention Act, 1999 (Act No. 49 of 1999).

#### 3.1.3 National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA)

Section 38(8) - The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (Act No. 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environment Affairs and Tourism, or the Minerals Act, 1991 (Act No. 50 of 1991), or any other legislation: Provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent.

#### 3.1.4 World Bank

##### 3.1.4.1 World Bank Operational Policies

The World Bank Operational Policies for cultural resources (OP4.11) fall within the broader Environmental Authorisation Policies (EAPs). Physical cultural resources are important as sources of valuable scientific and historical information, as assets for economic and social development, and as integral parts of a people's cultural identity and practices. This policy assists countries to avoid or mitigate adverse impacts on physical cultural resources from

development projects that are financed through the World Bank. The impacts on physical cultural resources resulting from project activities, including mitigating measures, may not contravene either the borrower's national legislation, or its obligations under relevant international environmental treaties and agreements.

#### **3.1.4.2 Equator Principles (EPs)**

The Equator Principles Financial Institutions (EPFIs) adopted principles in order to ensure that the projects financed are developed in a manner that is socially responsible and reflect sound environmental management practices. By doing so, negative impacts on project-affected ecosystems and communities should be avoided where possible, and if these impacts are unavoidable, they should be reduced, mitigated and/or compensated for appropriately.

##### Principle 2: Social and Environmental Assessment

For each project assessed as being either Category A or Category B, the borrower has conducted a Social and Environmental Assessment ("Assessment") process to address, as appropriate and to the EPFI's satisfaction, the relevant social and environmental impacts and risks of the proposed project. The Assessment should also propose mitigation and management measures relevant and appropriate to the nature and scale of the proposed project.

##### Principle 3: Applicable Social and Environmental Standards

For projects located in non-OECD (Organisation for Economic Co-operation and Development) countries, and those located in OECD countries not designated as High-Income, as defined by the World Bank Development Indicators Database, the Assessment will refer to the then applicable IFC Performance Standards and the then applicable Industry Specific Environmental Health and Safety (EHS) Guidelines ("EHS Guidelines"). The Assessment will establish to a participating EPFI's satisfaction the project's overall compliance with, or justified deviation from, the respective Performance Standards and EHS Guidelines.

#### **3.1.4.3 International Finance Corporation (IFC)**

The IFC's Performance Standards form part of the EP's and aims to manage social and environmental risks (and impacts) to enhance development opportunities in its private sector financing in its member countries eligible for financing (IFC, 2012). The main focus of the risk assessment of a proposed development is primarily on the potential impacts associate with the project activities during construction, operation, and decommissioning and closure phases.

#### **3.1.5 Summary of Public Participation Process (PPP)**

A Stakeholder Engagement Plan (SEP) was required for the Project. Through public consultation, stakeholders were provided with the platform to contribute essential local knowledge to project planning and design, and thereby influence the decision making process. As such, the PPP was implemented to comply with the requirements for consultation in accordance with the:

- MPRDA Section 5(4),10;
- NEMA Section 2; and
- World Bank Operation Policies OP4.11 (11).

### **3.2 Terms of Reference**

Msobo Coal is applying for a MRA in terms of the MPRDA. The MRA is subject to Environmental Authorisation (EA). Relevant as follows:

- An approved EIA that should inform and be employed to develop an EMP in terms of the MPRDA;
- Listed activities according to the NEMA;
- Integrated Water Use Licence Application (IWULA) for water uses listed in Section 21 of the National Water Act, 1998 (Act No. 36 of 1998) (NWA); and
- Integrated waste management license application in compliance with the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEMWA).

In addition, it is also required that the EIA study comply with international requirements comprising EPs, IFC Performance Standards and World Bank standards.

### **3.3 Scope of Work**

To comply with the above-mentioned legislation, the following heritage work is required:

- Heritage Statement (Scoping Assessment) in support of the EIA study compliant to the MPRDA requirements.

## **4 METHODOLOGY**

### **4.1 Literature Review**

Relevant and available published works such as academic journals, academic books, unpublished theses and reports, previous palaeontological and heritage assessments, and websites were reviewed.

### **4.2 Historical Layering**

A review of historical maps, such as the Major Jackson Series, previous 1:50 000 topographical maps, and aerial imagery was completed. Aerial imagery was overlaid to assess the changes in the receiving environment over time. Additionally, published geological maps were also examined.

### **4.3 Heritage screening assessment**

A heritage screening assessment was completed on 26 February 2013 to ground-truth heritage resources within the project area and to record the current state of the cultural landscape.

#### **4.3.1 Site naming**

Sites identified during the ground truthing will be named using the Digby Wells project number, followed by the map sheet number and reference to the relevant NHRA section suffixed with the site number.

##### **MSO1805/2630AC/S.35-001**

This number may be shortened on any plans or maps to the NHRA reference number suffixed with the site number: **S.35-001**.



## 5 STATE OF THE RECEIVING ENVIRONMENT/CULTURAL LANDSCAPE

Based on relevant previous impact assessment reports, literature reviews and historical sources, the cultural landscape of the project area can be described as a primarily agrarian landscape with deep time depth. The cultural landscape therefore comprises natural and cultural heritage such as historical, archaeological and rock art sites. Significantly, the topography is conducive to providing suitable shelters for archaeological and historical groups that have occupied the landscape in the past. Evidence of one such shelter is found on the western boundary of the project area.

The project area is situated near the edge of the Highveld Coal Field which forms part of the Karoo Basin. The Karoo Basin is divided into the Dwyka, Ecca and Beaufort Groups. Within the project area, the pre-Karoo rocks are overlain by the Dwyka Formation which is in turn unconformably overlain by the Ecca Group. The predominant rocks are the sedimentary rocks of the Ecca Group which contains the arenaceous strata of the coal-bearing *Vryheid Formation* which was deposited during the Permian era about 280 million years ago (mya). The *Vryheid Formation* consists of sandstone, shale, mudstone and coal (Wilson & Anhaeusser, 1998). Fossil plants are the predominant palaeontological resource found in this region of South Africa. Around Ermelo, in particular, there are exposures of Permian rocks of the *Vryheid Formation* which contain fossil plants of the *Glossopteris* flora but no vertebrates (Bamford, 2011).

Tool producing hominids have occupied southern Africa for approximately 2 million years. This is primarily evident in the stone tools that have remained, not only indicating their presence in the landscape, but also attesting to the technological development of our *Homo* genus. Based on the criteria for classification, it is evident that the initial model<sup>1</sup> of Earlier (ESA), Middle (MSA), and Later Stone Age (LSA) (*with variants*) developed by Goodwin and Van Riet Lowe (1929) is appropriate. Evidence of the Stone Age in Mpumalanga is not well documented and is limited to a few well-known sites. Previous impact studies surrounding the project area yielded no Stone Age finds, and as such a basic description of their characteristics is described below.

The ESA is defined by the occurrence of large hand axes and cleavers, which can be found in layers dating between  $\pm 2$  million years Before Present (BP) and 250 000 years BP (Esterhuysen & Smith, 2007). The MSA dates between  $\pm 250$  000 years BP to  $\pm 20$  000 years BP. This period can be defined by the occurrence of blades and points produced from good quality raw material. Bone tools, shell beads and pendants, as well as the use of ochre are also present in the MSA. The LSA is dated to approximately 20 000 years BP and can be characterised by the presence of microlithic technology and strong signs of ritual practises and complex societies, as well as rock art. Microlithics are produced from very fine-grained material such as quartz or chert, and often used as composite tools where they are hafted onto sticks for arrows (Deacon & Deacon, 1999).

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<sup>1</sup> This model has been reassessed and modified through time (Clark, 1959; Clark, et al., 1966; Sampson, 1974).

LSA and rock art sites may occur together as these were typically associated with shelters in sandstone cliffs or outcrops, which are prominent in the project area. The economy of the LSA people is associated with hunter-gatherer or herder societies. A prominent site located 650 m to the west of the Consbrey project boundary is the De Wittekrans Complex (See Figure 1). In the report completed by Ouzman (2009) he describes the complex as consisting of four individual sites all with archaeological deposit, including stone tools and pottery. The rock art within the complex consist of fine-line, brush painted made by hunter-gatherers (Figure 2) and finger painted rock paintings associated with herder people (Figure 3). A study conducted by van Schalkwyk (2003) in the surrounding area also identified a rock art site (2630AA3) some 13 km from Consbrey, indicating that there is a high probability that rock art sites occur within the wider region surrounding the project. Additionally, the Chrissiesmeer Lake District has been occupied by San/Bushmen for many generations. According to Potgieter (1955) they lived on reed platforms on the lakes or in rock shelters. There is an existing small group of Bushmen who still calls the lakes their home and act as guides for tourists (Anonymous, 2011).



**Figure 1: View of the De Wittekrans Site Complex (courtesy Ouzman 2009)**





**Figure 2: An example of a 'San' rock painting from De Wittekrans (courtesy Ouzman 2009)**



**Figure 3: An example of a 'Khoekhoen' rock painting from De Wittekrans (courtesy Ouzman 2009)**

The Stone Age is followed by the Iron Age in southern Africa. This period is also divided into Early, Middle and Late Iron Age and as a whole represents the spread of Bantu speaking people and includes both the pre-Historic and Historic periods. One of the identifiers of Iron Age Sites is stonewalled settlements. According to Maggs (1976), Type V and Type N walling are present within Mpumalanga and may be found on the slopes of hills. Type V consists of the standard core of cattle enclosures surrounding beehive houses and grain bins. Corbelled huts may be present with this type of walling. Type N walling consists of a few cattle kraals in the centre of the settlement, linked by other stone walling and a perimeter wall that encloses the entire settlement (Huffman, 2007).

Another form of identification is through the remains of material culture, specifically ceramics. Murimbika (2007) states that during this period, the region was predominantly occupied by Ndebele Nguni-speaking groups and the predominant ceramic facies identified are Blackburn (1050 Common Era (CE) - 1500 CE), Moor Park (1350 CE - 1700 CE) and Nqabeni (1700 CE - 1850 CE). Only one site possibly dating to the Late Iron Age was documented in previous studies conducted in the surrounding area. The site comprised remnants of a stonewalled enclosure, but no diagnostic ceramics were noted and thus could not be associated with a specific group (Murimbika, 2007).

The Historical Period is generally accepted to date from approximately the mid-19<sup>th</sup> century, and is generally associated with the movement and contact with Europeans. It should be noted that some, most notably the Five Hundred Year initiative, suggest that Historical Period be recognised as occurring earlier, especially in Mpumalanga. Mpumalanga served as a conduit for many travellers moving north through the country. Some of the first to settle in the region were Boers who left the former Natal (now KwaZulu-Natal) after the Boer Republic of Natalia was annexed by the British. It is also during this period that Mfecane events took place in the region. Mfecane, referring to the period during the 18<sup>th</sup> and 19<sup>th</sup> centuries in which transformation in southern Africa occurred primarily through conflicts associated with the Zulu. Mfecane battlefields occur within region. According to Huffman and van der Merwe (1993), local traditions state that the capital of a Swazi chief, Mandlangampisi (Mandlangampisi), was situated on Kafferkraal 98 HT between 1780 and 1840 (Huffman & van der Merwe, 1993). Mandlangampisi is reputed to have fought and been victorious in two battles against Zulu warriors during the Mfecane period. One specific battle took place in or near a cave known as Mhlogamvula in the KwaMandlangampisi mountain range 110 km southeast of the project area.

In addition to Swazi and Zulu, Pedi and smaller groups of Ndzundza Ndebele and Kopa also occupied the region during the mid-19<sup>th</sup> century. While the larger Swazi and Pedi groups were able to successfully assert their own authority over their respective lands, Ndzundza and Kopa often came into direct conflict with the *Zuid Afrikaansche Republiek* (ZAR) (Delius & Cope, 2007). Tensions came to a head in the late 1840s when the Kopa were accused of raiding horses from the Boers. A retaliatory raid was organised, and the Kopa chief was captured and flogged with the result that Kopa raids increased. The Boers requested the Swazi to assist who besieged and destroyed the Kopa stronghold Thaba Ntsho in 1864. The Swazi/Boer alliance subsequently focussed on the Ndzundza Ndebele, but was

unsuccessful at defeating them. A tribute system was implemented as a compromise where the Boers ostensibly leased land from the Ndzundza chief.

The Anglo-Boer Wars are arguably the next most notable historical events to take place within the region in which Chrissiesmeer played a central role. The British, under the command of Gen. H.L. Smith-Doriens were encamped around Lake Chrissie on 6 February 1901. The Boers, under the command of General Louis Botha, intended to conduct a surprise attack on the British forces. The Boers enlisted the help of the local San community who were monitoring the British movements in the area. With the San's knowledge of the terrain, the Boers were able to launch the surprise attack and repel the British. The battle continued until the 9<sup>th</sup> of February 1901 when adverse weather caused the Boers to lose their advantage and was eventually forced to retreat (Jones, 1999; Delius & Cope, 2007; Anonymous, 2013).

After the war, the farm Bothasrus was given to Lukas Potgieter as compensation for losing a leg during the first Anglo-Boer War. He later sold the farm to field-cornet Nicolaas Breytenbach who formed the town Breyten in his own name. In 1905, the KwaMadala Native Location, situated about 30 km from Ermelo, was established as a freehold township on Portion 7 and Portion 5 of Smutsoog 241 IS in the project area. The claimants were some of the Native Location residents and had permission to occupy stands owned by the Town Council of Breyten (Land Claims Commission, 2003). Based on the 1913 Land Act, blacks were segregated which resulted in the majority of the land surrounding the project area was owned by whites who practiced farming (Schirmer, 2007).

An agricultural census conducted in 1918 and again in 1993, showed that agriculture was the main form of livelihood across many of the districts in Mpumalanga. The general 20<sup>th</sup> landscape may therefore be characterised as a large-scale agricultural landscape. This is confirmed through a review of historical cartographic sources. Black farmers in the region were forced into at least five categories of livelihood patterns:

- Labour trade in exchange for permission to plough on white-owned land;
- Black farmers would rent land from companies who owned large tracts of land;
- Some black farmers were able to farm on white-owned land and on their own sections of the property;
- Some black farmers could farm on mission-owned land; and
- Few black farmers legally owned their land.

Previous studies within the surrounding area (Huffman & Calabrese, 1997; Van Schalkwyk, 2003; Van Schalkwyk, 2003; Fourie, 2007; Murimbika, 2007) primarily identified sites associated with these types of settlements from the early 20<sup>th</sup> century. Heritage resources mainly include homesteads and burial grounds and graves. Historical layering (i.e. a chronological review of available historical maps) indicated that infrastructure associated with the agricultural economy within the project area was well established and present during the 1950s.



The struggle for land and the poor working conditions under which black farmers were expected to operate led to numerous political struggles in the region during the 1940s to 1990s. Farm worker's associations were formed in towns such as Ermelo, even the youth gathered to discuss political issues (Holden & Mathabatha, 2007). During the apartheid era, many people were forcibly removed from their homes and relocated to other areas to facilitate the national policy of separate development. In 1958, for example, coloured people in Ermelo were forcibly removed from their homes and relocated to an area 'zoned' as a coloured township (Christopher, 1991). In 1968, claimants from the KwaMadala location were removed to the KwaZanele Township, about 10 km from Breyten. Four-roomed houses were allocated to the claimants, for which rent was levied. On 6 February 2003, 245 households from the KwaZanele Township received financial compensation which will be used to improve their present housing and infrastructure (Land Claims Commission, 2003).

## 5.1 Heritage screening assessment

A heritage screening assessment was completed on 26 February 2013. The aim of this assessment was to verify possible heritage resources identified through the desktop study as well as providing a first-hand record of the current state of the cultural landscape. Due to the project not having been publically announced at the time of the screening assessment, access to properties was not possible. As a result the assessment was completed as a vehicular survey limited to public roads surrounding and traversing the proposed Consbrey project area.

Notwithstanding the limitation stated above, results of the screening assessment indicated that the current cultural landscape is primarily agrarian comprising mainly maize and vegetable crop lands and grazing as illustrated in Figure 4 and Figure 5. Little, if any, industrial and commercial nodes exist, whilst isolated parts of the landscape are being mined. These mines did not seem to significantly affect the broader cultural landscape as seen in Figure 6.

The landscape was further characterised by extensive pans, typical of the Mpumalanga Lakes District, and outcropping sandstone ridges. Overall, the topography was noted as being undulating hills interspersed with shallow valleys and streams.



**Figure 4: General view of Consbrey project area, taken from the R542. Note extensive cultivated vegetable fields in foreground.**



**Figure 5: Detail of current state of the cultural landscape characterised by densely cultivated maize fields.**



**Figure 6: Rehabilitated coal mine discard dump located in the Consbrey project area. Note the relative low impact on the cultural landscape.**

The only tangible heritage resources that could be identified given the limited access to properties were farmsteads or *werwe* (sing. *werf*). These ranged from obvious historical to more recent sites. Good examples of historical *werwe* are MSO1805/2630AC/S.34-001 and MSO1805/2630AC/S.34-002. They are presented in Figure 7 and Figure 8 as S.34-001 and S.34-002 and are indicated on Plan 5 as 001 and 002 respectively. Both the S.34-001 and S.34-002 were noted as an established *werwe* on an aerial photograph dated to 1955.





**Figure 7: Example of historical werf S.34-001 in Consbrey project area, taken from R542.**



**Figure 8: Example of another historical werf S.34-002 in the Consbrey project area, taken from just off the R542.**

In addition to the identified built environment resources, several natural landscape features were noted that may hold potential for tangible heritage resources. The most prominent were the typical outcroppings of sandstone ridges characteristic of the region illustrated in Figure 9. These sandstone ridges may hold both palaeontological and archaeological potential. In terms of archaeological potential, it is important to note that these outcrops are similar to that comprising the De Wittekrans Site Complex discussed above and illustrated in Figure 1.



**Figure 9: Typical sandstone ridge characteristic of the region. The De Wittekrans Site Complex on the western boundary of the Consbrey project area is characterised by similar features.**

Although Late Iron Age archaeological heritage resources are not expected to comprise a significant component of the cultural landscape, Stone Age archaeological heritage resources have a high likelihood of occurring. Stone Age resources may specifically include LSA sites such as the De Wittekrans Site Complex and open-air scatters of LSA lithics. Such sites are expected to be most visible in and around pans and shelters in sandstone ridges. The known, historical presence of San/Bushman hunter-gatherer communities in the region further supports this assertion.

More recent heritage resources above and beyond historical farm *werwe* that may further characterise the current cultural landscape within which the Consbrey project area is situated are relic landscapes and features associated with several periods of conflict that occurred in the region, notably the Mfecane and Anglo-Boer Wars. Besides these relic landscapes, other historical resources and recent resources include burial grounds and graves as defined by Section 36 of the NHRA.

Natural landscape features for instance waterfalls and narrow gorges such as illustrated in Figure 10, may further be characteristic of places in the cultural landscape associated with living and/or intangible heritage.



**Figure 10: Example of a natural feature that may have intangible or living heritage associations in the cultural landscape. The water in the foreground is a small stream cascading into a narrow, rocky sandstone gorge, visible in the centre of the photo.**

## 6 SOURCES OF RISK

Potential environmental impacts that could change the existing status of heritage resources within and surrounding the Consbrey project area, including the adjacently situated De Wittekrans Site Complex, that may result environmental aspects caused by proposed mining activities were identified and discussed below. Assessment of environmental impacts will be completed during the Heritage Impact Assessment stage of the heritage resources management component of the EIA/EMP.

New areas that are earmarked for future mining should be surveyed for heritage resources prior to commencing with mining activities. In addition, intangible and living heritage should also be considered.

### 6.1 Construction Phase

Environmental aspects during the construction phase of the proposed project that may cause environmental impacts on heritage resources include:



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

These environmental impacts have the potential to change the status quo or condition of any heritage resources that may exist in the project area, including palaeontological, archaeological and historical resources. Change may include the destruction of or damage to heritage resources, exposure of subsurface deposits and fossils, and restricted access to ancestral sites. Any adverse change to heritage resources may further reduce the potential of a resource to contribute to information and understanding of the region's and South Africa's historical development.

Environmental impacts are anticipated to be high during the construction phase as a result of the environmental aspects such as site clearing, topsoil removal and influx of workers. The intensity of environmental impacts on heritage resources do however depend on the value of any particular identified heritage resource: a high rated environmental impact, such as destruction of a resource, may be reduced due the low or negligible value of the resource. Vice versa, a low rated environmental impact on a highly valued heritage resource will be significant.

Tangible heritage resources that may be directly impacted on during the construction phase of the proposed Consbrey project include:

- Destruction or alteration of NHRA Section 34 resources, i.e. structures and built environment resources older than 60 years such as the farm werwe identified in the heritage screening assessment;
- Destruction of or disturbance to NHRA Section 35 resources, i.e. archaeological and/or palaeontological resources; and
- Damage or destruction of, and loss of access to, NRHA Section 36 resources, i.e. burial grounds and graves.

## 6.2 Operational Phase

Most environmental impacts on heritage resources will occur during the construction phase of the proposed project. However, environmental aspects associated with the operation phase may include:

- Deep excavations for the opencast and underground mining activities;
- Blasting; and
- Air emissions

Deep excavation may potential expose and/or destroy, or seal in palaeontological resources (fossils) that may be present in relevant geological strata.

Blasting and air emissions may adversely change the status quo of significant open-air heritage resources such as the De Wittekrans Complex. In addition, restricted access to

resources during the operation phase may change aspects related living and/or intangible heritage such as burial grounds and graves or ancestral sites.

Environmental aspects considered during the operation of the proposed mine, specifically associated with opencast activities, are anticipated to cause environmental impacts that could significantly change the status quo of the De Wittekrans Complex. Blasting and vibration may change the integrity of the physical site, dewatering could contribute to exfoliation of rock faces on which rock art is present, and dust fallout may adversely change the actual rock art.

Environmental impacts associated with aspects of underground mining activities would have lesser adverse change to visible, tangible heritage resources.

Tangible heritage resources that may be directly and/or indirectly impacted on during the construction phase of the proposed Consbrey project include:

- Disturbance or damage to NHRA Section 35 resources, i.e. archaeological and/or palaeontological resources; and
- Loss of access to NRHA Section 36 resources, i.e. burial grounds and graves.

### 6.3 Decommissioning Phase

The removal of infrastructure and decommissioning and closure related operations are not anticipated to have any additional impact on heritage resources, conditional to the effective implementation of management measures determined during the EIA Phase and outlined in the HIA report. However, it must be noted that built structures and associated places, objects and other artefacts older than 60 years are generally protected in terms of Section 34 of the NHRA. As a result, should any structures fall under this protection at the time of decommissioning and closure, application for destruction of sites may be required.

Indirect and induced environmental impacts may however change the condition of heritage resources, even if preserved, if rehabilitation is not completed. Environmental impacts that should be considered include erosion and subsidence.

**Table 6-1: Listed triggers according to the NHRA**

NHRA (1999) Trigger	Description
38(1)(a)	Construction of a road longer than 300 m
38(1)(c)(i)	Transformation of land in excess of 5 ha that will change the character of a site
38(1)(d)	Rezoning of land in excess of 10 ha
38(1)(c)(i)	Transformation of land in excess of 5 ha that will change the character of a site
38(1)(c)(ii)	Transformation of land involving three or more existing erven or

NHRA (1999) Trigger	Description
	divisions

## 7 RECOMMENDATIONS

Due to the large surface area of the proposed Consbrey project area (>10 000 ha) a comprehensive and inclusive Heritage Impact Assessment (HIA) with associated field surveys of the entire project area are not considered feasible within the timeframes allowed by the MPRDA process.

Notwithstanding this restriction, a HIA is recommended that must consider the following:

- Archaeological Impact Assessments (AIA) on footprint areas where infrastructure will be constructed or where any change in the landscape topography will occur, such as open-cast pit areas;
- A detailed palaeontological desktop assessment, with ground-truthing, employing existing, current geological reports to determine the palaeontological potential of footprint areas;
- Built environment assessments of any structures protected in terms of Section 34 of the NHRA, where such may exist in or near footprint areas;
- An AIA focussing on the De Wittekrans Site Complex that should integrate results of relevant specialist studies that may contribute to identifying direct, indirect, induced and cumulative environmental impacts that could potentially cause negative changes to the site. Specialist studies that should be considered may include:
  - Visual assessment aimed at assessing negative change to the genius loci of the De Wittekrans Site Complex;
  - Hydrogeological assessment aimed at assessing effects of dewatering on the surface geology of the site that may change the physical integrity of the rock surface;
  - Air quality assessment aimed at assessing the effects of air pollution and dust on the rock art;
  - Seismic assessment aimed at assessing effects of blasting and other activities that will cause seismic activity that may change the integrity of the physical site; and
  - Socio-economic assessment, including a tourism assessment, to assess the potential of the De Wittekrans Site Complex as a viable, sustainable socio-economic cultural attraction.
  - A Conservation Management Plan should be drafted, based on identified impacts and recommended integrated mitigation measures aimed at providing feasible management measures of the site.

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## **Appendix A: Curriculum Vitae**



DIGBY WELLS  
ENVIRONMENTAL

## SHAHZAADEE KARODIA

Ms Shahzaadee Karodia  
Archaeology Consultant  
Social Science Department  
Digby Wells Environmental

### 1 EDUCATION

- 2006 BA Anthropology & Archaeology, University of the Witwatersrand
- 2007 BSc Honours. Palaeontology, University of the Witwatersrand
  - Courses included: comparative vertebrate anatomy; cladistics analysis; primate and human evolution; Karoo biostratigraphy; dinosaurs and the origins of birds; Cenozoic mammals; taphonomy; and palaeoecology
  - Honours Thesis: "Encephalization and its relationship to orbit size in modern humans and a small bodied population from Palau, Micronesia".
- 2012 MSc Archaeology, University of the Witwatersrand
  - MSc Thesis: "Naturally mummified human remains from Historic Cave, Limpopo, South Africa".
  - Skills obtained during MSc included: stereo microscopy; light microscopy; scanning electron microscopy; and histology

### 2 LANGUAGE SKILLS

English (read, write, speak)

Currently completing French training for beginners

### 3 EMPLOYMENT

2012:	Archaeology consultant, Digby Wells Environmental
April 2012 – June 2012:	External archaeology research consultant, EcoAfrica
April 2011 – November 2011:	Archaeology intern, University of Pretoria

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



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2009 – 2011:	English tutor, Kip McGrath
2009 – 2011:	Online English tutor, Education First
2008 – 2009	English teacher, Yong Ju Elementary School
2007 – 2008:	Palaeontology collections assistant, BPI University of the Witwatersrand
2006 – 2007:	Tour guide, Sterkfontein Caves

#### **4 EXPERIENCE**

- Archaeology Field School in Klipriviersberg with Dr Karim Sadr, University of the Witwatersrand
- Archaeology Field School in Swartkrans and Maropeng with Dr Kathy Kuman, University of the Witwatersrand
- Archaeology Field School in Ottosdaal with Dr Thembi Russell, University of the Witwatersrand
- Palaeontology Field School in the Karoo with Professor Bruce Rubidge, University of the Witwatersrand
- Palaeontology Field School in Gladysvale with Professor Lee Berger, University of the Witwatersrand
- Palaeontology Field School in Wonderkrater with Dr Lucinda Backwell, University of the Witwatersrand

#### **5 PROJECT EXPERIENCE**

- Heritage Statement and Letter of Recommendation from Exemption for the Central Basin, Witwatersrand Acid Mine Drainage Project
- Heritage Impact Assessment for the Witwatersrand Gold Fields Acid Mine Drainage Project (Western Basin)
- Archaeological Watching Brief on Access Road for Bokoni Platinum Ltd
- Heritage Statement and Notification of Intent to Develop for Eskom Transmission Division – Roodepoort Strengthening Project;
- Heritage Statement and Notification of Intent to Develop for the Zandbaken Coal Mine Project, Zandbaken 585 IR, Sandbaken 363 IR and Bosmans Spruit 364 IS, Standerton, Mpumalanga

- Heritage Statement and Notification of Intent to Develop for Rhodium Reef Limited Platinum Operation, 2430 CA & CC, De Goedverwachting 332 KT, Boschklouf 331 KT and Belvedere 362 KT
- Heritage Statement and Notification of Intent to Develop for the Thabametsi Project, 2327CB, Vaalpensloop 313 LQ, Lephalale, Limpopo Province
- Heritage Impact Assessment for the Proposed Thabametsi Project, Lephalale, Limpopo Province

## 6 PROFESSIONAL AFFILIATIONS

- Association of Southern African Professional Archaeologists (ASAPA)
- The South African Archaeology Society (SAAS)
- Society of Africanist Archaeologists (SAfA)
- The Geological Survey of South Africa (GSSA)
- The Palaeontological Society of Southern Africa (PSSA)
- The South African Society for Amateur Palaeontologists (SASAP)

## 7 REFERENCES

### 7.1 Johan Nel

Digby Wells Environmental

HRM Unit Manager

[joan.nel@digbywells.com](mailto:joan.nel@digbywells.com)

#### 7.1.1 Dr Amanda Esterhuysen

University of the Witwatersrand

School of Geography, Archaeology and Environmental Studies

Email: [amanda.esterhuysen@wits.ac.za](mailto:amanda.esterhuysen@wits.ac.za)

#### 7.1.2 Dr James Phillips

National Institute for Occupational Health (NIOH)

Department of Pathology

Email: [jim.phillips@nioh.nhls.ac.za](mailto:jim.phillips@nioh.nhls.ac.za)

#### 7.1.3 Dr Ceri Ashley

University of Pretoria

Department of Anthropology and Archaeology



Email: [ceriashley@up.ac.za](mailto:ceriashley@up.ac.za)

#### **7.1.4 Professor Bruce Rubidge**

University of the Witwatersrand

Bernard Price Institute for Palaeontological Studies

Email: [bruce.rubidge@wits.ac.za](mailto:bruce.rubidge@wits.ac.za)

#### **7.1.5 Professor Lee R. Berger**

University of the Witwatersrand

Institute of Human Evolution

Email: [lee.berger@wits.ac.za](mailto:lee.berger@wits.ac.za)

#### **7.1.6 Lucinda Ruth Backwell**

University of the Witwatersrand

Institute of Human Evolution

Email: [lucinda.backwell@wits.ac.za](mailto:lucinda.backwell@wits.ac.za)



DIGBY WELLS  
ENVIRONMENTAL

## JUSTIN DU PIESANIE

Mr. Justin du Piesanie  
Archaeology Consultant  
Social Sciences Department  
Digby Wells Environmental

### 1 EDUCATION

University of the Witwatersrand

- BA Degree (2004)
- BA Honours Degree (2005) - Archaeology
  - Title of Dissertation - Seal Skeletal Distribution of Herder and Forager Sites at Kasteelberg, Western Cape Province of South Africa.
- Master of Science (MSc) Degree (2008) – Archaeology
  - Title of Dissertation – Understanding the Socio-Political Complexity of Leokwe Society during the Middle Iron Age in the Shashe-Limpopo Basin through a Landscape Approach

### 2 LANGUAGE SKILLS

English First Language  
Afrikaans Second Language

### 3 EMPLOYMENT

2011 to Present: Archaeology Consultant at Digby Wells Environmental

2009 to 2011: Archaeology Collections Manager at the University of the Witwatersrand.

2009 to 2011: Freelance Archaeologist for Archaeology Resource Management (ARM), Matakoma Heritage Consultants, Wits Heritage Contracts Unit & Umlando Heritage Consultants.

2006 to 2007: Tour Guide at Sterkfontein Caves World Heritage Site.

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

\*Non-Executive

## **4 EXPERIENCE**

- Wits Fieldschool - Excavation at Meyersdal, Klipriviersberg Johannesburg (Late Iron Age Settlement).
- Wits Fieldschool - Phase 1 Survey of Prentjiesberg in Ugie / Maclear area, Eastern Cape.
- Wits Fieldschool – Excavation at Kudu Kopje, Mapungubwe National Park Limpopo Province.
- Wits Fieldschool – Excavation of Weipe 508 (2229 AB 508) on farm Weipe, Limpopo Province.
- Survey at Meyersdal, Klipriviersberg Johannesburg.
- Mapping of Rock Art Engravings at Klipbak 1 & 2, Kalahari.
- Survey at Sonop Mines, Windsorton Northern Cape (Vaal Archaeological Research Unit).
- Excavation of Kudu Kopje, Mapungubwe National Park Limpopo Province.
- Excavation of KK (2229 AD 110), VK (2229 AD 109), VK2 (2229 AD 108) & Weipe 508 (2229 AB 508) (Origins of Mapungubwe Project)
- Phase 1 Survey of farms Venetia, Hamilton, Den Staat and Little Muck, Limpopo Province (Origins of Mapungubwe Project)
- Excavation of Canteen Kopje Stone Age site, Barkley West, Northern Cape
- Excavation of Khami Period site AB32 (2229 AB 32), Den Staat Farm, Limpopo Province

## **5 PROJECT EXPERIENCE**

- Phase 2 Mitigation at Meyersdal, Klipriviersberg Johannesburg (ARM)
- Phase 1 Mitigation – Mapping of Late Iron Age Site in Pilansberg, Sun City (ARM)
- Phase 1 Mitigation – Survey of Witbank dam development (ARM)
- Phase 1 Mitigation – Survey of Glen Austin AH, Johannesburg (Matakoma)
- Phase 1 Mitigation – Survey of Modderfontein AH Holding 34, Johannesburg (Matakoma)
- Phase 1 Mitigation – Survey of Modderfontein AH Holding 38, Johannesburg (Matakoma)
- Phase 1 Mitigation – Survey of Modderfontein AH Holding 44, Johannesburg (Matakoma)
- Phase 1 Mitigation – Survey of Modderfontein AH Holding 46, Johannesburg (Matakoma)
- Phase 1 Mitigation – Survey of Modderfontein AH Holding 47, Johannesburg (Matakoma)
- Phase 1 Mitigation – Survey of Modderfontein AH Holding 48, Johannesburg (Matakoma)
- Phase 1 Mitigation – Survey of Modderfontein AH Holding 49, Johannesburg (Matakoma)
- Phase 1 Mitigation – Survey of Modderfontein AH Holding 50, Johannesburg (Matakoma)



- Phase 1 Mitigation – Survey of Modderfontein AH Holding 61, Johannesburg (Matakoma)
- Phase 1 Mitigation – Survey of Modderfontein AH Holding 62, Johannesburg (Matakoma)
- Phase 1 Mitigation – Survey of Modderfontein AH Holding 71, Johannesburg (Matakoma).
- Phase 1 Mitigation – Survey of Modderfontein AH Holding 72, Johannesburg (Matakoma)
- Phase 1 Mitigation – Survey of Modderfontein 35IR Portion 40, Johannesburg (Matakoma)
- Phase 1 Mitigation – Survey of Rhino Mines, Thabazimbi Limpopo Province (ARM)
- Phase 1 Mitigation – Survey of Moddergat 389KQ, Schilpadnest 385KQ, Swartkop 369KQ, Cronimet Project, Thabazimbi Limpopo Province (Matakoma)
- Desktop Study – Desktop study for the Eskom Thohoyandou SEA Project, Limpopo Province (Matakoma)
- Phase 2 Mitigation – Excavation of Iron Age site on Wenzelrust, Shoshanguve Gauteng (Heritage Contracts Unit)
- Phase 1 Mitigation – Mapping of Late Stone Age shelter, Parys, Free State
- Phase 1 Mitigation – Survey of Vaalkrans Battlefield for the Transnet NMPP Line (Umlando)
- Phase 1 Mitigation – Survey of Portion 222 of Mindale Ext 7 Witpoortjie 254 IQ & Portion 14 of Nooitgedacht 534 IQ, Johannesburg (ARM)
- Phase 2 Mitigation – Excavation of Site 19 for the Anglo Platinum Mines Der Brochen & Booyensdal, Steelpoort, Mpumalanga (Heritage Contracts Unit)
- Phase 1 Mitigation – Mapping of sites 23, 26, 27, 28a & b for the Anglo Platinum Mines Der Brochen & Booyensdal, Steelpoort, Mpumalanga (Heritage Contracts Unit)
- Desktop Study - Desktop study for the inclusion into the Thohoyandou Electricity Master Network for Eskom, Limpopo Province (Strategic Environmental Focus)
- Phase 1 Mitigation – Mapping of historical sites as part of the mitigation for the expansion of the Bathlako Mine's impact area (Heritage Contracts Unit).
- Phase 2 Mitigation – Kibali Grave Relocation Project (KGRP) for the Kibali Gold Project, Democratic Republic of Congo (Digby Wells)
- Phase 1 Mitigation – Heritage Assessment and Survey for the proposed Kibali Hydro Power Stations, Democratic Republic of Congo (Digby Wells)
- Phase 1 Mitigation – Heritage Impact Assessment & Survey of the farm Vygenhoek for Aquarius Resources Everest North Mining Project, Steelpoort, Mpumalanga (Digby Wells)
- Phase 1 Mitigation – Heritage Impact Assessment for the Gold One International Ltd Proposed Geluksdal Tailings Storage Facility and Pipeline Infrastructure, Johannesburg, Gauteng Province (Digby Wells)
- Phase 1 Mitigation – Burial Grounds and Graves Survey (BGGS) for Platreef Resources, Mokopane, Limpopo Province (Digby Wells)
- Phase 2 Mitigation – Archaeological Impact Assessment of sites for Resource Generation Boikarabelo Mine, Steenbokpan, Limpopo Province (Digby Wells)



- Phase 1 Mitigation – Watching Brief for Bokoni Platinum Mines (Pty) Ltd, Burgersfort, Limpopo Province (Digby Wells)
- Heritage Statement for Rhodium Reefs Limited Platinum Operations on the Farm Kennedy's Vale 361 KT, Steelpoort, Mpumalanga Province (Digby Wells).
- Socio-Economic and Asset Survey, SEGA Gold Mining Project, Cluff Gold PLC, Burkina Faso (Digby Wells)

## **6 PROFESSIONAL AFFILIATIONS**

Society for Africanist Archaeologists (SAfA) Member

## **7 PROFESSIONAL REGISTRATION**

Association of Southern African Professional Archaeologists (ASAPA): Professional & CRM Member

## **8 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



## JOHAN NEL

Mr. Johan Nel

Unit manager: Heritage Resources Management

Social Sciences

Digby Wells Environmental

### 1 EDUCATION

2002 BA Honors - Archaeology

2001 BA Anthropology & Archaeology

1997 Matriculated Brandwag Hoërskool

### 2 LANGUAGE SKILLS

Fluent in English and Afrikaans

### 3 EMPLOYMENT

2011 to present Unit manager: Heritage Resources Management, Digby Wells Environmental

2010-2011 Archaeologist, Digby Wells Environmental

2005-2010 Manager and co-owner, Archaic Heritage Project Management

2003-2005 Freelance archaeologist

Resident archaeologist, Rock Art Mapping Project, Ndidima, Ukhahlamba-Drakensberg World Heritage Site

2002-2003 Special Assistant: Anthropology, Department of Anatomy, University of Pretoria

2001-2002 Technical Assistant: Department of Anatomy, University of Pretoria

1999-2001 Assistant: Mapungubwe Project, National Cultural History Museum & Department of Anthropology and Archaeology, UP

### 4 EXPERIENCE

I have 13 years of combined experience in the field of cultural heritage resources management (HRM) including archaeological and heritage assessments, grave relocation, social consultation and mitigation of archaeological sites. I have gained experience both within urban settings and remote rural landscapes. Since 2010 I have been actively involved in environmental management that has allowed me to investigate and implement the integration of heritage resources

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

\*Non-Executive

management into environmental impact assessments (EIA). Many of the projects since have required compliance with International Finance Corporation (IFC) requirements and other World Bank standards. This exposure has allowed me to develop and implement a HRM approach that is founded on international best practice and leading international conservation bodies such as UNESCO and ICOMOS. I have worked in most South African Provinces, as well as Swaziland, the Democratic Republic of the Congo and Sierra Leone. I am fluent in English and Afrikaans, with excellent writing and research skills.

## 5 PROJECT EXPERIENCE

### PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENTS:

- Above Ground Storage Tanks survey, SASOL Oil (Pty) Ltd, Free State Province, South Africa
- Access road establishment , AGES-SA, Tzaneen, South Africa
- Boikarabelo Railway Link, Resgen South Africa, Steenbokpan, South Africa
- Conversion of prospecting rights to mining rights, Georock Environmental, Musina, South Africa
- Galaxy Gold Agnes Mine, Barberton, South Africa
- HCI Khusela Palesa Extension, Bronkhorstspuit, South Africa
- Kennedy's Vale township establishment, AGES-SA, Steelpoort, South Africa
- Koidu Diamond Mine, Koidu Holdings, Koidu, Sierra Leone
- Lonmin Platinum Mine water pipeline survey, AGES-SA, Lebowakgomo, South Africa
- Mining right application, DERA Environmental, Hekpoort, South Africa
- Mogalakwena water pipeline survey, AGES-SA, Limpopo Province, South Africa
- Nzoro Hydropower Station, Environmental and Social Impact Assessment, DRC
- Randgold Kibali Gold Project, Environmental and Social Impact Assessment, Kibali, Democratic Republic of the Congo
- Randwater Vlakfontein-Mamelodi water pipeline survey, Archaeology Africa cc, Gauteng, South Africa
- Residential and commercial development, GO Enviroscience, Schoemanskloof, South Africa
- Temo Coal, Limpopo, South Africa
- Transnet Freight Line survey, Eastern Cape and Northern Cape, ERM, South Africa
- Van Reenen Eco-Agri Development Project, GO Enviroscience, South Africa
- Platreef Platinum Mine, Ivanhoe Nickel & Platinum, Mokopane, South Africa

### MITIGATION PROJECTS:

- Mitigation of Iron Age archaeological sites: Kibali Gold Project, DRC
- Mitigation of Iron Age metalworking site: Koidu Diamond Mine, Sierra Leone
- Mitigation of Iron Age sites: Boikarabelo Coal Mine, South Africa
- Exploratory test excavations of alleged mass burial site: Rustenburg, Bigen Africa Consulting Engineers, South Africa
- Mitigation of Old Johannesburg Fort: Johannesburg Development Agency (JDA), South Africa
- Site monitoring and watching brief: Department of Foreign Affairs Head Office, Imbumba-Aganang Design & Construction Joint Venture, South Africa

### **GRAVE RELOCATION**

- Du Preezhoek-Gautrain Construction, Bombela JV, Pretoria, South Africa
- Elawini Lifestyle Estate social consultation, PGS (Pty) Ltd, Nelspruit, South Africa;
- Motaganeng social consultation, PGS (Pty) Ltd Burgersfort, South Africa
- Randgold Kibali Mine, Relocation Action Plan, Kibali, DRC
- Repatriation of Mapungubwe National Park and World Heritage Site, DEAT, South Africa
- Smoky Hills Platinum Mine social consultation, PGS (Pty) Ltd Maandagshoek South Africa
- Southstock Colliery, Doves Funerals, Witbank, South Africa
- Tygervallei. D Georgiades East Farm (Pty) Ltd, Pretoria, South Africa
- Willowbrook Ext. 22, Ruimsig Manor cc, Ruimsig, South Africa
- Zondagskraal social consultation, PGS (Pty) Ltd, Ogies, South Africa
- Zonkezizwe Gautrain, PGS, (Pty) Ltd, Midrand, South Africa

### **OTHER HERITAGE ASSESSMENTS AND REVIEWS:**

- Heritage Scoping Report on historical landscape and buildings in Port Elizabeth: ERM South Africa
- Heritage Statement and Cultural Resources Pre-assessment scoping report on Platreef Platinum Mine, Mokopane: Platreef Ltd
- Heritage Statement and Scoping Report on five proposed Photo Voltaic Solar Power farms, Northern Cape and Western Cape: Orlight SA
- Land claim research Badenhorst family vs Makokwe family regarding Makokskraal, Van Staden, Vorster & Nysschen Attorneys, Ventersdorp South Africa
- Research report on Cultural Symbols, Ministry for Intelligence Services, Pretoria, South Africa
- Research report on the location of the remains of kings Mampuru I and Nyabela, National Department of Arts and Culture, Pretoria, South Africa
- Review of Archaeological Assessment: Resources Generation, Coal Mine Project in the Waterberg area, Limpopo Province

- Review of CRM study and compilation of Impact Assessment report, Zod Gold Mine, Armenia

## 6 PROFESSIONAL AFFILIATIONS

Society for Africanist Archaeologists (SAfA)

## 7 PROFESSIONAL REGISTRATION

Association for Southern African Professional Archaeologists (ASAPA)

Accredited by ASAPA Cultural Resources Management section

International Association of Impact Assessors (IAIA)

## 8 PUBLICATIONS

Nel, J. 2001. Cycles of Initiation in Traditional South African Cultures. *South African Encyclopaedia* (MWEB).

Nel, J. 2001. *Social Consultation: Networking Human Remains and a Social Consultation Case Study*. Research poster presentations at the Bi-annual Conference (SA3) Association of Southern African Professional Archaeologists: National Museum, Cape Town.

Nel, J. 2002. *Collections policy for the WG de Haas Anatomy museum and associated Collections*. Unpublished. Department of Anatomy, School of Medicine: University of Pretoria.

Nel, J. 2004. Research and design of exhibition for Eloff Belting and Equipment CC for the Institute of Quarrying 35th Conference and Exhibition on 24 – 27 March 2004.

Nel, J. 2004. *Ritual and Symbolism in Archaeology, Does it exist?* Research paper presented at the Bi-annual Conference (SA3) Association of Southern African Professional Archaeologists: Kimberley

Nel, J & Tiley, S. 2004. The Archaeology of Mapungubwe: a World Heritage Site in the Central Limpopo Valley, Republic of South Africa. *Archaeology World Report*, (1) United Kingdom p.14-22.

Nel, J. 2007. *The Railway Code: Gautrain, NZASM and Heritage*. Public lecture for the South African Archaeological Society, Transvaal Branch: Roedean School, Parktown.

Nel, J. 2009. *Un-archaeologically speaking: the use, abuse and misuse of archaeology in popular culture*. *The Digging Stick*. April 2009. 26(1): 11-13: Johannesburg: The South African Archaeological Society.

Nel, J. 2011. 'Gods, Graves and Scholars' returning Mapungubwe human remains to their resting place.' In: *Mapungubwe Remembered*. University of Pretoria commemorative publication: Johannesburg: Chris van Rensburg Publishers.

Nel, J. 2012. *HIAs for EAPs*. Paper presented at IAIA annual conference: Somerset West.




## **Appendix B: Location and Site Maps**

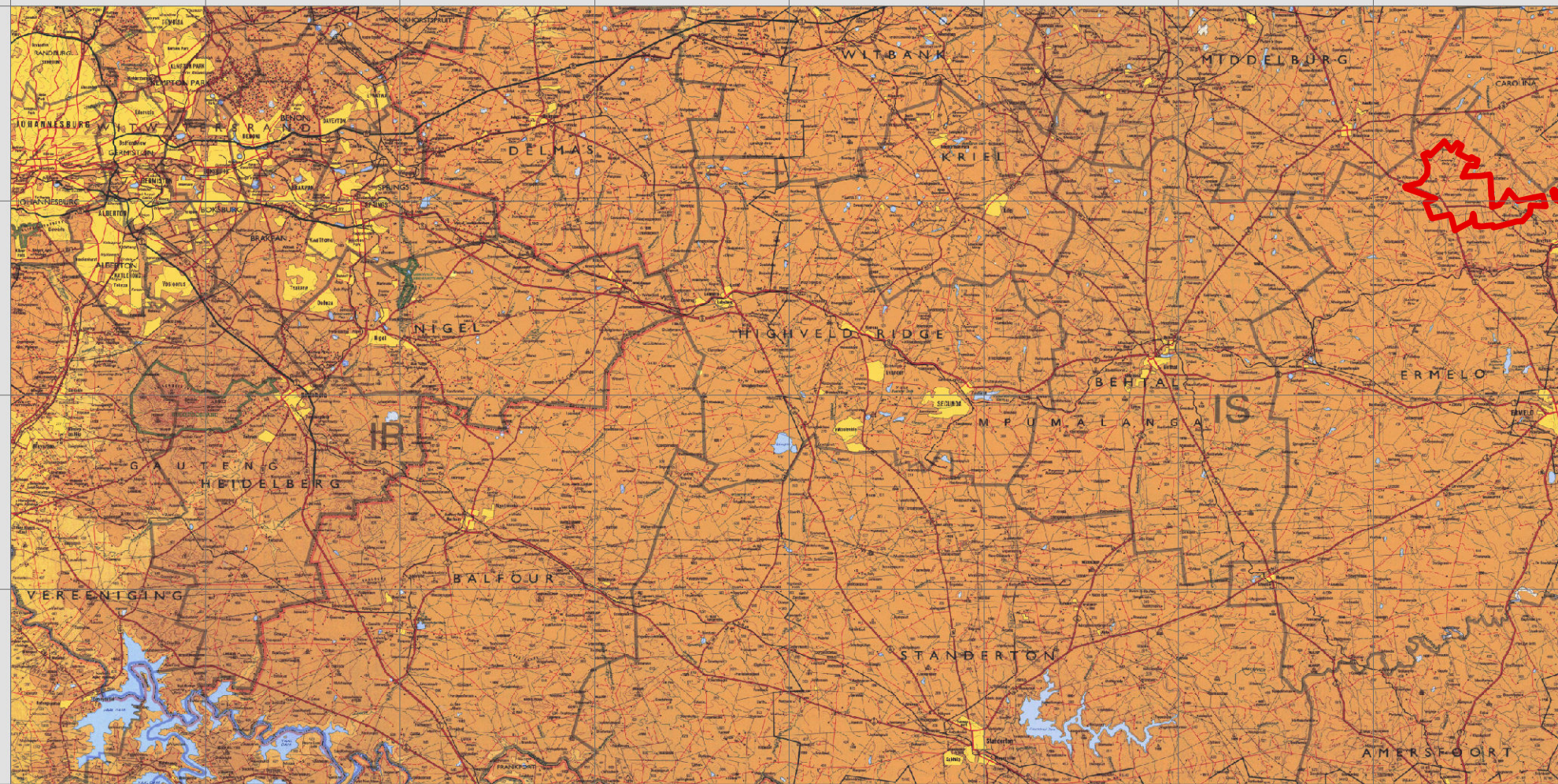


# Msobo Coal Consbrey Project

Regional Setting  
1:250000

## Legend

 Consbrey Project Area



## 2628 East Rand



DIGBY WELLS  
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[www.digbywells.com](http://www.digbywells.com)

Geographic Coordinate System Ref #: mpl.MSO1805.201302.128  
Datum: WSG 1984 Revision Number: 1  
Date: 27/02/2013



0 5 10 20 30 40


Kilometres  
1:850,000



# Msobo Coal Consbrey Project

Regional Setting  
1:50000

## Legend

 Consbrey Project Area

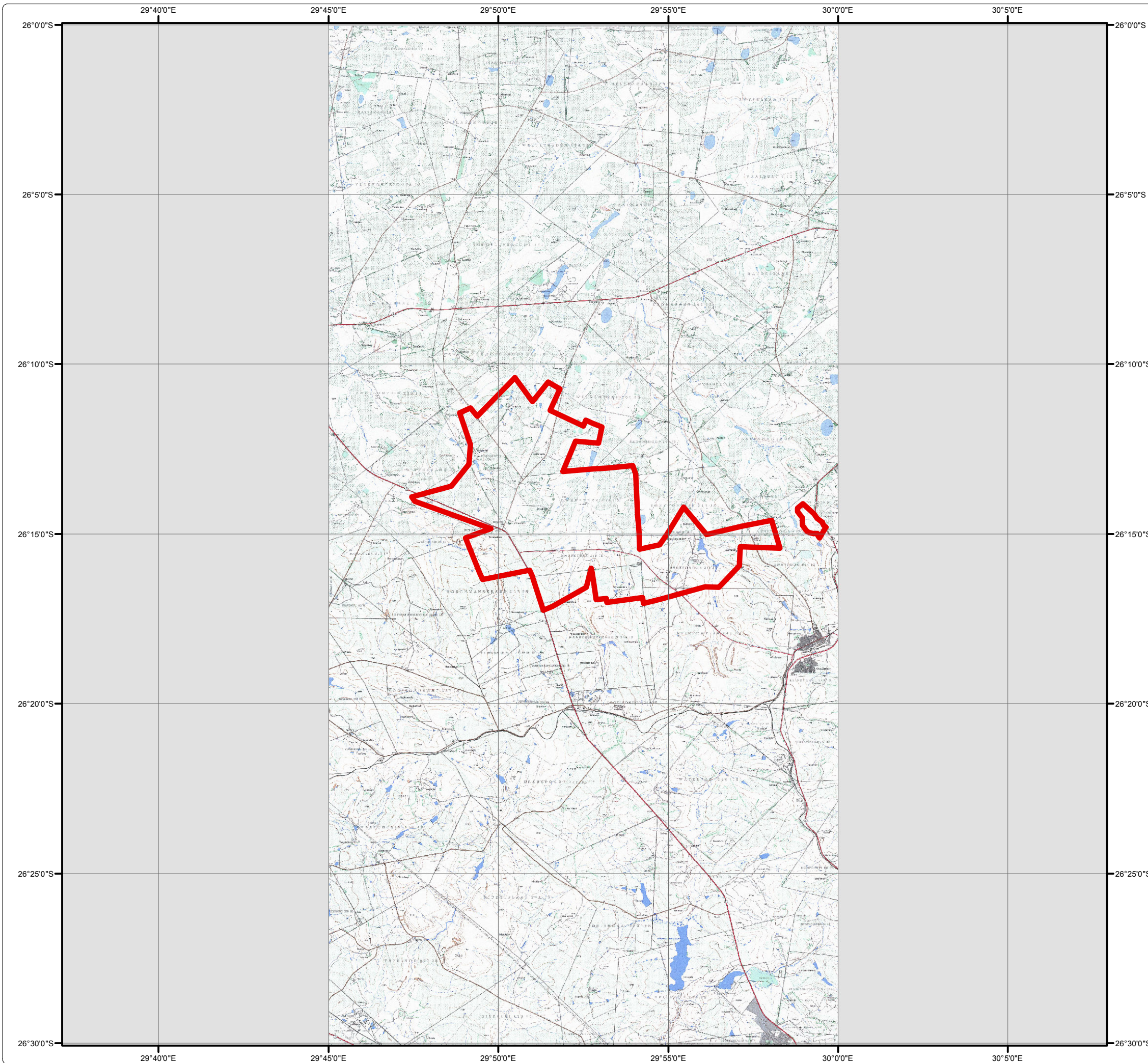
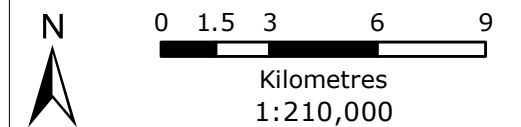
**2629BD Breyten**  
**2629BB Kromkrans**



DIGBY WELLS  
ENVIRONMENTAL

[www.digbywells.com](http://www.digbywells.com)

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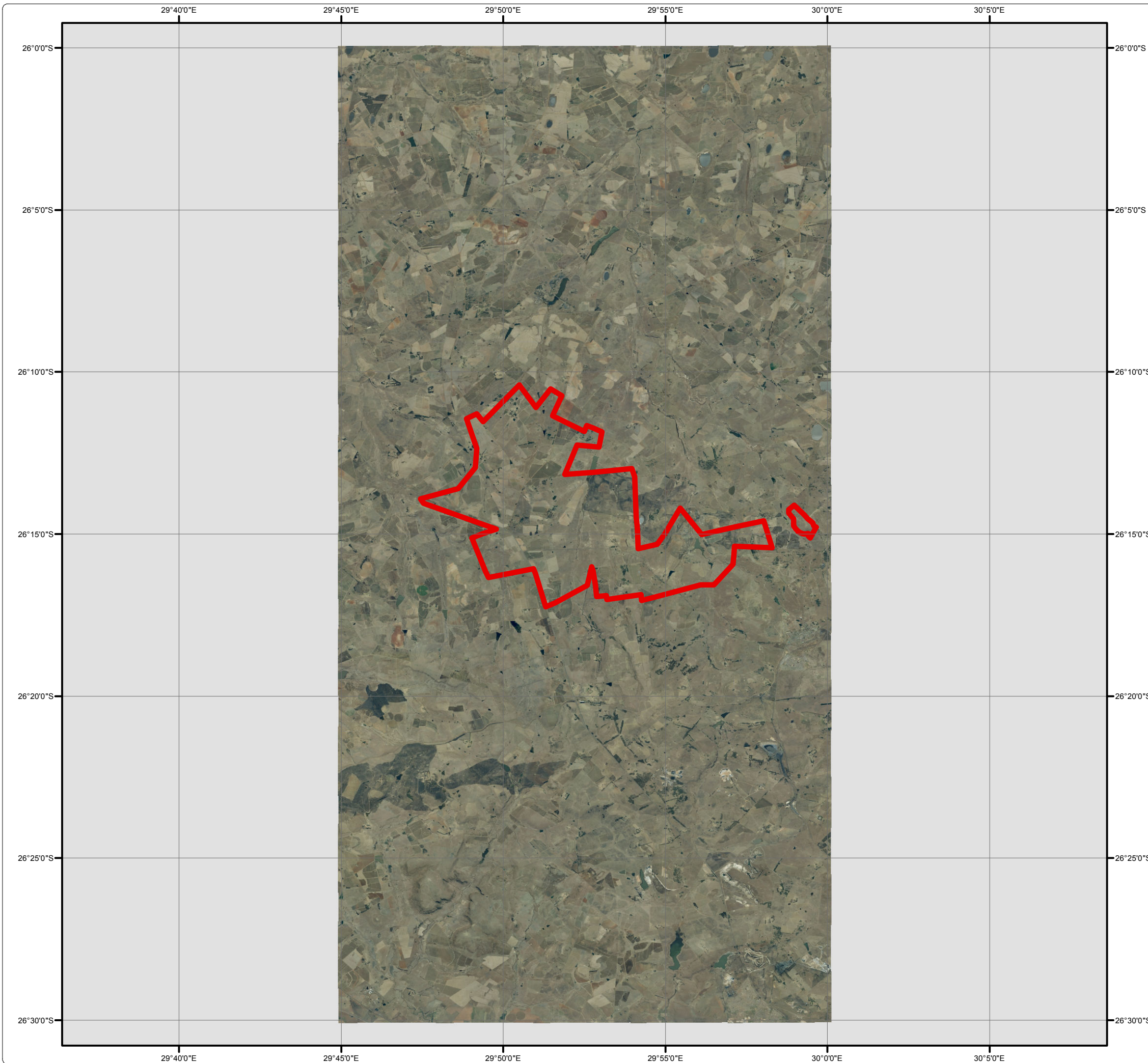


# Msobo Coal Consbrey Project

Regional Setting  
1:10000

## Legend

 Consbrey Project Area



**DIGBY WELLS**  
ENVIRONMENTAL

[www.digbywells.com](http://www.digbywells.com)

Geographic Coordinate System Ref #: mpl.MSO1805.201302.130  
Datum: WSG 1984 Revision Number: 1  
Date: 27/02/2013













Kilometres  
1:220,000



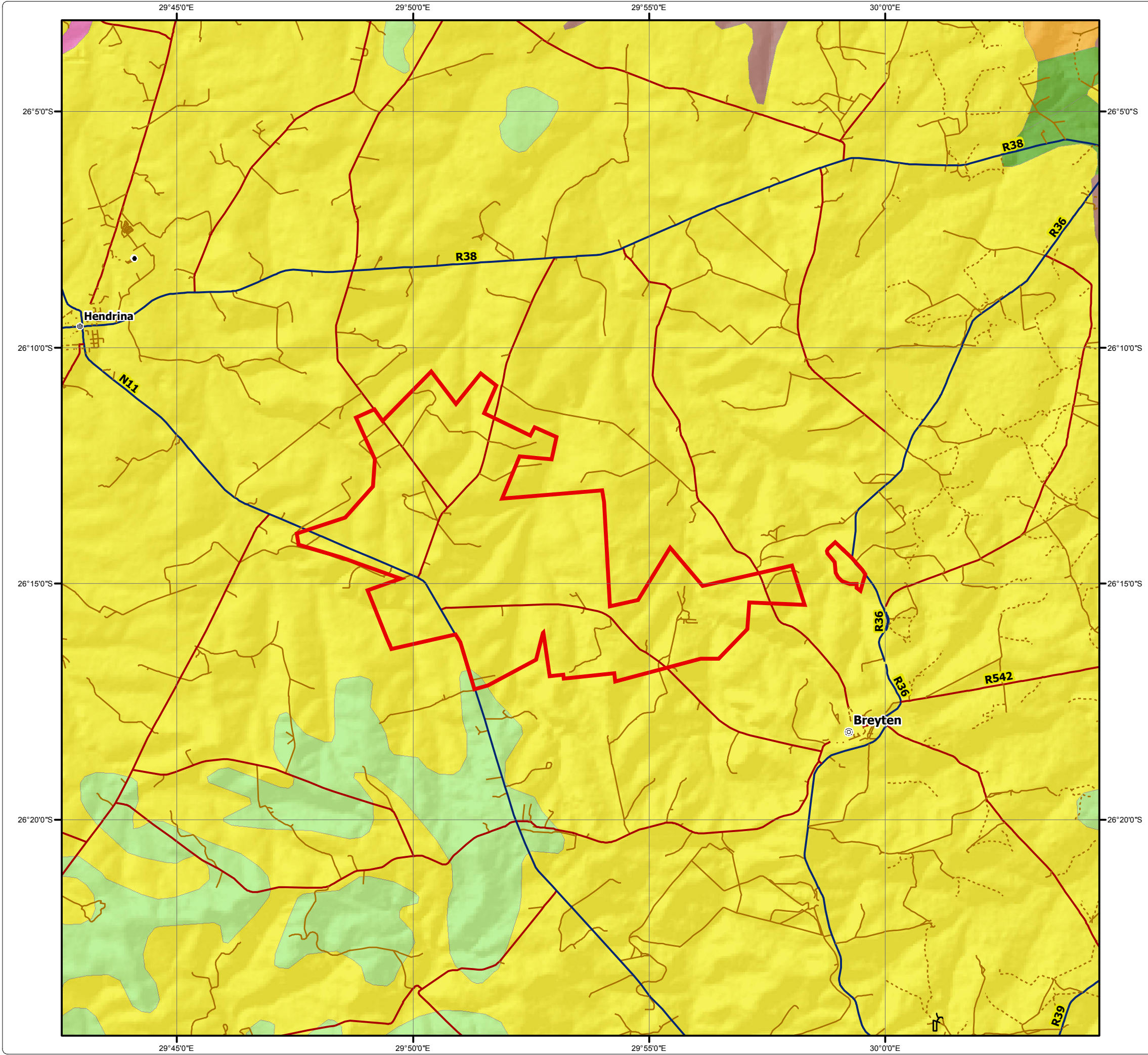
# Msobo Coal Consbrey Project Regional Geology

### Legend

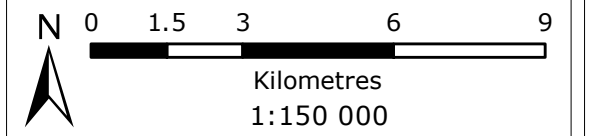
-  Consbrey Project Area
-  City
-  Major Town
-  Secondary Town
-  Other Town
-  Settlement
-  Arterial / National Route
-  Main Road
-  Other Access Road
-  Street
-  Track & Footpaths

### Regional Geology

-  Dwyka Grp, Karoo Spgrp
-  Karoo Dolerite Sui
-  Madzaringwe Fm, Karoo Spgrp
-  Pretoria Grp, Transvaal Spgrp
-  Rooiberg Grp, Transvaal Spgrp
-  Silverton Fm, Pretoria Grp










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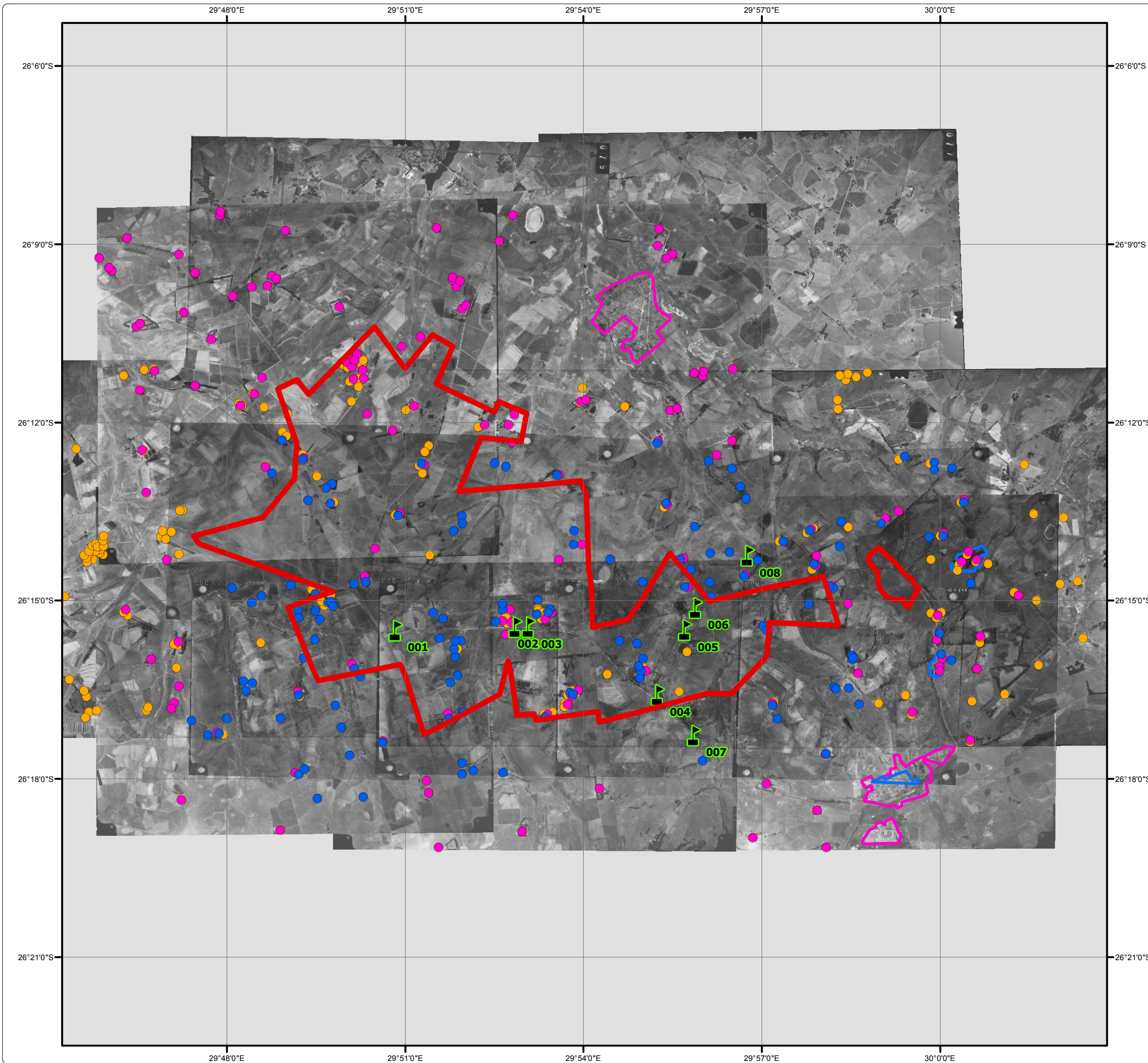




# Msobo Coal Consbrey Project Historical Layering

## Legend

-  Consbrey Project Area
-  Photo Points
-  Consbrey 1955
-  Consbrey 1979
-  Consbrey 1991
-  Consbrey 1955
-  Consbrey 1979



Geographic Coordinate System Ref #: mpl.MSO1805.201302.131  
Datum: WSG 1984 Revision Number: 1  
Date: 27/02/2013

