

Roodepoort Strengthening Land Tenure

Legend

- Town
- - - Non-Perennial River
- Perennial River
- Main Roads
- National Roads
- Farm Boundaries
- ▨ CoH Boundary
- ▩ CoH Site

Study Corridors

- Option 1
- Option 2
- Option 3
- Option 4
- Option 5 (Underground)
- Option 6



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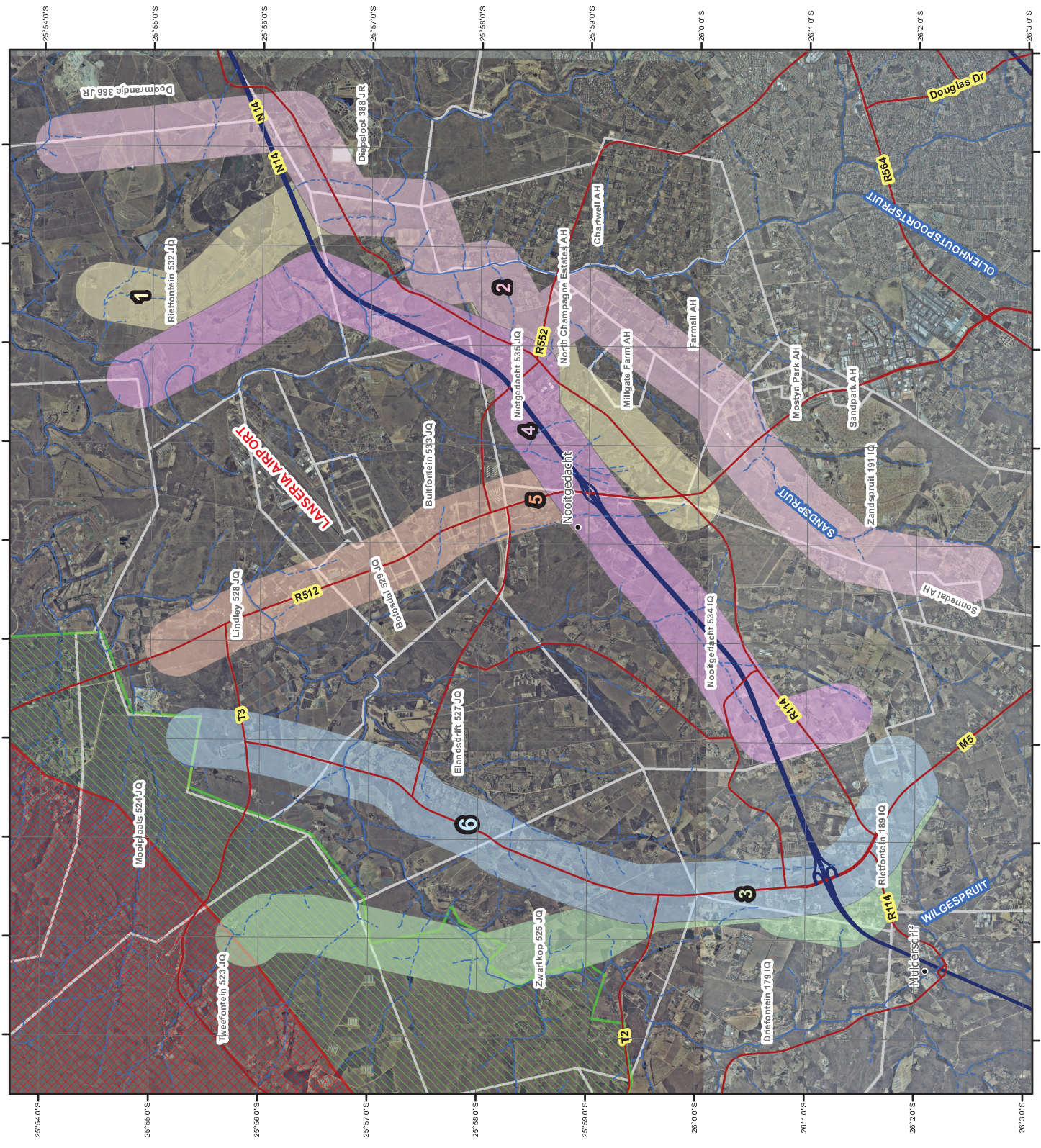
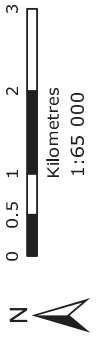



Table 2-1: Affected farm portions per route option

Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
Rietfontein 532 JQ	Doornrandje 386 JR	Tweefontein 523 JQ	Rietfontein 532 JQ	Lindley 528 JQ	Mooiplaats 524 JQ
Diepsloot 388 JR	Rietfontein 532 JQ	Zwartkop 525 JQ	Bultfontein 533 JQ	Botesdal 529 JQ	Lindley 528 JQ
Nietgedacht 535 JQ	Diepsloot 388 JR	Driefontein 179 IQ	Nietgedacht 535 JQ	Bultfontein 533 JQ	Elansdrift 527 JQ
Zandspruit 191 IQ	Nietgedacht 535 JQ	Rietfontein 189 IQ	Nooitgedacht 534 IQ	Nietgedacht 535 JQ	Zwartkop 525 JQ
Nooitgedacht 534 IQ	Zandspruit 191 IQ			Nooitgedacht 534 IQ	Driefontein 179 IQ
	Nooitgedacht 534 IQ				Rietfontein 189 IQ

The affected farms per substation option are presented in Table 2-2 below.

Table 2-2: Affected farm portions per substation alternative

Option A	Option B	Option C	Option D	Option E
Nietgedacht 535 IQ	Zandspruit 191 IQ	Nooitgedacht 534 IQ	Nietgedacht 535 IQ	Bultfontein 533 JQ
Zandspruit 191 IQ		Rietfontein 189 IQ		

2.2.6 Development context of study area

The area is characterised by residential areas, small holdings, cultivated land, poultry farms, two nature reserves and one conservancy. Land use can be broadly described as follows:

- Residential –
 - High density housing developments (Cosmo City);
 - Small holdings;
 - Scattered informal settlements; and
 - Equestrian and golf estates.
- Open fields and wetlands –
 - Patches of open fields and wetlands are found throughout the study area; and
 - Two nature reserves (Motsetse Nature Reserve and the Diepsloot Nature reserve) and one conservancy (Kromdraai Conservancy) are found around the study area.
- Agriculture –
 - Small scale commercial farming activities occur throughout the study area, particularly rose and poultry farms.
- Commercial, industrial and mining –
 - Quarrying of sand and stone is being undertaken to the east of the project area; and
 - There are some fertilizer and compost manufacturing plants.
- Tourism –
 - The study area borders the Cradle of Humankind World Heritage Site (COH WHS) in the west and northwest. This is a major centre for tourism.
- Aeronautical and Transport - The Lanseria International Airport is located about 1.8 km east of Option 5.

2.3 Relevant Contact Details

2.3.1 Contact details of the client

The contact details of the client are summarised in Table 2-3 below.

Table 2-3: Contact details of the client

ITEM	COMPANY CONTACT DETAILS
Company	Fourth Element Consulting (Pty) Limited
Contact person	Tsepo Lepono
Tel no	011 726 3130

ITEM	COMPANY CONTACT DETAILS
Fax no	011 726 3134
E-mail address	tsepo@fourthelement.co.za
Postal address	PO Box 3300, Houghton, 2041

2.3.2 Contact details of the consultant

The contact details of the consultant are summarised in Table 2-4 below.

Table 2-4: Contact details of the consultant

ITEM	CONSULTANT CONTACT DETAILS
Name	Digby Wells Environmental – Mia Ackermann
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Cellular no	082 864 7342
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Postal address	Private Bag X10046, Randburg, 2125, South Africa

2.4 Terms of Reference

As part of the Roodepoort Strengthening Project, Fourth Element has requested Digby Wells undertake various specialist studies as part of the required Basic Assessment Report (BAR) for the proposed power line routes and substation sites. The Terms of Reference (ToR) for the heritage component included a baseline Heritage Statement involving desktop research, a review of literature, a site visit, and subsequent examination of potential impacts. The Heritage Statement will be submitted to the South African Heritage Resource Agency (SAHRA) for review and further ToR.

2.5 Legislative Requirements

2.5.1 Heritage Resources

The Heritage Statement is informed by national legislation and international guidelines on best practise. These are discussed separately below.

2.5.2 National Heritage Resources Act

The national legislation that must be considered with regard to heritage resources is the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA). In accordance to the NHRA, thirteen sites in the COH WHS are National Heritage Sites and are protected in terms of the NHRA. The sections of this act that are applicable to the Roodepoort Strengthening Project and particularly to the COH WHS are presented below.

2.5.2.1 Section 3 of the NHRA

According to the Section 3 of the NHRA, certain heritage resources of cultural significance include:

- Places, buildings, structures and equipment of cultural significance;
- Places to which oral traditions are attached to which are associated with living heritage;
- Places to which oral traditions are attached or which are associated with living heritage;
- Landscapes and natural features of cultural significance;
- Geological sites of scientific or cultural importance;
- Archaeological and palaeontological sites;
- Graves and burial grounds, including:
 - Ancestral graves
 - Royal graves and graves of traditional leaders
 - Graves of victims of conflict
 - Historical graves and cemeteries; and
- Movable objects, including:
 - Objects to which oral traditions are attached or which are associated with living heritage
 - Ethnographic art and objects
 - Military objects
 - Objects of scientific or technological interest.

2.5.3 Section 27 of the NHRA

Section 27 of the NHRA stipulates that a provincial heritage resources authority may declare any place which has a special quality that may make them significant, to be a provincial heritage site. In accordance with Government Notice 1197, the Department of Environmental Affairs and Tourism in December 2007 proclaimed the fossil hominid sites of Sterkfontein Swartkrans, Kromdraai and the Environs as a World Heritage Site in terms of the World Heritage Convention Act, 1999 (Act No. 57 of 1999).

2.5.4 Section 38 of the NHRA

Section 38 of the NHRA stipulates certain activities that act as triggers for the undertaking of heritage assessments. With regards to the Roodepoort Strengthening Project, the following activities act as triggers:

- (a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development of barrier exceeding 300 m in length;
- (c) any development or other activity which will change the character of a site –
 - (i) exceeding 5 000 m² in extent; or

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

2.5.5 National Environmental Management Act

The secondary legislation that must be considered with regard to the COH WHS is the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). Section 2 stipulates that 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.

This act further stipulates that any development within designated buffer zone will require an Environmental Authorisation in terms of the NEMA before the project may proceed. In order to meet government requirements and to obtain environmental authorisation a BAR needs to be undertaken.

2.5.6 National Environmental Management: Protected Areas Act

In addition to the NEMA, the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) (NEMPA) is also applicable. Section 9(b) makes provision for nature reserves and world heritage sites as protected areas in South Africa. With regards to development activities, Section 49 stipulates that activities in protected areas are regulated, restricted, and subject to the management plan of the site.

2.5.7 National Environmental Management: Biodiversity Act

In addition to the NEMA and NEMPA, the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) provides environmental principles for the management and regulation of biological diversity. These principles are applicable, but not limited to, nature reserves and conservancy area.

2.5.8 World Heritage Convention Act

The World Heritage Convention Act, 1999 (Act No. 49 of 1999) (WHCA) is the international legislation that must be considered with regard to heritage resources in and around the COH WHS. With regards to the WHCA, the following Government Notice (GN) applies to the COH WHS:

- GN R449 in connection with the declaration of a Management Authority for the fossil hominid sites of Sterkfontein, Swartkrans, Kromdraai and Environs World Heritage Site (Cradle of Humankind).
- GN 1197 (2007), the Department of Environmental Affairs and Tourism in December 2007 proclaimed the fossil hominid sites of Sterkfontein Swartkrans, Kromdraai and the Environs as a World Heritage Site in terms of the WHCA.
- GN 949, GG 31380 (2008) makes provision for the establishment of a buffer zone approximately 80,119ha around the COH WHS in accordance with the accepted mechanisms for protecting and managing world heritage sites stipulated in the WHCA.

As stipulated by the NEMA and NEMPA, an Environmental Management Framework (EMF) was compiled for the protection and management of the COH WHS, its buffer zone and the Muldersdrift area (Beater & Kilian, 2011). The EMF report stipulates that proper management of the buffer zone is based on the outstanding universal value of the COH WHS and the establishment of Environmental Management Zones (EMZ). Each of these zones reflects a level of sensitivity to development (Beater & Kilian, 2011). This would ensure that development within the COH WHS and its proposed buffer zone would be conducted in a sustainable manner and not disrupt or threaten the authenticity and integrity of the COH WHS and its heritage and environmental resources (Beater & Kilian, 2011).

According to the guidelines presented in the EMF report, preliminary indications of undesirable and preferred development activities were stipulated. With regards to the current project, undesirable development and associated infrastructure within the COH WHS and its buffer zone includes:

- bulk engineering infrastructure facilities; and
- transmission lines.

Although the Managing Authority of the COH WHS will not exercise direct regulatory control over any area covered by the buffer zone until the proposed new buffer zone has been legislated, these development activities are considered undesirable to the authenticity and integrity of the COH WHS.

2.5.9 Additional national and international standards and guidelines

Additional national and international standards and guidelines that were used to inform and guide the Heritage Statement include:

- South African Heritage Resources Agency (SAHRA) Minimum Standards;
- Association of Southern African Professional Archaeologists (ASAPA) Constitution and Code of Ethics.
- Equator Principles (Drafted 2003, Updated 2006);
- ICOMOS Standards (Guidance on Heritage Impact Assessments for Cultural World Heritage Properties); and
- The UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage (1972).

3 CHARACTERISATION OF CULTURAL LANDSCAPE

3.1 Methodology

This Heritage Statement consisted of a desktop study - including background literature reviews, aerial and historical map surveys and a review of relevant impact assessment reports, inferred information – and a pedestrian site survey. A screening site visit was undertaken by two qualified and accredited archaeologists for the identification and documentation of potential heritage resources, as stipulated in the NHRA and SAHRA Minimum Standards (2010). The site visits were conducted on 19 and 20 September 2011, and again on 31 May 2012.

The current heritage landscape was characterised to include existing and potential heritage resources. This characterisation was done for the project area at large with more detail

added where relevant per option. In order to characterise the heritage landscape, the following methods were employed:

- A literature review:
 - Literature review of relevant and available publications such as journals and specialist reports;
 - Archival research; and
 - Review of existing relevant previous impact assessment reports.
- A desktop cartographic survey:
 - Review of available historic to current maps and imagery.
- Screening site visit:
 - A site visit to familiarise the specialist with the project area and to assess the potential for heritage resources within and around the project area.
- Data compilation:
 - All identified heritage resources were plotted and labelled to create a sensitivity map of each alternative route and substation options.
- Assessment of Options:
 - The various options were assessed based on the likelihood of heritage resources being impacted on, or occurring within the proposed design footprint.
- Preliminary recommendations:
 - Preliminary recommendations were made to advise and inform decisions concerning the various options, as well as recommendations for further studies and assessments.

3.2 Restrictions, Limitations and Knowledge Gaps

The following restrictions, limitations and knowledge gaps were identified during the course of the Heritage Assessment:

- Restrictions:
 - The Heritage Statement is not a Heritage Impact Assessment (HIA) where sites are assigned a significance rating. This Heritage Statement is aimed at characterising the cultural landscape and providing context within which heritage resources can be evaluated and assessed.
- Limitations:
 - Impacts on individual heritage resources are in general problematic to define in terms of linear projects such as the proposed project.
- Knowledge gaps:
 - Eskom have been unable to fix the final structure and form of the tower types to be adopted and as such a worst case scenario and preferred option approach has been taken. The EAP will make a final recommendation regarding the tower type to be adopted which, it is expected that Eskom will be required to follow under the conditions of the RoD; and

- Most archaeological and palaeontological resources occur below surface, the presence of which remains unknown until exposed.

3.3 Literature Review

Although much of the study area has previously been disturbed as a result of the developments described above, the literature review has resulted in a number of significant heritage assets. Most importantly, the Cradle of Humankind World Heritage Site (COH WHS) is situated along the north-western boundary of the project area. The closest proposed routes to the COH WHS are Option 3 and Option 6. The Option 3 study area encroaches into the north-western boundary of COH WHS. The north-western boundary of the study area along the COH WHS is an important heritage site of global significance. This area also includes one of the earliest gold mines in the Witwatersrand, several battlefields, graves and memorials associated with the Second Anglo-Boer War and the Second World War.

3.3.1 Geological setting

The bedrock of the COH WHS comprises Precambrian basement rocks of the Monte Cristo and Eccles formations of the Malmani Subgroup of the Chuniespoort Group (Plan 3). The bedrock here consists of dolomite, interbedded chert and shales, quartzite and a variety of stromatolite structures (Hilton-Barber & Berger, 2002). The dolomite bedrock dates to 2.6 and 2.8 billion years making it of paleontological value. An extensive dolomitic cave system lies beneath the COH WHS and is the focus of palaeontological discoveries since the mid-1930s.

Caves in the COH WHS can be recognised by outcrops of dolomite occurring across the landscape. The dolomite outcrops are generally unsuitable for large trees, except for *Olea capensis* (Wild Olive) and *Celtis africana* (White Stinkwood). The presence of these trees often indicates the roof or mouth of an underground cavity. Sinkholes are also potential indicators of the cavities, where surface soil has collapsed into an underlying space.

The bedrock of the project area comprises rocks of the Halfway House Granite. Sections of the project area, particularly the western sections near the COH WHS, are comprised of rocks of the Swazian Eranthem. Rocks of the Witwatersrand Supergroup and of the Black Reef formation of the Transvaal Supergroup are found on the western boundary of the project area. The underlying geology of the project area is illustrated in Plan 4.

Rooedeport Strengthening Cradle of Humankind Geology

Legend

- City
- Major Town
- ⊙ Secondary Town
- Other Town
- Settlement
- Rivers
- - - Observed Faults
- ▭ CoH Boundary
- ▭ CoH Site
- ▭ Dams

Geology

- Black Reef Fm, Transvaal Spgrp
- Daspoort Fm, Pretoria Grp
- Government Spgrp, West Rand Grp
- Halfway House Granite
- Hospital Hill Spgrp, West Rand Grp
- Jeppesfontein Spgrp, West Rand Grp
- Johannesburg Spgrp, Central Rand Grp
- Magalesberg Fm, Pretoria Grp
- Malmansi Spgrp, Chumiespoort Grp
- Platberg Grp, Ventersdorp Spgrp
- Pretoria Grp, Transvaal Spgrp
- Rayton Fm, Pretoria Grp
- Silverton Fm, Pretoria Grp
- Strubenkop Fm, Pretoria Grp
- Swazian Eriathem
- Vaalang Eriathem
- Vlakfontein Sbsuite & Kolobeng Norite, Rustb.
- Witwatersrand Spgrp
- Dolomite Compartments



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