

# **Heritage Impact Assessment**

Heritage Impact Assessment for the Proposed Lichtenburg  
Solar Park north of Lichtenburg, North West Province.

## **Compiled for:**

Africa Geo-Environmental Services (AGES)

## **Survey conducted & Report compiled by:**

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## Executive Summary

**Site name and location:** Proposed development of the Lichtenburg Solar Park on a portion of Portion 10 of the Farm Lichtenburg Town and Townlands 27 IP north of Lichtenburg town in the North West Province.

**Local Authority:** Ngaka Modiri District Municipality.

**Developer:** Matrigenix (Pty) Ltd.

**Date of field work:** 09 May 2012.

**Date of report:** May 2012.

**Findings:** No site-specific actions or any further heritage mitigation measures are recommended as no heritage resource sites or finds of any value or significance were identified in the indicated study area. The proposed development of the Lichtenburg Solar Park at the indicated area can continue from a heritage point of view

**Disclaimer:** *Although all possible care is taken to identify all sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites and/or graves could be overlooked during the study. Hutten Heritage Consultants and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

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### **ADDENDUM A    Photographs**

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Photo 5: View of the Eskom Watershed substation.

Photo 6: View of the exposed banks of rock.

### **ADDENDUM B    Location Maps**

## **1. Introduction**

Hutten Heritage Consultants was contracted by Africa Geo-Environmental Services (AGES) to conduct a Heritage Impact Assessment (HIA) on the proposed development of the Lichtenburg Solar Park on a portion of Portion 10 of the farm Lichtenburg Town and Townlands 27 IP north of Lichtenburg town in the North West Province.

The aim of the study was to identify all heritage sites, to document and to assess their significance within Local, Provincial and National context. The report outlines the approach and methodology implemented before and during the survey, which includes in Phase 1: Information collection from various sources and social consultations; Phase 2: Physical surveying of the area on foot and by vehicle; and Phase 3: Reporting the outcome of the study.

This HIA forms part of the Environmental Impact Assessment (EIA) as required by various Acts and Laws as described under the next heading and is intended for submission to the provincial South African Heritage Resources Agency (SAHRA) for peer review.

Minimum standards for reports, site documentation and descriptions are set by the Association of Southern African Professional Archaeologists (ASAPA) in collaboration with SAHRA. ASAPA is a legal body representing professional archaeology in the Southern African Development Community (SADC) region. As a member of ASAPA, these standards are tried to be adhered to.

The extent of the proposed development sites were determined as well as the extent of the areas to be affected by secondary activities (access routes, construction camps, etc.) during the development.

## **2. Legislative Requirements**

The identification, evaluation and assessment of any cultural heritage site, artefact or find in the South African context is required and governed by the following legislation:

National Environmental Management Act (NEMA) Act 107 of 1998  
National Heritage Resources Act (NHRA) Act 25 of 1999  
Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002  
Development Facilitation Act (DFA) Act 67 of 1995

The following sections in each Act refer directly to the identification, evaluation and assessment of cultural heritage resources.

National Environmental Management Act (NEMA) Act 107 of 1998  
Basic Environmental Assessment (BEA) – Section (23)(2)(d)  
Environmental Scoping Report (ESR) – Section (29)(1)(d)  
Environmental Impacts Assessment (EIA) – Section (32)(2)(d)

Environmental Management Plan (EMP) – Section (34)(b)  
National Heritage Resources Act (NHRA) Act 25 of 1999  
Protection of Heritage resources – Sections 34 to 36; and  
Heritage Resources Management – Section 38  
Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002  
Section 39(3)  
Development Facilitation Act (DFA) Act 67 of 1995  
The GNR.1 of 7 January 2000: Regulations and rules in terms of the Development Facilitation Act, 1995. Section 31.

### **3. Proposed Project**

Matrigenix (Pty) Ltd has proposed the development of the Lichtenburg Solar Park on a portion of Portion 10 of the Farm Lichtenburg Town and Townlands 27 IP north of Lichtenburg town in the North West Province. This development will mainly be the establishment of a renewable energy generation facility (Photovoltaic Solar Facility). The generated energy (electricity) will be supplied to the existing Eskom or municipal grid.

After bush clearing, construction will concentrate on the erection of Photovoltaic panels which will be mounted on constructed foundations. The proposed facility shall make use of this photovoltaic technology with a total generating capacity of up to 70 MWp. The generated energy will be connected to the Eskom or municipal grid through the nearby Eskom Watershed Substation. Associated engineering infrastructure such as service roads, water and sewerage lines for administrative and accommodation areas and electrical lines will also be installed.

The facility will be located on a portion of Portion 10 of the Farm Lichtenburg Town and Townlands 27 IP, which measured approximately 273ha in size. The footprint of the proposed development will be up to 240ha of the area of 273ha. A new 132kV power line will connect the solar park to the existing Eskom network through the Eskom Watershed substation to the south of the study area. This power line will measure approximately 3160m in length.

The purpose of the study was to determine if the proposed area was suitable for the development of the Solar Park from a heritage point of view.

The project was tabled during April 2012 and the developer intends to commence as soon as possible after receipt of the ROD from the Department of Environmental Affairs.

### **4. Project Area Description**

The proposed development of the Lichtenburg Solar Park will be situated on a portion of Portion 10 of the Farm Lichtenburg Town and Townlands 27 IP north of Lichtenburg town, in the North West Province. The proposed property was approximately 273ha in size of which up to 240ha were earmarked for development (photo 1).

The proposed site was situated in the north-west corner of the Lichtenburg Game Breeding Centre to the north of the town of Lichtenburg (photo 2). The proposed area was bordered by agricultural farms on the western and northern sides (photo 3) and the remaining parts of the game breeding centre were on the eastern and southern sides. Existing power lines were situated on the western side of the proposed area (photo 4). These power lines were connected to the Eskom Watershed substation (photo 5) approximately 3000m to the south of the study area.

The property was relatively flat with sandy soils interspersed with exposed banks of rock (photo 6). The area was covered with grass with a few trees scattered over. It was used for game breeding purposes and breeding programmes with the Pretoria Zoo. A small track crossed the proposed area which was used by visitors for game viewing purposes (see maps).

The area was largely undisturbed except for the power lines on the western extent and the small track which crossed the area.

The proposed development will be situated on the Lichtenburg 2626 AA 1:50 000 topographical map (See Appendix B: Location Maps).

## **5. Archaeological History of the Area**

The examination of archival records, historical data and cartographic resources represents a critical additional tool for locating and identifying heritage resources and in determining the historical and cultural context of the study area. Therefore an internet literature search was conducted using JSTOR and Google Scholar and relevant archaeological and historical texts were also consulted. Relevant topographic maps and satellite imagery were studied. Researching the National Archive records as well as the SAHRA APM Report Mapping Project records, it was determined that three previous archaeological or historical studies had been performed within grid square Lichtenburg 2626AA:

Van Schalkwyk, J.A., de Jong, R.C. & Smith, S., 1995. **Reconnaissance of Remaining Cultural Resources in the Bakerville Diamond Fields.** An unpublished report by the National Cultural History Museum on file at SAHRA as 1995-SAHRA-0026.

Küsel U., 2008. **Cultural Heritage Resources Impact Assessment of Portion 151 of Lichtenburg Town and Townlands 27 IP (Lichtenburg Extension 10) North West Province.** An unpublished report by African Heritage Consultants CC on file at SAHRA as 2008-SAHRA-0361.

Van Schalkwyk, J.A., 2008. **Heritage Impact Report for the Proposed 88 kV Power Line from Watershed Substation, Lichtenburg, to the Mmabatho Substation, North West Gauteng Province.** An unpublished report by Heritage Consultants on file at SAHRA as 2008-SAHRA-0616.

The historical background and timeframe of the study area and other areas in Southern Africa can be divided into the Stone Age, Iron Age and Historical periods:

### **Stone Age sites**

The Stone Age is divided into the Early, Middle and Late Stone Age. The *Early Stone Age* (ESA) includes the period from 2.5 million years B.P. to 250 000 years B.P. and is associated with Australopithecines and early *Homo* species who practiced stone tool industries such as the Oldowan and Acheullian. The *Middle Stone Age* (MSA) covers various tool industries, for example the Howiesons Poort industry, in the period from 250 000 years B.P. to 25 000 years B.P. and is associated with archaic and modern *Homo sapiens*. The *Late Stone Age* (LSA) incorporates the period from 25 000 years B.P. up to the Iron Age and Historical Periods and contact between hunter-gatherers and Iron Age farmers or European colonists. This period is associated with modern humans and characterised by lithic tool industries such as Smithfield and Robberg.

Taung National Heritage Site approximately 300 km to the south of the study area yielded the first *Australopithecus africanus* skull, the Taung Child (Dart 1925). More recent surveys have documented Acheullian industries and continuity between ESA and MSA lithic technologies in the same area (Kuman 2001). Excavations at other well known sites in the wider region attest to further ESA occupation, for example at Makapansgat which provided evidence of long occupation, initially by *Australopithecus africanus* from approximately 3.3 million years B.P. (Bergh 1999).

The LSA is represented in the area by the site at Thaba Sione (and associated sites) to the west of Lichtenburg which appears to have been created by hunter-gatherers and, more recently, Tswana settlers in the 15<sup>th</sup> Century and used as a rain making site. The site has a lithic tool industry and 451 boulders engraved with imagery of animals, human figures and geometric shapes and is still used today as an ancestral site by the Zion Christian Church (Ouzman 1995). Another engraving site can be found at Bosworth, a Provincial Heritage Site, near Klerksdorp to the south-east of the study area (SAHRA 2007).

### **Iron Age**

The Iron Age incorporates the arrival and settlement of Bantu speaking people and overlaps the Pre-Historic and Historical Periods. It can be divided into three phases. The *Early Iron Age* includes the majority of the first millennium A.D. and is characterised by traditions such as Happy Rest and Silver Leaves. The *Middle Iron Age* spans the 10<sup>th</sup> to the 13<sup>th</sup> Centuries A.D. and includes such well known cultures as those at K2 and Mapungubwe. The *Late Iron Age* is taken to stretch from the 14<sup>th</sup> Century up to the colonial period and includes traditions such as Icon and Letaba.

The Early Iron Age is represented in the area by finds at Kruger Cave near Rustenburg and at Broederstroom near the Hartebeespoort Dam, both to the east of the study area and dating to circa 460 A.D. (Mason 1974). A survey of the Groot Marico area to the north of Lichtenburg documented more than 100 Late Iron Age sites adding to well known sites such as the stone-walled complexes of Buispoort and Braklaagte, the Mmakgame megasite, the 18<sup>th</sup> Century capital at Kaditshwene and the copper mines at Dwarsberg in



Madikwe Game Reserve. All of these sites are dated to between the 15<sup>th</sup> and 19<sup>th</sup> Centuries and record the arrival and development of the Early Moloko Sotho-Tswana speakers, initially characterised by dispersed settlement patterns and later, by the Late Moloko of the 17<sup>th</sup> Century, characterised by the aggregation of people into towns and the use of stone for building. The capital at Kaditshwene was destroyed during the *Difaqane* and the 1820's invasion by Mzilikazi's Ndebele possibly also saw the adoption of maize as a staple food by the Tswana in the west for the first time (Boeyens 2003).

### **Historical Period**

The beginning of the Historical Period overlaps the demise of the late Stone and Iron Ages and is characterised by the first written accounts of the region from 1600 A.D. Early explorers and missionaries visited or settled in the area, providing modern historians with early written accounts of pre-colonial society, including John Campbell who visited the baHurutshe of Kaditshwene in the 1820s and David Livingstone who established a mission station to the north of modern day Lichtenburg in 1843 ((Mbenga & Manson no date).

Lichtenburg, meaning 'town of light', was proclaimed in 1873 on a farm belonging to Voortrekker Hendrick Greef. The area at the time was characterised by conflict over land between white mercenaries and the BaRolong people led by Montshiwa and a number of skirmishes took place in the vicinity. The town is also famous as the residence of General Jacobus de la Rey who became the Assistant Commandant General of the Boer forces during the Anglo-Boer War and who later represented Lichtenburg in parliament. In 1901 General de la Rey unsuccessfully attacked the British forces in Lichtenburg (Mbenga & Manson no date). A statue of de la Rey by sculptor Hennie Potgieter was unveiled in the town in 1965 ((North West Parks and Tourism Board no date). The town of Mafikeng, located some 60 km to the north-west of Lichtenburg, was made famous during the Anglo-Boer War. During the siege of this town by Boer forces, Colonel Robert Baden-Powell first used boys as 'Scouts' to carry messages and assist in duties around the town and led to his forming the Scout Movement a few years after the war. The siege lasted 217 days from October 1899 to May 1900 and modern day Mafikeng has a number of famous buildings, forts, cemeteries, sites and monuments such as Cannon Kopje, Warren's Fort and the siege graves (Pakenham 1979). One of South Africa's most famous early black writers and politicians, Solomon Plaatje (later to become the first General Corresponding Secretary of the South African National Native Congress, forerunner to the African National Congress, on its establishment in 1912) was based in Mafikeng during the siege and kept a diary which presented the events from an African perspective (Comaroff 1973).

In 1926 the discovery of diamonds on the farm Elandsputte (now known as Uitgevonden 355 JP) led to one of the greatest diamond rushes in the country's history with the influx of more than a hundred thousand people to the area. Although 7 million carats of diamonds were recovered, by 1935 mining had pretty much come to an end. The remains of mining settlements in the vicinity of Lichtenburg are best preserved at Bakersville (named after one of the early diggers) approximately 20 km to the north of the town (Mbenga & Manson no date). The cattle dip at Elandsputte, 3 km to the north-east of

Bakersville, and dating from the time of the diamond rush is registered as a provincial heritage site (South African Heritage Resources Agency 2007). Some of the old diamond diggings around Lichtenburg itself are still visible in the near vicinity of the study area and are clearly indicated on the Lichtenburg 2626AA 1:50,000 series topographical map. The study area is located within the Lichtenburg Biodiversity Conservation Centre, formerly known as the Lichtenburg Game Breeding Centre. This 6000 hectare facility, established in 1974, is run by the National Zoological Gardens of South Africa and is used to accommodate and breed endangered mammals such as white rhinoceros, Pere David's deer, Cape mountain zebra and Arabian and scimitar-horned oryx (National Zoological Gardens no date).

## **6. Methodology**

### **Physical Survey**

The extent of the proposed development sites were determined as well as the extent of the areas to be affected by secondary activities (access route, construction camp, etc.) during the development.

The physical survey was conducted on foot over the entire area proposed for development. Priority was placed on the undisturbed areas. A systematic inspection of the area on foot along linear transects resulted in the maximum coverage of the proposed area. The survey was conducted on May 09, 2012 and was performed by M. Hutten and field worker T. Mulaudzi.

No sampling was done as no sites or finds of heritage significance were found.

### **Interviews**

The manager of the Game Breeding Centre, Mr. Thompson Phakalani was questioned during the survey and he indicated that he was not aware of any sites of heritage value or significance (such as graves) in the proposed area.

### **Restrictions**

Vegetation proved the major restriction in accessibility to some of the areas and also contributed to poor surface visibility after the spate of recent good rains.

### **Documentation**

All sites/findspots located during the foot surveys were briefly documented. The documentation included digital photographs and descriptions as to the nature and condition of the site and recovered materials. The sites/findspots were plotted using a Global Positioning System (GPS) (Garmin GPSmap 60CSx) and numbered accordingly.

## **7. Assessment Criteria**

This chapter describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The significance of archaeological and heritage sites were based on the following criteria:

- The unique nature of a site

- The amount/depth of the archaeological deposit and the range of features (stone walls, activity areas etc.)
- The wider historic, archaeological and geographic context of the site
- The preservation condition and integrity of the site
- The potential to answer present research questions.

### Site Significance

Site significance classification standards prescribed by the South African Heritage Resources Agency (2006) and approved by the Association for Southern African Professional Archaeologists (ASAPA) for the Southern African Development Community (SADC) region, were used for the purpose of this report.

<b><i>FIELD RATING</i></b>	<b><i>GRADE</i></b>	<b><i>SIGNIFICANCE</i></b>	<b><i>RECOMMENDED MITIGATION</i></b>
National Significance (NS)	Grade 1	-	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected (GP.A)	Grade A 4A	High / Medium Significance	Mitigation before destruction
Generally Protected (GP.B)	Grade B 4B	Medium Significance	Recording before destruction
Generally	Grade	Low Significance	Destruction

Protected (GP.C)	C	4C		
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**Impact Rating:**

**Low or No Significance:**

The constraint is absent, but in instances where present, poses a negligible significance on the proposed development in terms of heritage concerns.

**Moderate Significance:**

The constraint is present and poses a notable but not major significance on the proposed development in terms of heritage concerns. If the constraint can not be avoided, appropriate mitigation measures must be implemented to minimize the significance.

**High Significance:**

The constraint is present and poses a high significance on the proposed development in terms of heritage concerns. It is recommended that the constraint be avoided or appropriate mitigation measures must be implemented to minimize the significance.

**Certainty**

*DEFINITE:* More than 90% sure of a particular fact. Substantial supportive data exist to verify the assessment.

*PROBABLE:* Over 70% sure of a particular fact, or of the likelihood of an impact occurring.

*POSSIBLE:* Only over 40% sure of a particular fact, or of the likelihood of an impact occurring.

*UNSURE:* Less than 40% sure of a particular fact, or of the likelihood of an impact occurring.

**Duration**

*SHORT TERM:* 0 – 5 years

*MEDIUM:* 6 – 20 years

*LONG TERM:* more than 20 years

*DEMOLISHED:* site will be demolished or is already demolished

**Mitigation**

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be classified as follows:

- **A** – No further action necessary
- **B** – Mapping of the site and controlled sampling required
- **C** – Preserve site, or extensive data collection and mapping required; and
- **D** – Preserve site

## 8. Assessment of Sites and Finds

This section will contain the results of the heritage site/find assessment.

### Lichtenburg Solar Park

The proposed development of the Lichtenburg Solar Park will be situated on a portion of Portion 10 of the Farm Lichtenburg Town and Townlands 27 IP north of Lichtenburg town, in the North West Province. The proposed property was approximately 273ha in size of which up to 240ha were earmarked for development.

The property was relatively flat with sandy soils interspersed with exposed banks of rock. The area was covered with grass with a few trees scattered over. It was used for game breeding purposes and breeding programmes with the Pretoria Zoo. A small track crossed the proposed area which was used by visitors for game viewing purposes. The area was largely undisturbed except for the power lines on the western extent and the small track which crossed the area.

After intensive investigations, no sites or finds of any heritage value or potential were identified.

Field Rating:	None
Heritage Significance:	None
Impact:	None
Certainty:	None
Duration:	None
Mitigation:	A – No further action necessary

## 9. Recommendations

The following steps and measures are recommended regarding the investigated area:

### Lichtenburg Solar Park

- The proposed area to be developed was mostly undisturbed except for the power lines on the western extent and a small track which crossed the site.
- No further site-specific actions or any further heritage mitigation measures are recommended as no heritage resource sites or finds of any value or significance were identified in the indicated study area.
- The proposed development of the Lichtenburg Solar Park in the indicated area can continue from a heritage point of view.

## 10. References

Bergh, J.S. (Ed.), 1999. Geskiedenisatlas van Suid-Afrika: Die Vier Noordelike Provinsies. Pretoria: J.L. van Schaik.

Boeyens, J.C.A., 2003. The Late Iron Age Sequence in the Marico and Early Tswana History. The South African Archaeological Bulletin, Vol. 58, No. 178 (Dec., 2003), pp. 63-78.

Comaroff, J.L. (Ed), 1973. The Boer War Diary of Sol T. Plaatje. An African at Mafeking. London: Macmillan.

Dart, R.A., 1925. Australopithecus africanus: the man-ape of South Africa. Nature 115:195–199.

Kuman, K., 2001. An Acheulean Factory Site with Prepared Core Technology near Taung, South Africa. The South African Archaeological Bulletin, Vol. 56, No. 173/174 (Dec., 2001), pp. 8-22.

Mason, R.J., 1974. Background to the Transvaal Iron Age-new discoveries at Olifantspoort and Broederstroom. Journal of the South African Institute of Mining and Metallurgy. January 1974.

Mbenga, B & Manson A., (Eds), no date. A Historical Encyclopaedia of South Africa's North West Province its People, Places and Events. Available online at: <http://www.nwhist.co.za/>. Accessed 14<sup>th</sup> May 2012.

National Zoological Gardens, no date. Lichtenburg Biodiversity Conservation Centre: <http://www.nzg.ac.za/lichtenburg/index.php>. Accessed 14<sup>th</sup> May 2012.

North West Parks and Tourism Board, no date. Available online at: <http://www.tourismnorthwest.co.za/central/lichtenburg.html>. Accessed 14<sup>th</sup> May 2012.

Ouzman, S., 1995. Spiritual and Political Uses of a Rock Engraving Site and Its Imagery by San and Tswana-Speakers. The South African Archaeological Bulletin, Vol. 50, No. 161 (Jun., 1995), pp. 55-67.

Pakenham, T., 1979. The Boer War. Weidenfeld and Nicolson Limited, London.

South African Heritage Resources Agency, 2007. Heritage Sites and Register Sites. Available online at: <http://www.sahra.org.za/PHS%20and%20Register.pdf>. Accessed 14<sup>th</sup> May 2012.

South African Heritage Resources Agency, 2009. Archaeology and Palaeontology Report Mapping Project. DVD Version 1.0. Cape Town.

# **APPENDIX A**

# **Photographs**



Photo 1: General view of the proposed site from the north-west.



Photo 2: View of the entrance to the Game Breeding Centre.





Photo 3: View of the neighbouring farms.



Photo 4: View of the power lines on the western side.





Photo 5: View of the Eskom Watershed substation.

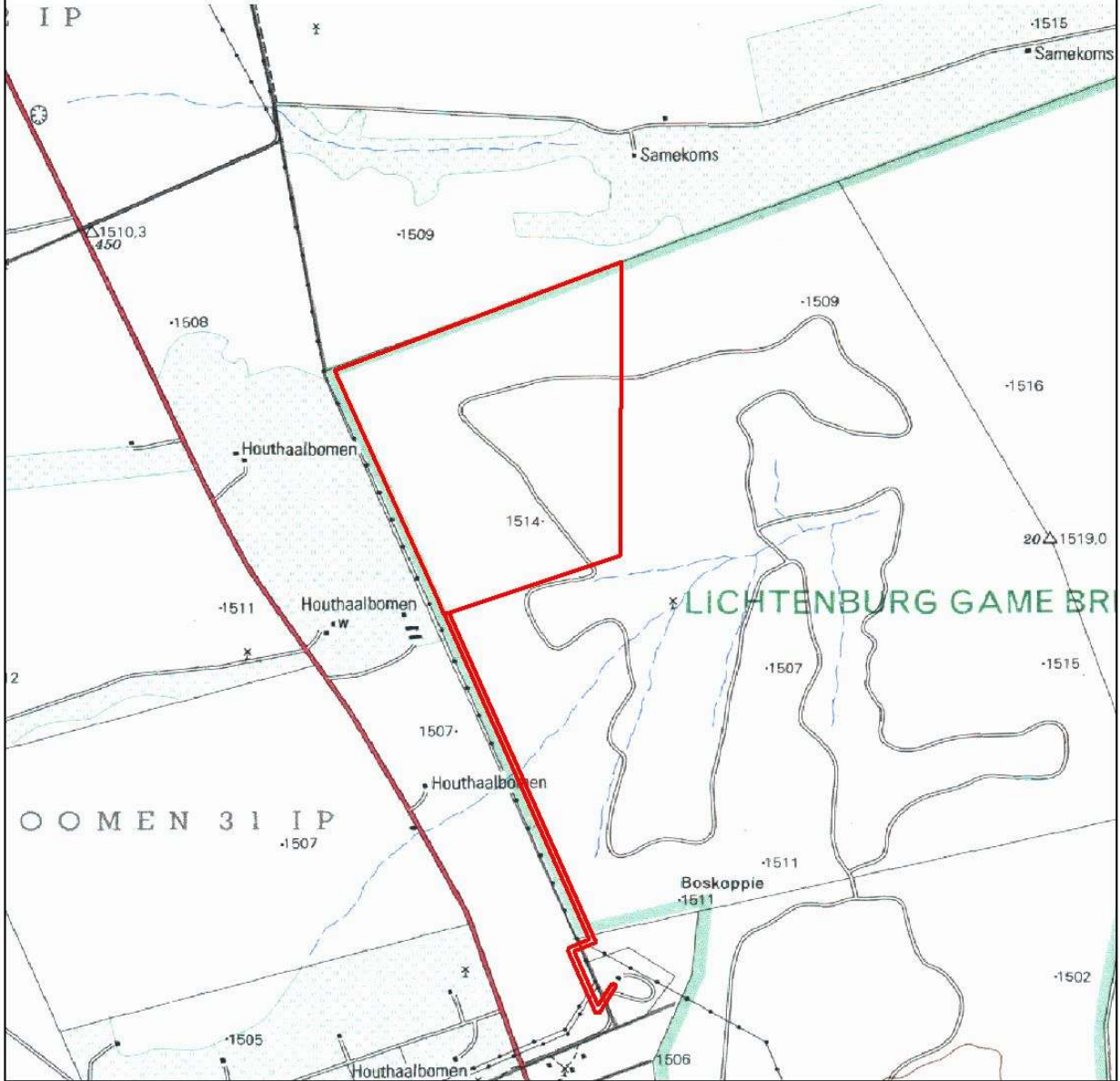


Photo 6: View of the exposed banks of rocks.

# **APPENDIX B**

## **Location Maps**

# Lichtenburg Solar Park



0 2 Kilometers

Scale: 1:25,000



Study Area

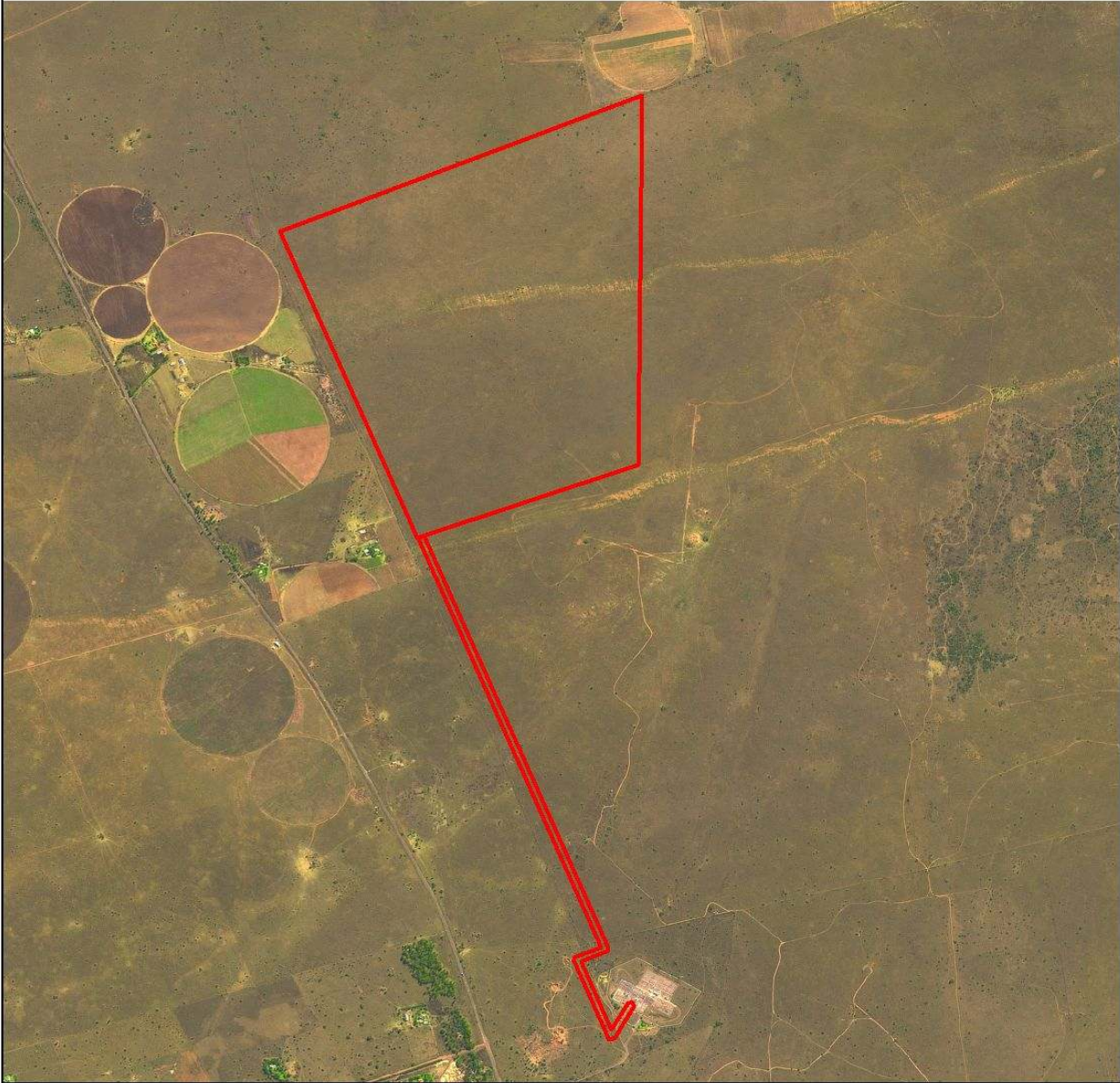
Map: 1:50,000 series Lichtenburg 2626AA



Datum: WGS 84


Property: Part of Portion 10 of the farm Lichtenburg Town and Townlands 27 IP and proposed corridor for a new power line



# Lichtenburg Solar Park



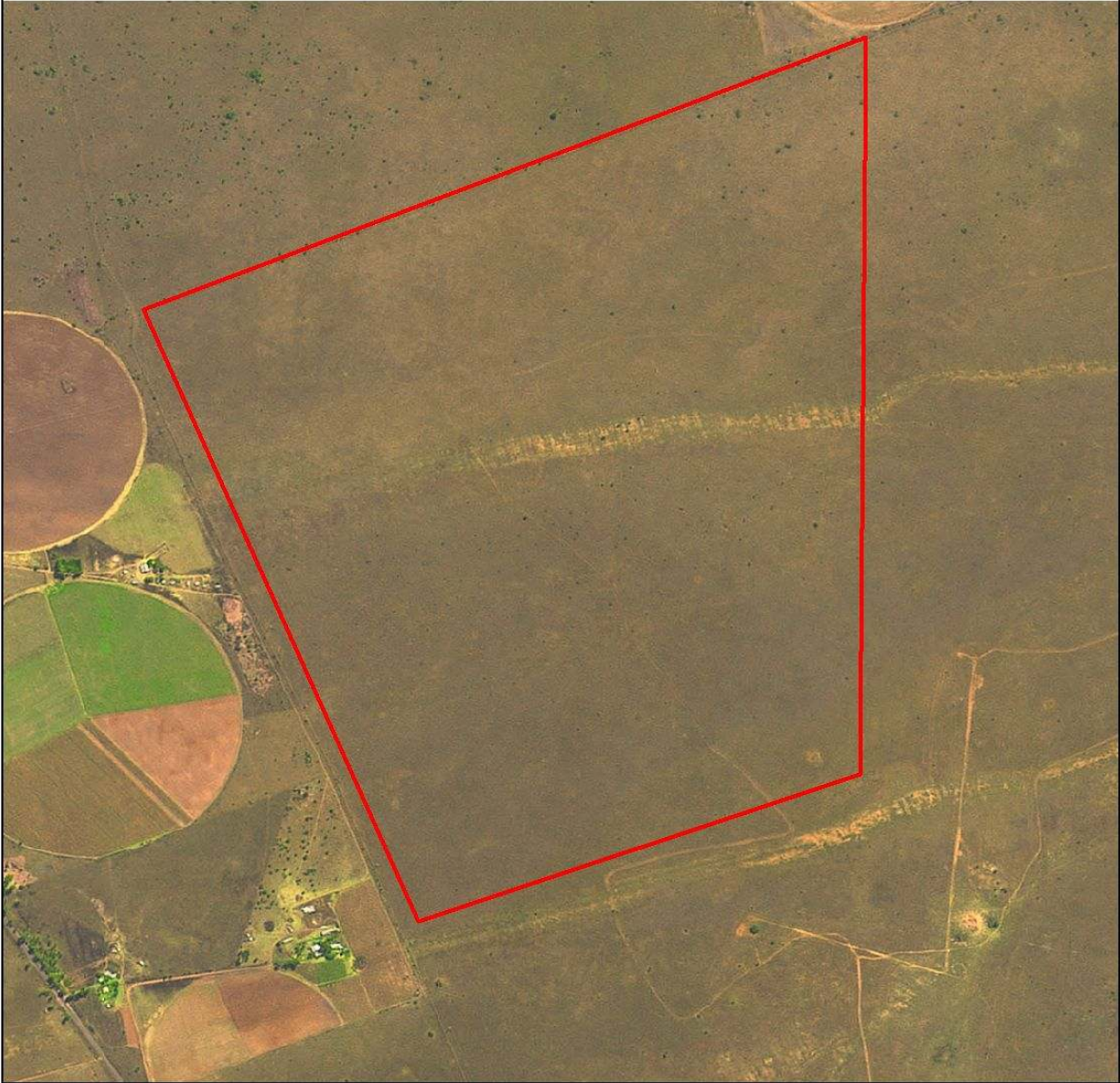
<p>0 <span style="margin-left: 150px;">2 Kilometers</span></p> 	<p>Scale: 1:20,000</p>	
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 Study Area
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Map: Spot 5 National Mosaic 2626A  
Datum: WGS 84  
Property: Part of Portion 10 of the farm Lichtenburg Town and Townlands 27 IP and proposed corridor for a new power line



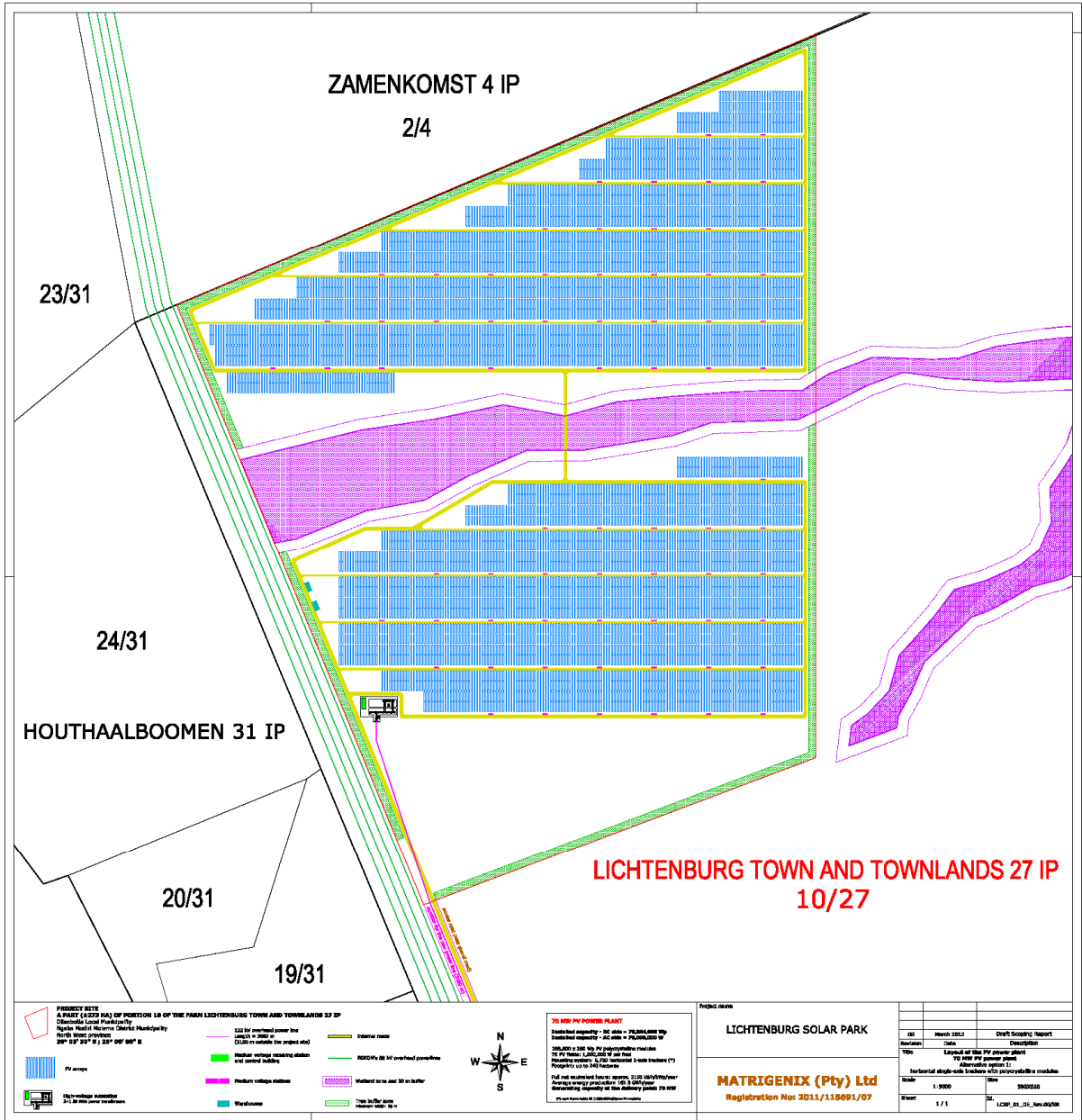
# Lichtenburg Solar Park (excluding proposed powerline)



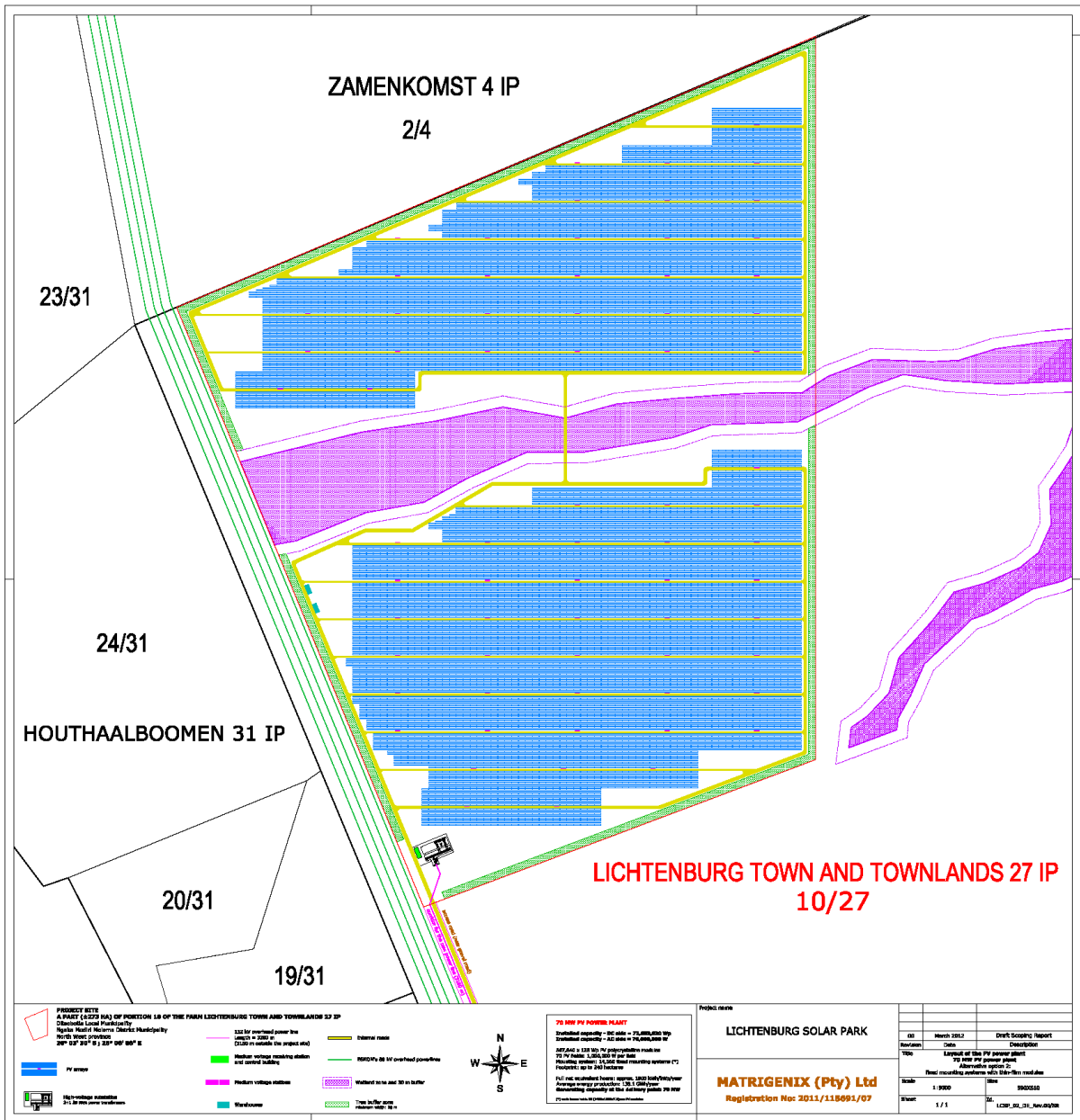
 <p>0 1 Kilometers</p>	<p>Scale: 1:10,000</p>	
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 <p>Study Area</p>
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Map: Spot 5 National Mosaic 2626A  
Datum: WGS 84  
Property: Part of Portion 10 of the farm Lichtenburg Town and Townlands 27 IP. Proposed powerline route not shown.



Lichtenburg Solar Park: Layout Option 1.



Lichtenburg Solar Park: Layout Option 2.