

Heritage Impact Assessment

Heritage Impact Assessment for the Proposed Carocraft
Solar Park east of Vryburg, North West Province.

Compiled for:

Africa Geo-Environmental Services (AGES)

Survey conducted & Report compiled by:

Marko Hutten

November 2012

Hutten Heritage Consultants
P.O. Box 4209
Louis Trichardt
0920
Tel: +27 76 038 4185
E-mail: marko.hutten@lantic.net

Acknowledgements:

CLIENT: Africa Geo-Environmental Services (AGES)

CONTACT PERSON: Mr. J. Botha
120 Marshall Street
Polokwane
0699
+27 (0) 15 291 1577
jbotha@ages-group.com

CONSULTANT: Hutten Heritage Consultants

CONTACT PERSON: Marko Hutten (BA Hons. Archaeology, UP)
Accredited Member of the Association of Southern African
Professional Archaeologists (#057)

REPORT AUTHOR: Marko Hutten

FIELD WORKER: Thomas Mulaudzi

SIGNED OFF BY: MARKO HUTTEN

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Executive Summary

Site name and location: Proposed development of the Carocraft Solar Park on the southern part of the Remainder Portion of the Farm Weltevrede 681 IN approximately 16km east of Vryburg in the North West Province.

Local Authority: Dr. Ruth Segomotsi District Municipality.

Developer: Carocraft (Pty) Ltd.

Date of field work: 05 November 2012.

Date of report: November 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 Carocraft 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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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 Carocraft Solar Park on the southern part of the Remainder Portion of the Farm Weltevrede 681 IN, approximately 16km east of Vryburg 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

Carocraft (Pty) Ltd has proposed the development of the Carocraft Solar Park on the southern part of the Remainder Portion of the Farm Weltevrede 681 IN, approximately 16km east of Vryburg 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 60 MWp. The generated energy will be connected to the Eskom grid through the nearby Eskom “Delareyville Munic/Vryburg 1” 88kV power line which crosses the proposed project site. This power line is also proposed to be upgraded in 2017. Associated engineering infrastructure such as service roads, water and sewerage lines for administrative and accommodation areas and electrical lines will also be installed.

The proposed facility will be located on the southern part of the Remainder Portion of the Farm Weltevrede 681 IN, which measured approximately 190ha in size. The footprint of the proposed development will be up to 175ha of the proposed area of 190ha.

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 October 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 Carocraft Solar Park will be situated on the southern part of the Remainder Portion of the Farm Weltevrede 681 IN, approximately 16km east of Vryburg town in the North West Province. The proposed development measured

approximately 175ha in size and will be situated on the southern side of the property which measured 519ha in total (map 1).

The proposed site was previously and presently used as a cattle grazing facility and was bordered with properties with the same intend (photo 1). The proposed site, however, was not intensely used as grazing area, as game were noted on the property as well as on neighbouring properties.

A windmill with cattle watering facilities (photo 2) were situated on the northern extent of the study area. The mentioned “Delareyville Munic/Vryburg 1” 88kV power line crosses the site near the northern extent from the east to the west (photo 3). This power line is proposed to be upgraded to a 132kV power line in 2017.

The property was relatively flat with sandy soils and with typical monotonous Kalahari/Karoo vegetation (photo 4). A small pan which didn’t hold any water at the time of the investigation was situated near the south-western corner of the property and study area (photo 5). The pan and its immediate surroundings will be excluded from the proposed development (see proposed plan). The proposed access route will be along the eastern boundary fence which will be along an existing boundary road.

The area was largely undisturbed except for the power line on the northern side and some of the tracks 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 SAHRIS online database (<http://www.sahra.org.za/sahris>) and the SAHRA APM Report Mapping Project records, it was determined that a number of previous archaeological or historical assessments had been performed within the wider area including:

Dreyer, C., 2007. **First Phase Archaeological and Cultural Heritage Assessment of the Proposed Garona-Mercury Transmission Power Line, Northern Cape, North-West Province & Free State.** An unpublished report on file at SAHRA: 2007-SAHRA-0052.

Dreyer, C., 2007. **First Phase Archaeological and Cultural Heritage Assessment of the Proposed Developments of a New Cemetery at Stella, North West Province.** An unpublished report on file at SAHRA: 2007-SAHRA-0279.

Coetzee, F.P., 2008. **Cultural Heritage Survey of the Proposed Kalplatz Mining Operations near Stella, North West Province.** An unpublished report on file at SAHRA: 2008-SAHRA-0038.

Van Schalkwyk, J., 2011. **Heritage impact assessment for the proposed development of photovoltaic power plants on five different locations in Northwest and Northern Cape Provinces.** Unpublished report available on the SAHRIS website at: <http://www.sahra.org.za/sahris>.

Van Schalkwyk, J., 2012. **Heritage impact assessment for the proposed development of photovoltaic power plants on four different locations in Northwest and Northern Cape Provinces.** Unpublished report available on the SAHRIS website at: <http://www.sahra.org.za/sahris>.

Van Schalkwyk, J., 2012. **Heritage impact assessment for the proposed development of a photovoltaic power plant on a portion of the farm Waterloo 992, Vryburg region, Northwest Province.** Unpublished report available on the SAHRIS website at: <http://www.sahra.org.za/sahris>.

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 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 wider 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 15th 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 (SAHRA 2007). The more immediate region was historically occupied by Korana people who left evidence of their presence in the form of rock paintings, the greatest density being in the Harts River valley to the south of the study area (Ouzman 2005) where famous paintings occur just to the north of Schweizer-Reneke (North West Parks and Tourism Board no date).

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 10th to the 13th 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 14th Century up to the colonial period and includes traditions such as Icon and Letaba.

The Early Iron Age is represented only in the wider area by sites such as Kruger Cave near Rustenburg and Broederstroom near the Hartebeespoort Dam, both to the east of the study area and dating to circa 460 A.D. (Mason 1974). The Late Iron Age is represented in the wider area, particularly to the north east where a survey of the Groot Marico area documented more than 100 sites adding to well known sites such as Buispoort, Braklaagte, the Mmakgame megasite, and Kaditshwene. These sites date to between the 15th and 19th Centuries, recording 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 17th 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 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). The town of Vryburg, a short distance to the south-west of the study area, became the capital of the Republic of Stellaland which was proclaimed in 1882, Vryburg attaining municipal status in 1896 (Van Schalkwyk 2012, North West Parks and Tourism Board, no date). Vryburg has a number of historical heritage sites including Tiger Kloof Missionary Station established in 1904 by the London Missionary Station to the south of the town, the Old Police Station and St Stephens Anglican Church all of which are listed as National Monuments and Provincial Heritage Sites (South African Heritage Resources Information System).

Other historical towns in the area include Wolmaransstad (est. 1891) to the east which was the site of early alluvial diamond diggings and of an early Wesleyan Mission Station; Schweizer-Reneke to the south whose name commemorates Captain Schweizer and Field-Cornet Reneke who were killed in a battle with the Korana in 1885; and Delareyville to the north-east, established in 1914 and named after General Jacobus de la Rey (North West Parks and Tourism Board, no date). General de la Rey became the Assistant Commandant General of the Boer forces during the Anglo-Boer War and later represented his home town of Lichtenburg (to the north of the study area) in parliament (Mbenga & Manson 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. 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 north of Lichtenburg 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 are best preserved at Bakersville (Mbenga & Manson 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 author and an experienced field worker, who did not have a GPS device with him, transected the study area in transects of approximately 50m -75m between them. The field work was conducted on November 05, 2012 and most of the day was spent on the survey, which was performed by M. Hutten and field worker T. Mulaudzi. The survey focused on the indicated study area as provided by the developer where the proposed development will be situated. Areas outside of the indicated study area were not surveyed.

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

Interviews

The owner of the farm Mr. Thinus Steyn was contacted and 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. He indicated that graves were present further to the north, well outside of the proposed area. These graves were not visited as they fell outside of the study 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 if any 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.

<i>FIELD RATING</i>	<i>GRADE</i>	<i>SIGNIFICANCE</i>	<i>RECOMMENDED MITIGATION</i>
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 A (GP.A)	Grade 4A	High / Medium Significance	Mitigation before destruction
Generally Protected B (GP.B)	Grade 4B	Medium Significance	Recording before destruction
Generally Protected C (GP.C)	Grade 4C	Low Significance	Destruction

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.

Carocraft Solar Park

The proposed development of the Carocraft Solar Park will be situated on the southern part of the Remainder Portion of the Farm Weltevrede 681 IN, approximately 16km east of Vryburg town in the North West Province. The proposed development measured approximately 175ha in size and will be situated on the southern side of the property which measured 519ha (map 1).

The proposed site was previously and presently used as a cattle grazing facility and was bordered with properties with the same intend. A windmill with cattle watering facilities were situated on the northern extent of the study area. The mentioned “Delareyville Munic/Vryburg 1” 88kV power line crosses the site near the northern extent from the east to the west.

The property was relatively flat with sandy soils and with typical monotonous Kalahari/Karoo vegetation. A small pan which didn’t hold any water at the time of the

investigation was situated near the south-western corner of the property and study area. The proposed access route will be along the eastern boundary fence which will be along an existing boundary road.

The area was largely undisturbed except for the power line on the northern side and some of the tracks 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:

Carocraft Solar Park

- The proposed area to be developed was mostly undisturbed except for the power line and cattle watering facilities near the northern extent and small tracks 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 Carocraft 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.
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APPENDIX A

Photographs



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



Photo 2: View of the windmill and animal watering facilities.



Photo 3: View of the power line which crossed the site.



Photo 4: General view of the site and the vegetation.

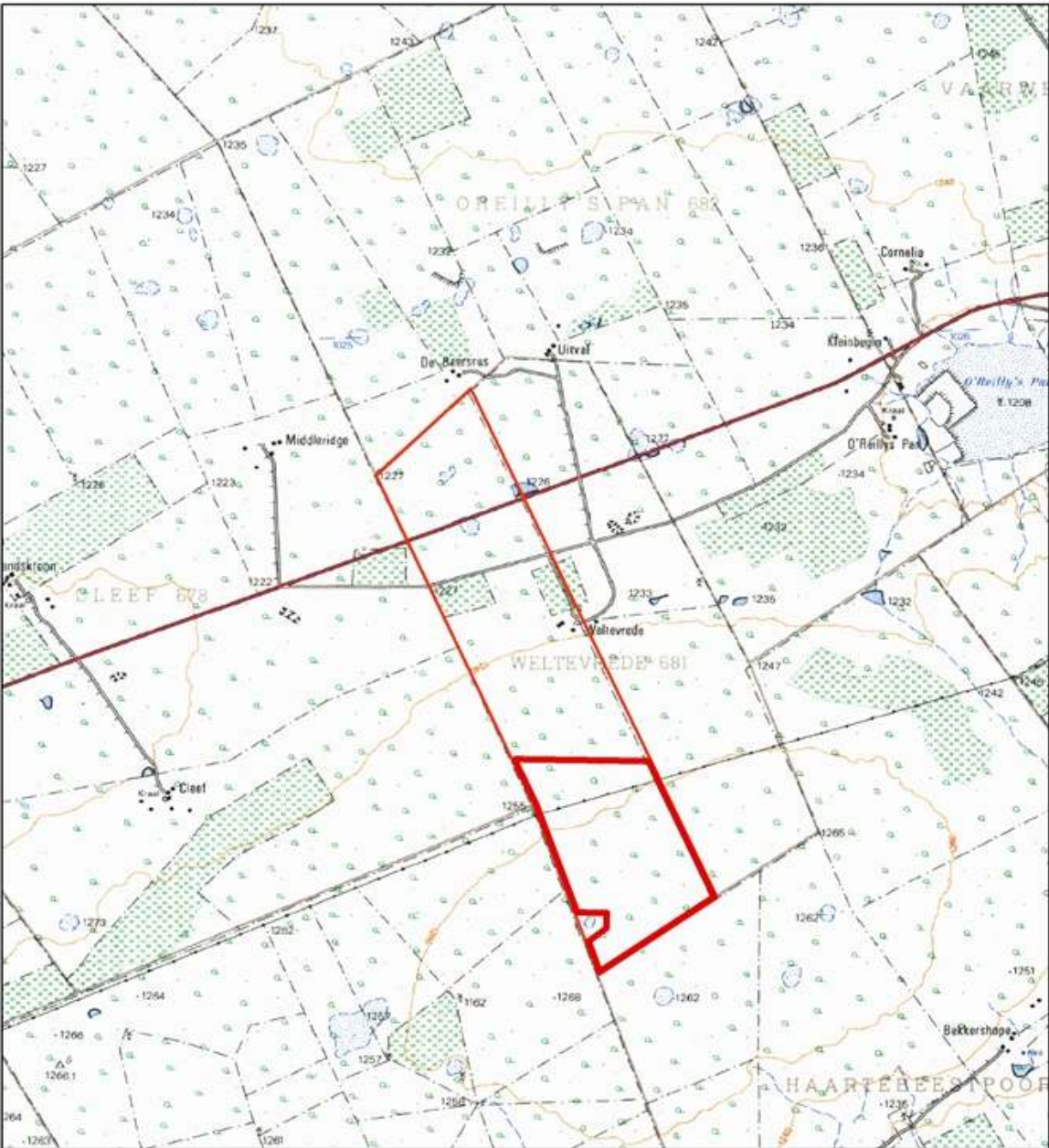


Photo 5: View of the small pan near the south-western corner of the property.

APPENDIX B

Location Maps

Carocraft Solar Park



1:50,000



- Study area
■ Remainder Portion of Weltevrede 681 IN

Image: WGS2624DD
Source: National Geospatial Institute
Datum: WGS84
Study Area: Part of Remainder Portion of the Farm
Weltevrede 681 IN

Carocraft Solar Park



0 2 4 Kilometres

1:50,000



Study area
Remainder Portion of Weltevrede 681 IN

Image: Spot 5 National Mosaic 2624D
Source: National Geospatial Institute
Datum: WGS84
Study Area: Part of Remainder Portion of the Farm
Weltevrede 681 IN

Carocraft Solar Park



0 0.5 1 Kilometres

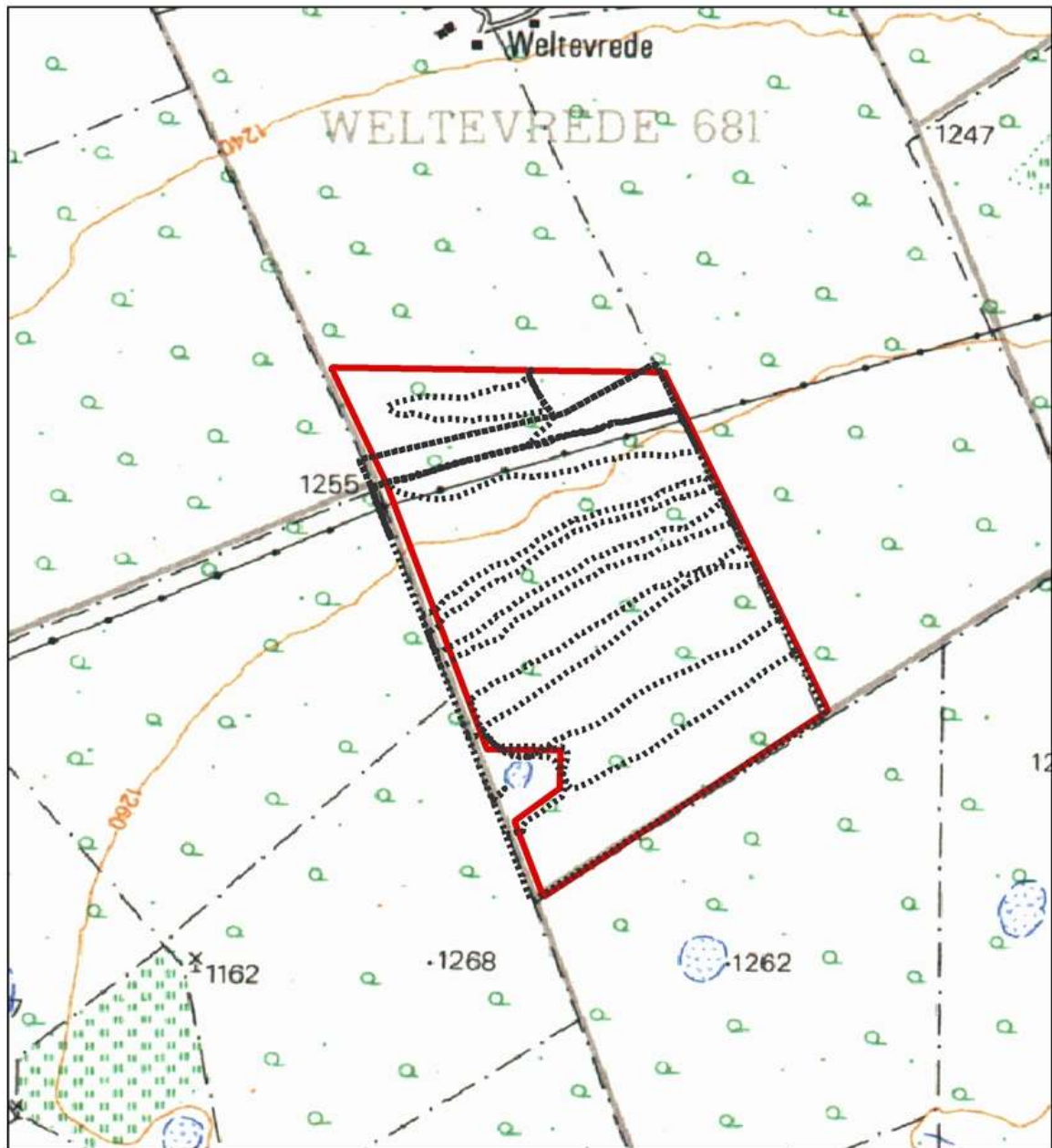
1:25,000



- Study area
- Remainder Portion of Weltevrede 681 IN

Image: Spot 5 National Mosaic 2624D
Source: National Geospatial Institute
Datum: WGS84
Study Area: Part of Remainder Portion of the Farm
Weltevrede 681 IN

Carocraft Solar Park Study area with survey track log



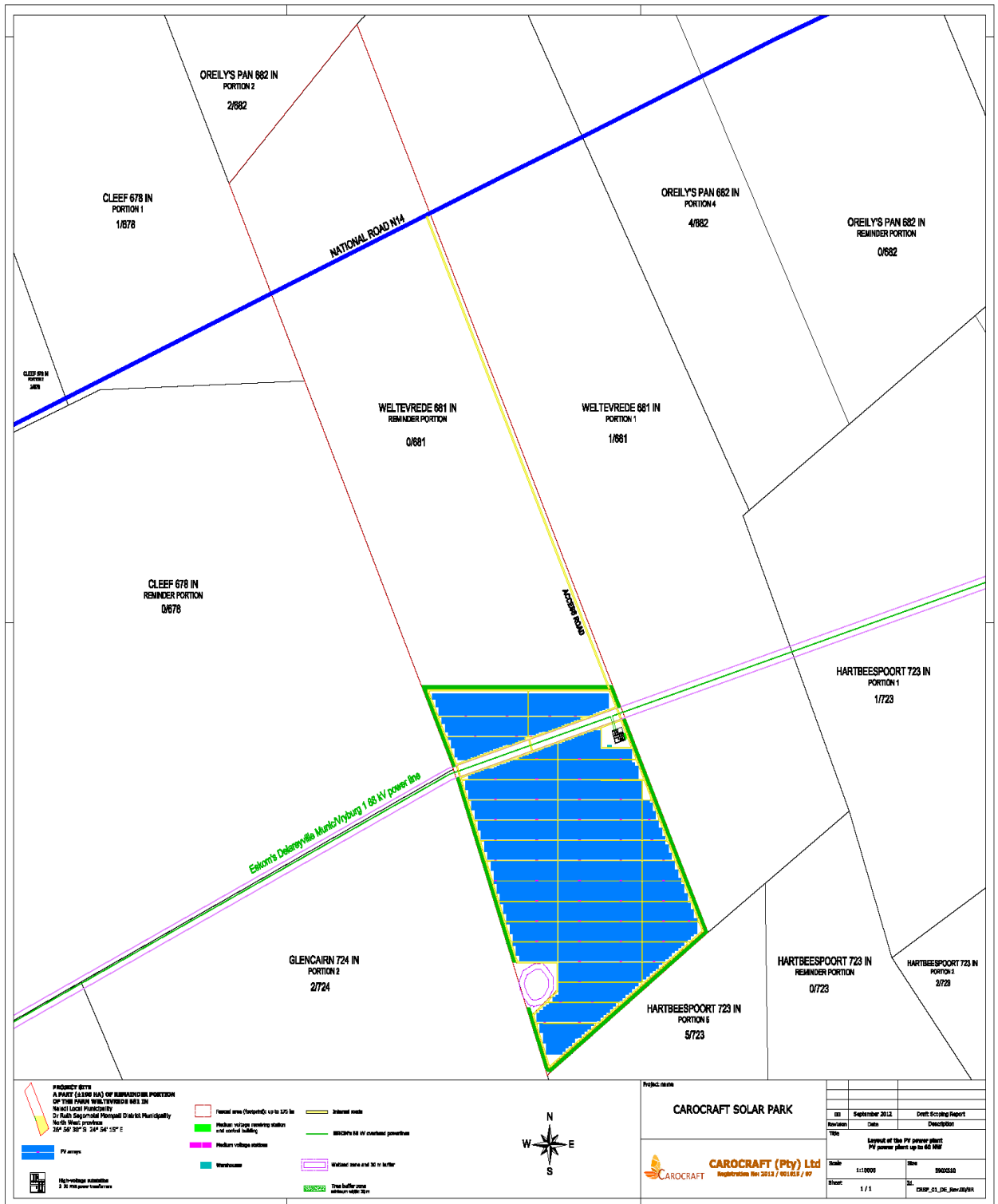
0 0.5 1
Kilometres

1:20,000



- Study area
- Survey track log

Image: WGS2624DD
Source: National Geospatial Institute
Datum: WGS84
Study Area: Part of Remainder Portion of the Farm
Weltevrede 681 IN



Carocraft Solar Park: Layout Option.