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Heritage Impact Assessment

Heritage Impact Assessment for the Proposed Ariosmart
Solar Park in Brits Extension 65, North West Province.

Compiled for:

Africa Geo-Environmental Services (AGES)

Survey conducted & Report compiled by:

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February 2012

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Executive Summary

Site name and location: Proposed development of the Ariosmart Solar Park on erven 3128, 3129, 3130, 3131, 3132, 3133, 3134, 3135, 3136, 3137 (**3128-3137**) and 3143, 3144, 3145, 3146, 3147, 3148, 3149, 3150, 3151, 3152, 3153 (**3143-3153**) and 3156, 3157, 3158, 3159, 3160, 3161, 3162, 3163, 3164 (**3156-3164**) and part of internal roads between the proposed erven to be closed in Brits Extension 65 in the North West Province.

Local Authority: Bojanala District Municipality.

Developer: Ariosmart (Pty) Ltd.

Date of field work: 13 February 2012.

Date of report: February 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 Ariosmart 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 Ariosmart Solar Park on erven 3128-3137 and 3143-3153 and 3156-3164 and part of internal roads between the proposed erven to be closed in Brits Extension 65, 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

Ariosmart (Pty) Ltd has proposed the development of the Ariosmart Solar Park on erven 3128-3137 and 3143-3153 and 3156-3164 and part of internal roads between the proposed erven to be closed in Brits Extension 65, 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 8 MWp. The generated energy will be connected to the Eskom or municipal grid through the nearby Eskom Brits Industries 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 erven 3128-3137 and 3143-3153 and 3156-3164 and part of internal roads between the proposed erven to be closed in Brits Extension 65, which measured approximately 19ha in size. Two sections of power lines or underground cables will connect the solar park to the existing Eskom network. These power lines or cables will measure approximately 650m 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 January 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 Ariosmart Solar Park will be situated on erven 3128-3137 and 3143-3153 and 3156-3164 and part of internal roads between the proposed erven to be closed in Brits Extension 65, in the North West Province. The proposed properties were approximately 19ha in size of which most of the area was earmarked for development (photo 1).

The properties were situated in Brits Extension 65 which formed part of the industrial district of the town of Brits. Existing industries were situated on the eastern side of the proposed properties (photo 2). A railway line bordered the properties on the northern side (photo 3). The two sections of power lines/cables which will measure approximately 650m and connect the solar park to the existing Eskom Brits Industries Substation and

network on the other side of this railway line. A disused railway line also bordered the properties on the northern side (photo 4). This railway line was indicated on the 1943 Edition Topographic map (2527 DB), but this section was replaced by the new line next to it. The R566 tar road bordered the site on the southern side (photo 5).

The property was previously exposed to intensive agricultural activities and most of it was bush cleared in order to open fields for ploughing (photo 1 and topographical maps). Currently the properties are not being farmed and are being earmarked to be developed as part of the industrial district.

Most of the property was relatively flat and consisted of turf soils.

The proposed development will be situated on the Brits 2527 DB 1:50 000 topographical map (See Appendix B: Location Maps).

5. Archaeological History of the Area

As heritage surveys deal with the locating of heritage resources in a prescribed cartographic landscape, the study of archival and historical data and cartographic information can represent a very valuable supporting tool in finding and identifying such heritage resources.

The first edition of Brits 2527 DB topographical map (1943) and the second edition of Brits 2527 DB topographical map (1968) were also consulted. Both these maps indicated that the proposed area was previously exposed to agricultural activities. It also indicated that the proposed site bordered a water canal on the north-western side which was already present on the 1943 map (See Appendix B: Location Maps).

After researching the National Archive records as well as the SAHRA records it was determined that previous archaeological or historical studies have been performed in the demarcated study area or nearby areas.

A report by Dr. J.C.C. Pistorius:

- Pistorius, J.C.C. 2007. **A Phase 1 Heritage Impact Assessment (HIA) study for Eskom's Proposed New 400kV Power Line Route Between the Matimba B Power Station and the Marang Substation near Rustenburg.** (Unpublished report),

was consulted during this study. This report commented on cultural heritage finds and sites identified during the Heritage Impact Assessments performed for the nearby and relative power lines and substations. These sites, however, will not be affected by the proposed development of the Solar Park. No other sites or finds of heritage value or significance were mentioned in this report regarding the study area.

The geographical area surrounding the town of Brits is well known for its archaeological sites dating to the Stone Age, Iron Age and Historical Age. These sites will be discussed briefly in order to provide the reader with background knowledge of the archaeological history of the immediate area surrounding Brits. 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 period. These can be divided as follows:

Stone Age

The Stone Age is divided into the Early; Middle and Late Stone Age and refers to the earliest people of Southern Africa who mainly relied on stone for their tools.

Early Stone Age: The period from ± 2.5 million years to $\pm 250\,000$ years ago. This period is associated with Australopithecines and other early *Homo* species. (e.g. Oldowan and Acheullian stone tool industries).

Middle Stone Age: Various lithic industries in SA dating from $\pm 250\,000$ yrs – 25 000 yrs before present. This period is first associated with archaic *Homo sapiens* and later *Homo sapiens sapiens*. (e.g. Howiesons Poort stone tool industry).

Late Stone Age: The period from $\pm 25\,000$ -yrs before present to the period of contact with either Iron Age farmers or European colonists. This period is associated with *Homo sapiens sapiens*. (e.g. Smithfield, Wilton, Robberg stone tool industries).

Several Stone Age sites have been identified just south of the town of Brits in the North West Province. These sites are mainly concentrated around the Magalies Mountains and fall within the Magaliesberg Research Area (Berg, 1999). At least nine sites have been identified in the area and include the following;

Rissik

This is a post-Wilton (Late Stone Age) open air site with a high proportion of formal tools and cores that might have been used by the San as an aggregation camp (Wadley, 1989).

Jubilee Shelter

This is a small shelter situated on the northern slope of the Magalies Mountains in a valley. This site presented assemblages dating to the Middle Stone Age as well as the Late Stone Age, specifically the Wilton Complex (Turner, 1986; Wadley, 1986).

Cave James, Elizabeth Shelter, Kloofdal Shelter and Hope Hill Shelter

These Stone Age sites are located close to Jubilee Shelter also in the area known as the Magaliesberg Research Area (Wadley, 1986). Cave James represents a Late Stone Age site that saw seasonal occupation. This site presented with casual style stone tool assemblages (Wadley, 1989). Elizabeth Shelter, Hope Hill and Kloofdal Shelter represented Late Stone Age dispersal sites (Wadley, 1989).

Three more Stone Age sites are located within the Magalies Mountains and surrounding areas and include **Silkaatsnek, Serpent Quarry and Xanadu** (Berg, 1999).

Rock Art sites:

There are also several rock art sites in and around the Magalies Mountain Range. San rock engravings dating to the Late Stone Age (Van Riet Lowe, 1945) and Bantu Rock engravings dating to the Early and Late Iron Age (Steel, 1988) have been identified in the

geographical areas situated between Rustenburg and Brits. One rock painting site was also identified near the confluence of the Crocodile and Elands Rivers (Berg, 1999).

Iron Age

The Iron Age as a whole represents the spread of Bantu speaking people and includes both the Pre-Historic and Historic Periods. Similar to the Stone Age it can be divided into three periods:

The Early Iron Age (EIA): Most of the first millennium AD. (e.g. Happy Rest, Silver Leaves).

The Middle Iron Age (MIA): 10th to 13th centuries AD. (e.g. K2, Mapungubwe, Thavhatsena).

The Late Iron Age (LIA): 14th century to colonial period. (e.g. Icon, Letaba, Mutamba).

Several Early Iron Age sites could be identified in the area surrounding Brits. These sites represent two pottery traditions. The oldest tradition dates back to AD 150 – AD 650 and is represented by the Bambata facies associated with the Kulundu tradition (Huffman, 2007). Sites like Jubilee Shelter presented with Bambata pottery. The second EIA tradition dates to AD 450 – AD 750 and is represented by the Mzonjani facies of the Urewe tradition (Huffman, 2007). Broederstroom, situated to the south-west of Brits next to the Crocodile River presented with Mzonjani style pottery (Berg, 1999; Huffman, 2007).

The only pottery tradition associated with the Middle Iron Age that could be identified in area dates to AD 1000 – AD 1300 and represents the Eiland facies of the Kulundu tradition (Huffman, 2007).

Several Late Iron Age sites could however be identified in the areas surrounding the town of Brits. These include sites dating to AD 1500 – AD 1700 represented by the Olifantspoort and Madikwe facies of the Urewe tradition (Huffman, 2007). Other LIA sites in the area date to AD 1650 – AD 1840 and include the Uitkomst, Rooiberg, and Buispoort facies of the Urewe tradition (Huffman, 2007).

From AD 1600 to AD 1800 various Sotho-Tswana speaking communities settled in and around the area of Brits (Berg, 1999; Pistorius, 2009). These communities included the Kwena, Kgatla, Fokeng and Po and had small farm style settlements throughout the area (Berg, 1999). The Fokeng was very active in this area during the early 19th century and also built their capital, Phokeng, just north-west of where Brits is situated today.

Various Sotho-Tswana sites in the district of Brits have been excavated and yielded faunal remains. These sites include Boitsemagano, Molokwane and Mabjanamatshwana (Plug and Baderhorst, 2006). Rescue excavations in the vicinity of Brits have also yielded graves associated with Sotho-Tswana speaking communities. These include Hoekfontein (Nienaber and Steyn, 2005) and Malle (Pistorius *et. al*, 2002).

During the *difaqane/mfecane* ('wandering hordes') (Huffman, 2007) specifically from AD 1827 to AD 1832, various Ndebele communities fled north and settled in the areas surrounding Brits (especially towards the Magalies Mountains) (Berg, 1999).

Historic Period

The Historic Period intermingles with the later parts of the Stone and Iron Age, and can loosely be regarded as times when written and oral recounts of incidents became available. It also refers to the period of colonial expansion and settlement.

17th Century to present AD (1600 – 2000).

The first European colonialists to move into the area were two Scottish explorers, Robert Schoon and William McLuckie (Berg, 1999). In 1829 they travelled north as far as the Northern slopes of the Magalies Mountains. They were eventually followed by the first Voortrekkers (trek boers) who settled in the area surrounding the Magalies Mountains in the mid 1800s. The first farm in the area of Brits was allocated in 1839 and was called Soutpansdrift (Berg, 1999). In 1851 this area became part of the larger Rustenburg District and in 1928 the town of Brits was established (Berg, 1999).

No major historical sites could be identified in the vicinity of Brits, however, this area saw several skirmishes during the mid and late 1800s. The first of these skirmishes occurred during the settlement of the Voortrekkers in the area and was mainly between the Voortrekkers and Ndebele (Berg, 1999). During the second Anglo-Boer War (1899-1902) this area again saw various troop movements from both Boer and British troops (Berg, 1999). Small skirmish battlefield sites may therefore occur in the vicinity of Brits. Rescue excavations in the area also revealed an early 20th century cemetery at Maroelabult (Steyn, *et. al.*, 2002).

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 February 13, 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

Passersby (people working in the area) were casually questioned during the survey and they indicated that they were 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.

<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	Grade 3A	High Significance	Conservation; Mitigation not

(LS)			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

<i>SHORT TERM:</i>	0 – 5 years
<i>MEDIUM:</i>	6 – 20 years
<i>LONG TERM:</i>	more than 20 years
<i>DEMOLISHED:</i>	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.

Ariosmart Solar Park

The proposed development of the Ariosmart Solar Park will be situated on erven 3128-3137 and 3143-3153 and 3156-3164 and part of internal roads between the proposed erven to be closed in Brits Extension 65, in the North West Province. The proposed properties were approximately 19ha in size of which most of the area was earmarked for development.

The properties were situated in Brits Extension 65 which formed part of the industrial district of the town of Brits. The properties were previously exposed to intensive agricultural activities and most of it was bush cleared in order to open fields for ploughing. Currently the properties are not being farmed and are being earmarked to be developed as part of the industrial district.

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:

Ariosmart Solar Park

- The proposed area to be developed was mostly disturbed due to previous intensive agricultural activities such as ploughing and planting of crops.
 - 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 Ariosmart Solar Park in the indicated area can continue from a heritage point of view.
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APPENDIX A

Photographs



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



Photo 2: View of the existing industries to the east.

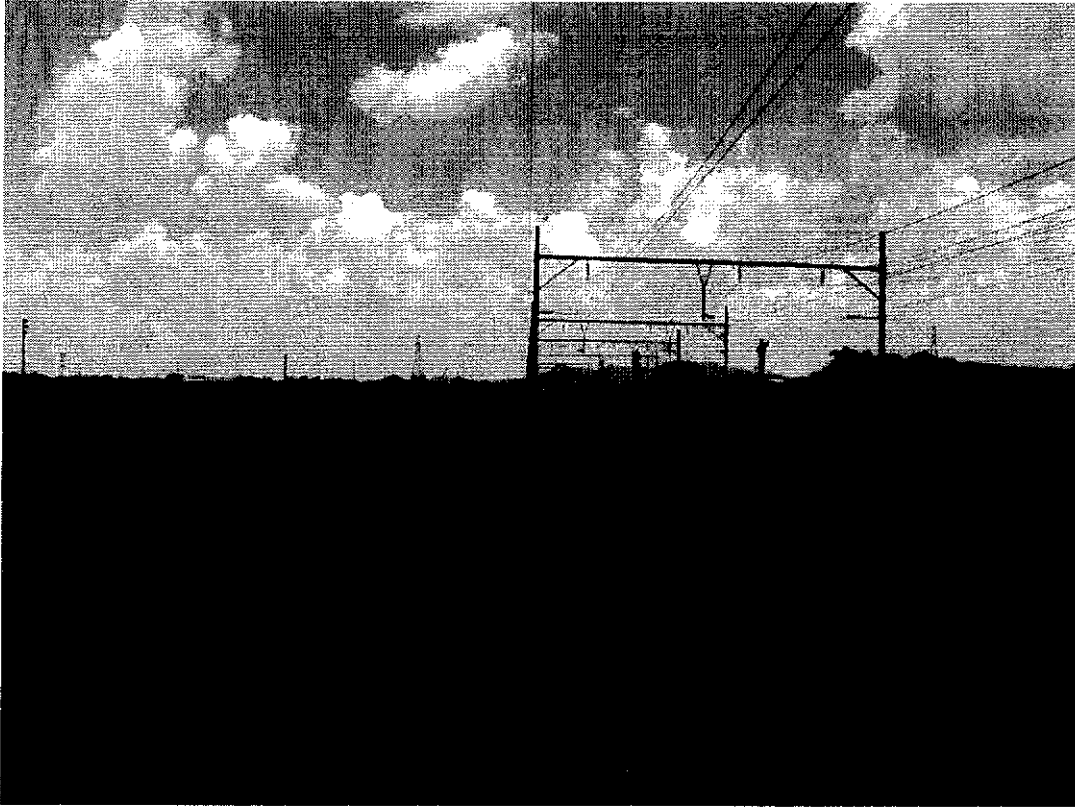


Photo 3: View of the railway line on the northern side.



Photo 4: View of the disused railway line on the northern side.

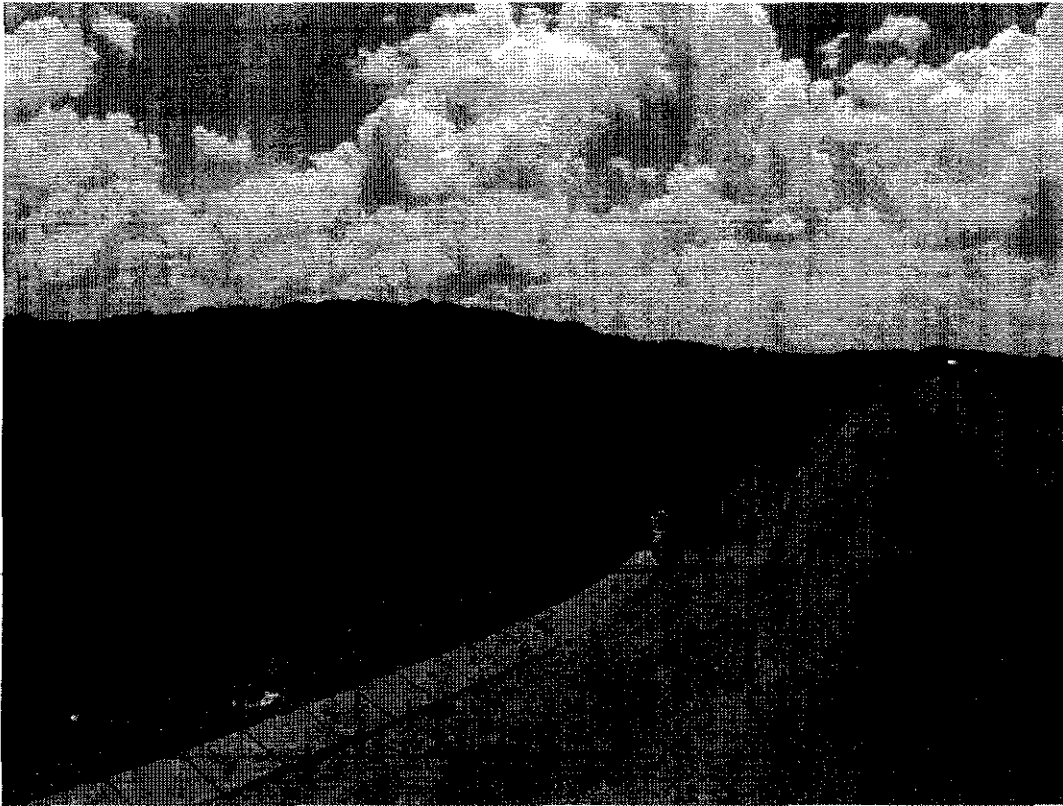
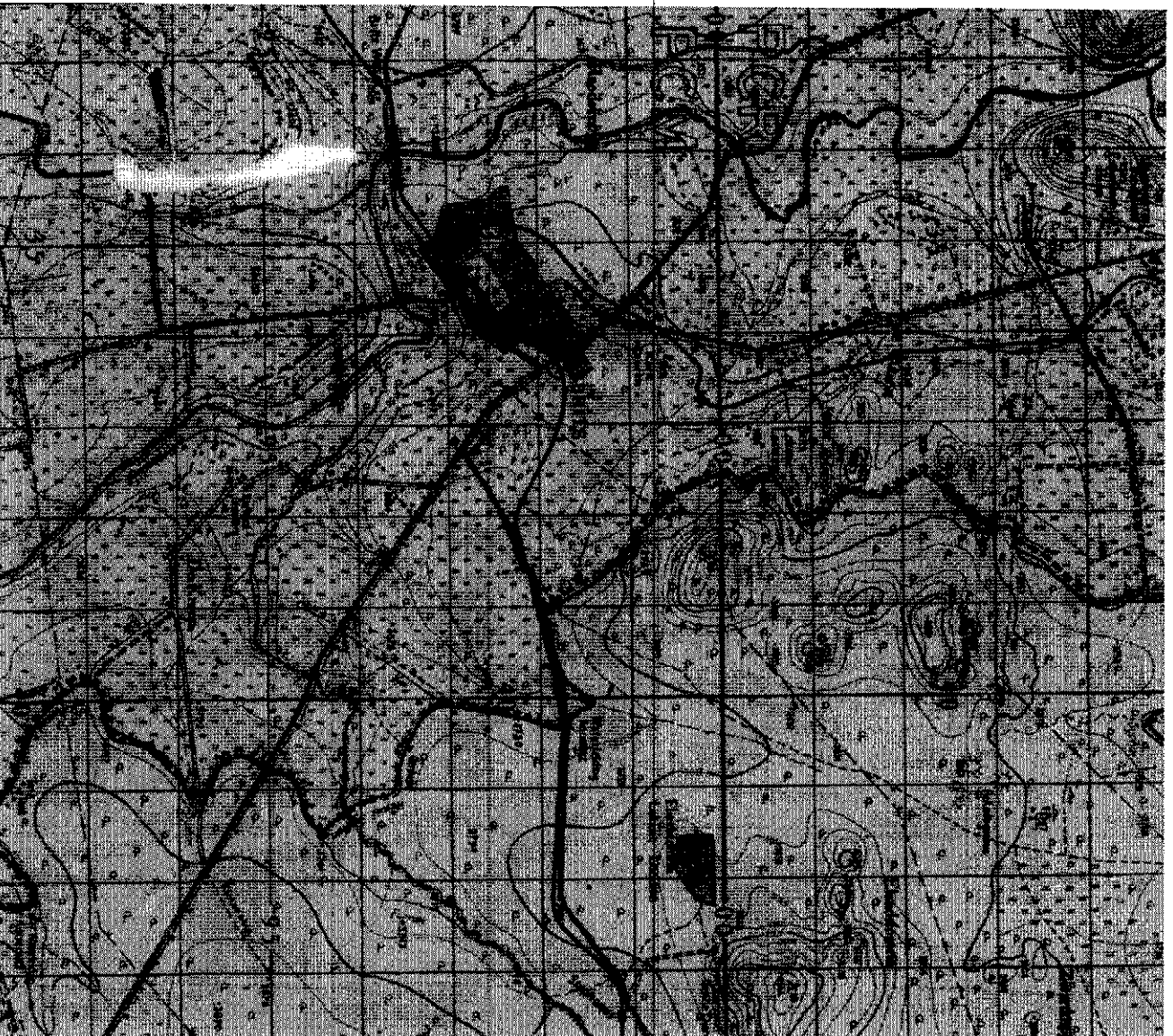


Photo 5: View of the R566 tar road on the southern side.

APPENDIX B

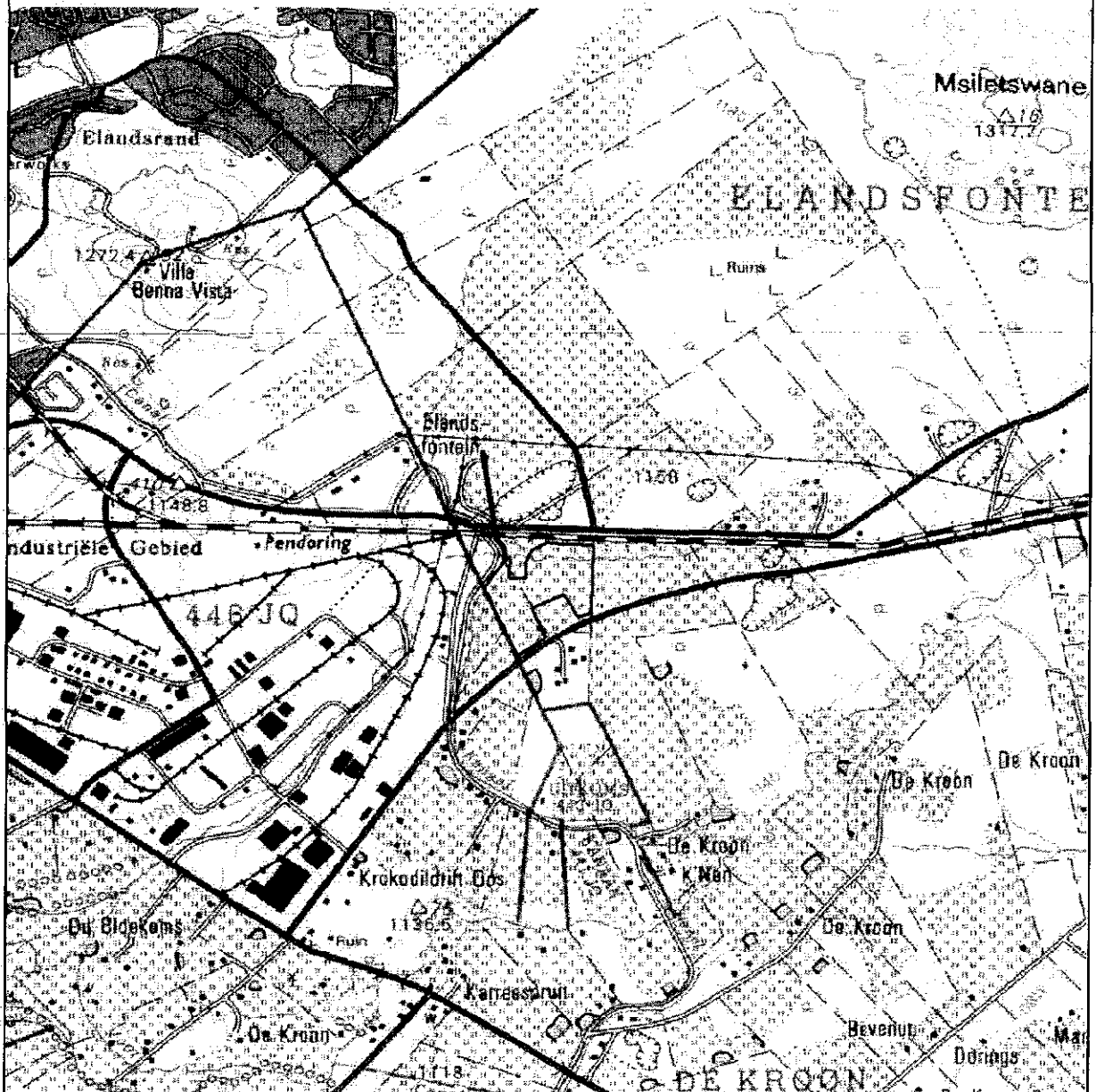
Location Maps



2527 DB Topographic Map, First Edition; Surveyed and drawn in 1943.


Ariosmart Solar Park

1:50 000 Series, Brits 2527 DB

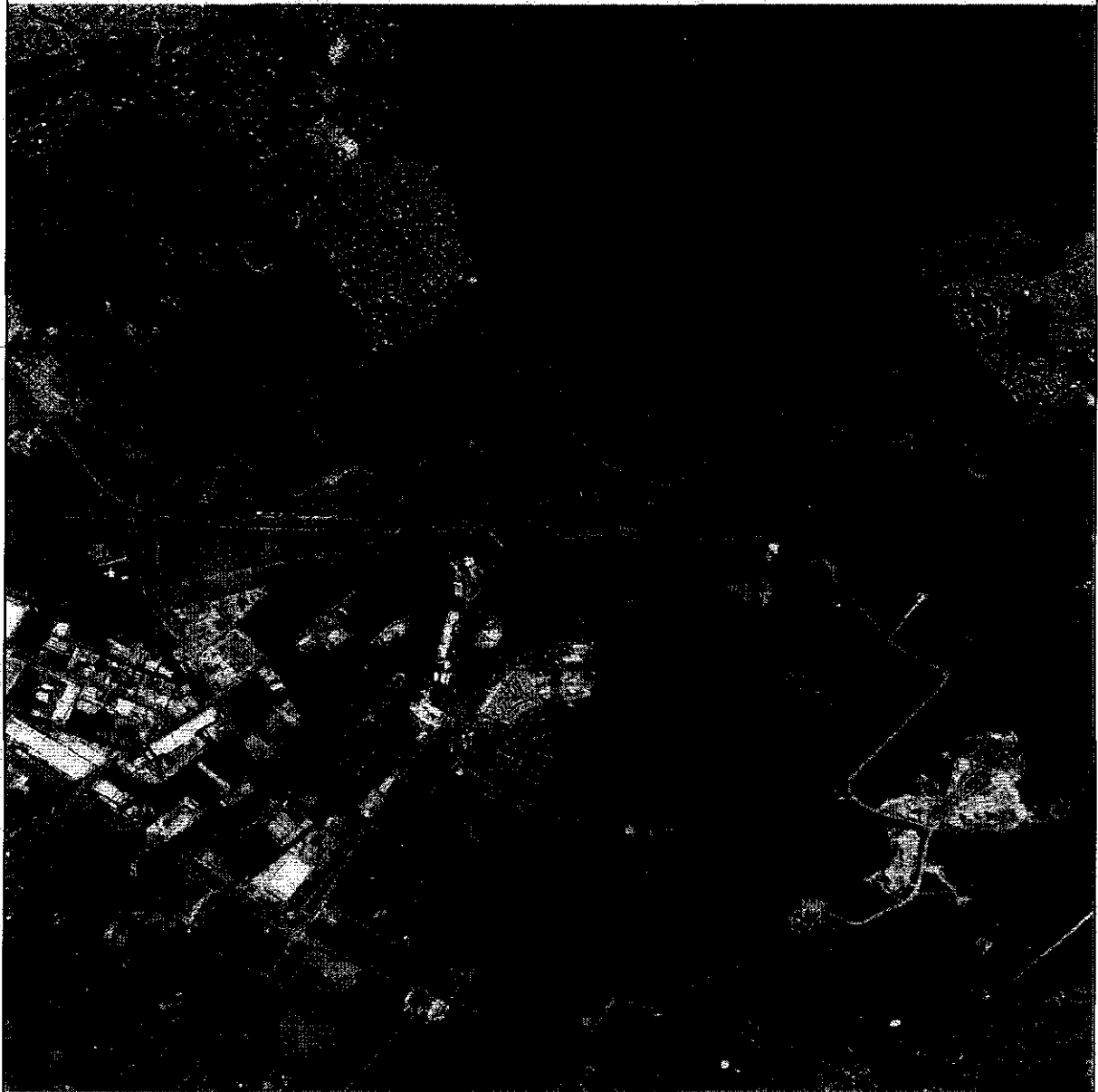


Scale
1:20 000



 Study Area

Ariosmart Solar Park
Spot 5 National Mosaic 2527 D



0 1 2 Kilometers



Scale:
1:20 000



Study Area

Ariosmart Solar Park
Spot 5 National Mosaic 2527 D



0 0.5 Kilometers

Scale
1:5 000



Study Area

