

# **Heritage Impact Assessment**

Heritage Impact Assessment for the Proposed Extended  
Delta Solar Park west of Lephalale, Limpopo Province.

## **Compiled for:**

Africa Geo-Environmental Services (AGES)

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

Marko Hutten

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### **DECLARATION OF INDEPENDENCE:**

The report has been compiled by Hutten Heritage Consultants, an appointed Heritage Specialist for Africa Geo-Environmental Services (AGES). The views stipulated in this report are purely objective and no other interests are displayed during the decision making processes discussed in this document.

### **SIGNED OFF:**



Marko Hutten

# Executive Summary

**Site name and location:** Proposed development of the extended Delta Solar Park on Portion 1 of the farm Geelhoutskloof 359 LQ, approximately 25km west of Lephalale in the Limpopo Province.

**Local Authority:** Waterberg District Municipality.

**Developer:** Sole Energy (RF) (Pty) Ltd.

**Date of field work:** 04 March 2011.

**Date of report:** 22 April 2015.

**Findings:** Hutten Heritage Consultants was appointed by Africa Geo-Environmental Services (AGES) to undertake a Heritage Impact Assessment (HIA), which forms part of the Environmental Impact Assessment (EIA) for the development of the extended Delta Solar Park on the northern parts of Portion 1 of the farm Geelhoutskloof 359 LQ, approximately 25km west of Lephalale in the Limpopo Province.

An archival and historical desktop study was undertaken which was used to compile a historical layering of the study area within its regional context. This component indicated that the landscape within which the project area is located has a rich and diverse history. However, the desktop study did not reveal any historic or heritage sites from within the specific locations of the study area.

The desktop study was followed by a fieldwork component which comprised an inspection of the study area. The proposed area to be developed is mostly undisturbed except for the animal water drinking facilities, power lines and a few tracks which cross the site.

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 extended Delta 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**

Photo 1: View of the railway line south of the property.

Photo 2: View of the power line across the property.

Photo 3: View of the dams as watering facilities for the animals.

Photo 4: View of the typical undisturbed Bushveld vegetation.

### **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 extended Delta Solar Park on Portion 1 of the farm Geelhoutskloof 359 LQ, approximately 25km west of Lephale, in the Limpopo 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**

Sole Energy RF) (Pty) Ltd has proposed the development of the extended Delta Solar Park on Portion 1 of the farm Geelhoutskloof 359 LQ, approximately 25km west of Lephale in the Limpopo 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 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 77 MW. The generated energy will be connected to the Eskom grid through the existing power lines and the planned new Delta substation on the adjacent farm Zandnek 358 LQ.

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 the northern parts of Portion 1 of the farm Geelhoutskloof 359 LQ which measured approximately 234ha in size. The total development area for the Solar Park will be extended from the original 90ha to approximately 160ha. 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 2015 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 extended Delta Solar Park will be situated on the northern parts of Portion 1 of the farm Geelhoutskloof 359 LQ, approximately 25km west of Lephale in the Limpopo Province. The proposed part of the property is approximately 234ha in size of which approximately 160ha is earmarked for development.

The farm Geelhoutskloof 359 LQ is split in two sections by a railway line of which Portion 1 is situated adjacent and on the northern side of the railway line (photo 1). The

property is surrounded by other game farms on all its borders. Eskom also plans to construct the Delta substation on the adjacent farm Zandnek 358 LQ to the west of the proposed development. 3 x 400kV power lines are situated to the southern side of the property and a 132kV crosses the central parts of the property from east to west (photo 2).

The property was and is still being used as a game and hunting farm and was not exposed to previous agricultural activities and most of it is mostly undisturbed. However, the sections with the power line and the railway line were affected and disturbed by these developments. Two small dams were also built recently in the central part of the property to provide drinking water for the animals (photo 3). The proposed area is predominantly flat with reddish sandy soil and is covered with typical Bushveld vegetation (photo 4).

The proposed development will be situated on the Steenbokpan 2327 CB & Rooipan 2327 CD 1:50 000 topographical maps (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.

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 Powerstation 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 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  $\pm 2.5$  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)

### **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:* Most of the first millennium AD. (e.g. Happy Rest, Silver Leaves)

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

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

Several Sotho-Tswana communities settled in the North-west Province, Gauteng, Limpopo Province and in Botswana during the 14<sup>th</sup> and 15<sup>th</sup> centuries. These communities spread over the region as several lineages developed under their separate leaders. One of these lineages was the Bahurutshe-Bakwena which divided into the Bakwena, Bahurutshe and Bakgatla chiefdoms. The Bakgatla settled at first in the Hammanskraal area during the 17<sup>th</sup> century. Over the years and after several succession disputes, the divided and separated Bakgatla tribes settled in a much wider region. This region extended to the north of Pretoria up to Nylstroom and further to the north-west to the Marico River (Pistorius, 1992; Bergh, 1999; Huffman, 2007).

These Bakgatla tribes were diminished and further displaced during the *difaqane* by Mzilikazi and his Matabele warriors. A Bakgatla chief, Chief Kgamanyane, gathered the dispersed Bakgatla tribes after the *difaqane* and settled some of them at Saulspoort, near the Pilanesberg. The chief himself settled in Mochudi in Botswana to escape from the rule of the Zuid-Afrikaanse Republiek. These people refer to themselves as Bakgatla ba ga Kgafela and form part of the bigger Bakgatla line of the Sotho-Tswana people (Schapera, 1942). The local people from around the study area most probably also form part of this group.

### **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.



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

Early European travellers, hunters and missionaries such as Andrew Smith, Cornwallis Harris and Robert Moffat visited this region in the 1830's. Cornwallis Harris and his expedition reach the Mokolo River near Lephalale in 1836 and were probably the first Europeans to visit the region near the study area. They were followed by the first colonists who settled in this region from the 1840's and onwards into the 20<sup>th</sup> century. These colonists established farms and small towns were formed as a result of the farming communities (Bergh, 1999).

The town of Lephalale (previously Ellisras) was founded or established in 1960. The town of Ellisras was named after the two original farm owners, Patrick Ellis and Piet Erasmus. In 2002, the name Ellisras was changed to Lephalale after the Phalala River, one of the local rivers in the region.

## **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 04, 2011 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 farm manager, Ms. Van Alfen, and some farm labourers were interviewed or 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><b>FIELD RATING</b></i>	<i><b>GRADE</b></i>	<i><b>SIGNIFICANCE</b></i>	<i><b>RECOMMENDED MITIGATION</b></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	Grade 4A	High / Medium Significance	Mitigation before destruction

(GP.A)			
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.

### Delta Solar Park

The proposed development of the extended Delta Solar Park will be situated on the northern parts of Portion 1 of the farm Geelhoutskloof 359 LQ, approximately 25km west of Lephalale in the Limpopo Province. The proposed part of the property is approximately 234ha in size of which approximately 160ha is earmarked for development.

The property was and is still being used as a game and hunting farm and was not exposed to previous agricultural activities and most of it was mostly undisturbed. However, the sections with the power line and the railway line were affected and disturbed by these developments. The proposed study area is predominantly flat with reddish sandy soil and is covered with typical Bushveld vegetation.

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:

### **Delta Solar Park**

- The proposed area to be developed is mostly undisturbed with typical Bushveld vegetation. The sections with the power line and the railway line however were disturbed by these developments.
- 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 extended Delta Solar Park in the indicated area can continue from a heritage point of view.

## 10. References

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# **APPENDIX A**

# **Photographs**



Photo 1: View of the railway line on the southern side of the property.



Photo 2: View of the power line across the property.





Photo 3: View of the two dams as watering facilities for the animals.

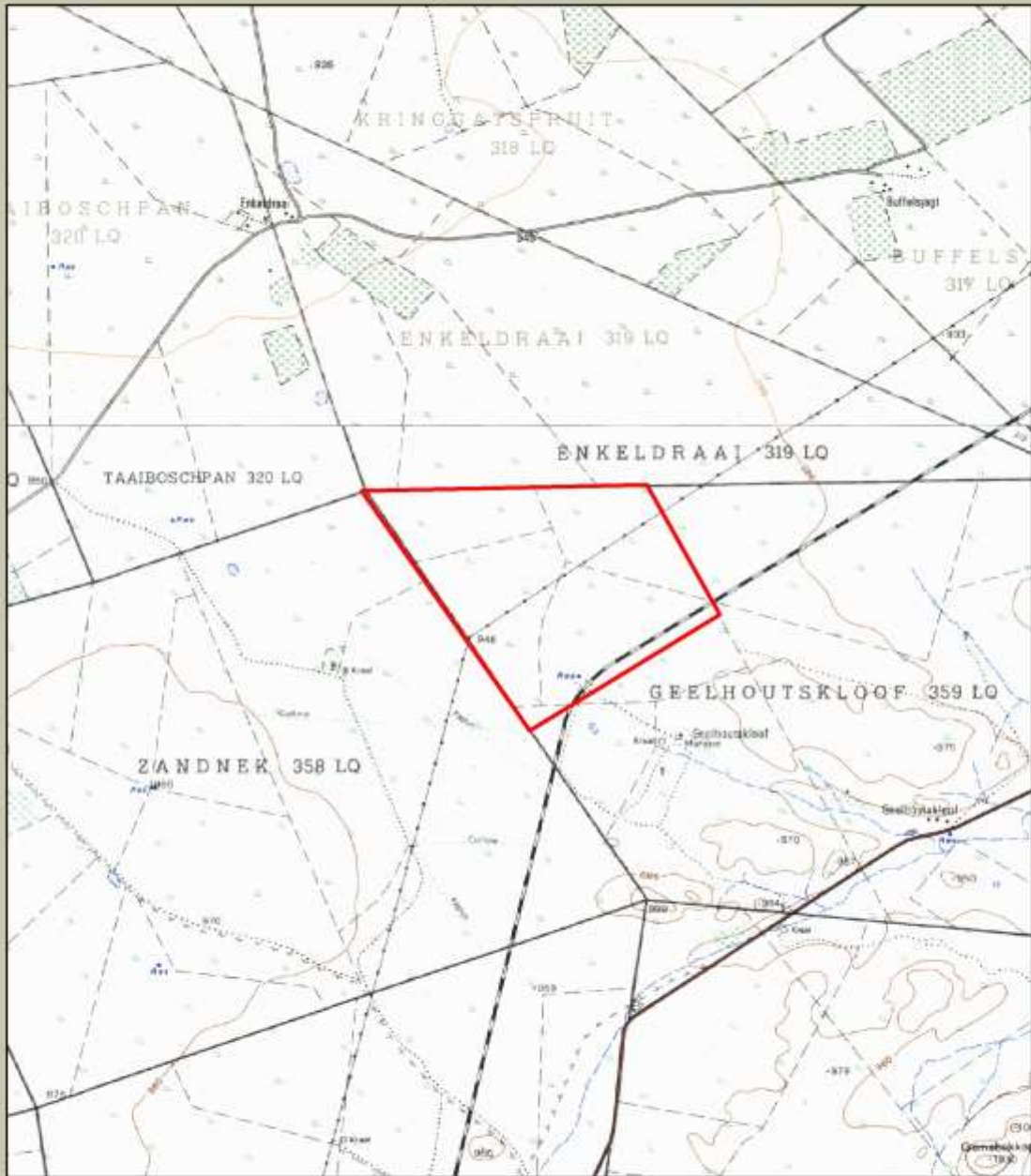


Photo 4: View of the typical undisturbed Bushveld vegetation.


# **APPENDIX B**

## **Location Maps**

# Delta Solar Park 1:50 000 Series, Steenbokpan 2327CB & Rooipan 2327CD

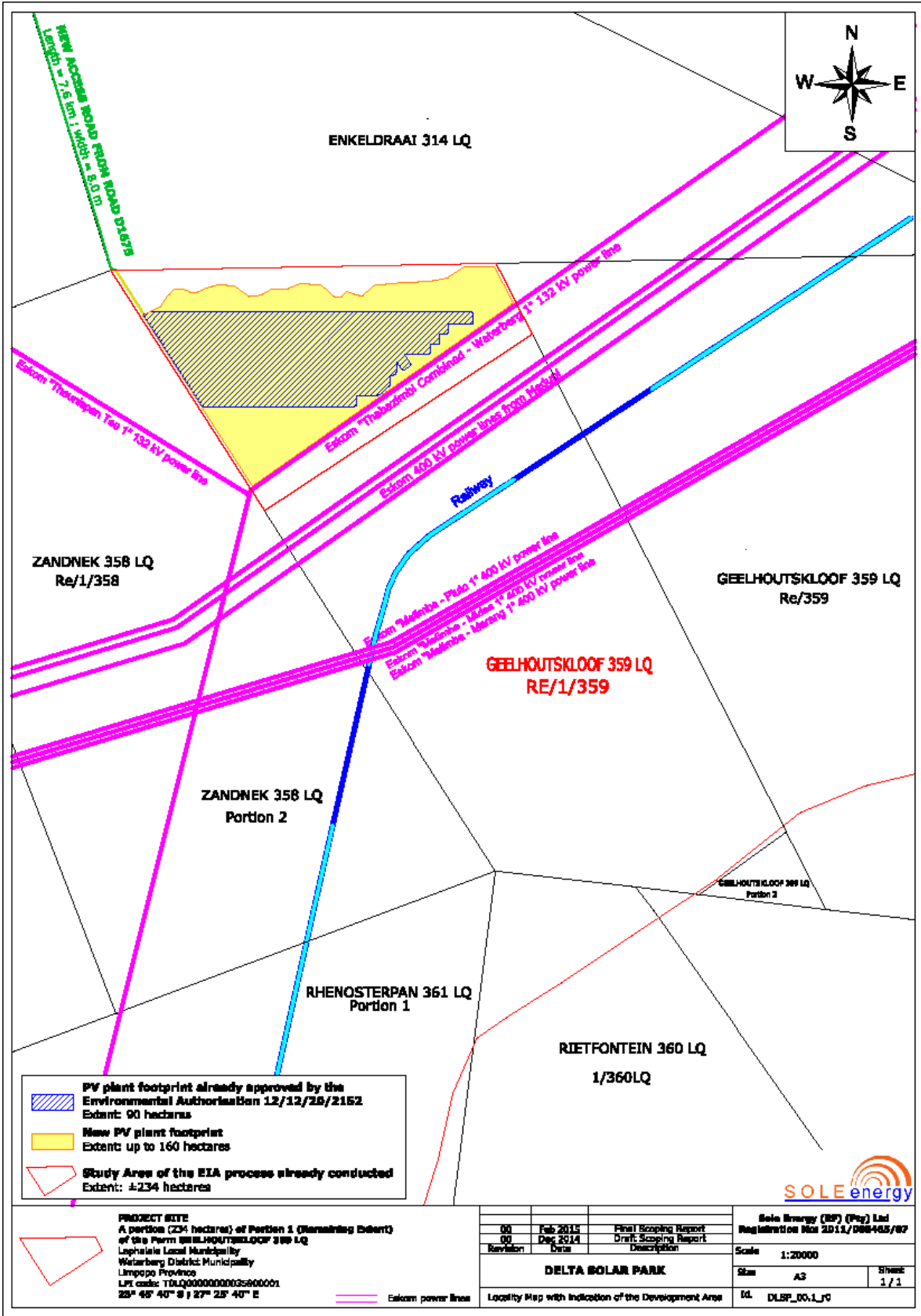


## Legend

 Study Area

0 1.5 3 Kilometres





Proposed extended layout plan (as provided by Sole Energy (RF) (Pty) Ltd).



# Delta Solar Park Spot 5 National Mosaic 2327C



**Legend**

 Study Area

0      1.5      3  
Kilometres



# Delta Solar Park Spot 5 National Mosaic 2327C



**Legend**

 Study Area

0      0.5      1  
Kilometres

