

# Scoping Archaeological Impact Assessment

## Proposed development of the AEP Legoko Solar Facility on Portion 2 of the Farm 460 Legoko, Kathu, Northern Cape Province

prepared for

**PERCEPTION Planning**, P.O. Box 9995, George, 6530, Western Cape,  
Cell: 082 568 4719, E-mail: perceptionenvplg@gmail.com, **Applicant: AEP Legoko  
Solar (Pty) Ltd.** , 1st Floor, West Quay Building, 7 West Quay Road, Waterfront,  
Cape Town, 8000

by



Peter Nilssen, PO Box 2635, Mossel Bay, 6500  
044 691 0051 | 0827835896 | [peter@carm.co.za](mailto:peter@carm.co.za)

17 May 2015

## **Name, Expertise and Declaration**

I, **Peter Nilssen** (PhD in archaeology, UCT 2000), herewith confirm that I am a Professional member - in good standing - of the Association of South African Professional Archaeologists (ASAPA), including the Cultural Resource Management section of the same association and am accredited to undertake the necessary archaeological studies required for the proposed development.

As the appointed independent specialist (archaeologist) for this project hereby declare that I:

- act as an independent specialist in this application;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct;
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management Act;
- have and will not have no vested interest in the proposed activity proceeding;
- have disclosed, to the applicant, EAP and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management Act;
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2010 (specifically in terms of regulation 17 of GN No. R. 543) and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification;
- am aware that a false declaration is an offence in terms of regulation 71 of GN No. R. 543.



---

Signature of the specialist:

Date: **17 May 2014**

## Introduction

The applicant, AEP Legoko Solar (Pty) Ltd., is proposing to establish a commercial solar energy facility - currently referred to as AEP Legoko Solar - on Portion 2 of the Farm 460 Legoko. The entire property is about 1062 ha in extent, while the affected portion of the property is approximately 220 ha in extent and is situated about 8km SE of Kathu in the Northern Cape Province (Figures 1 & 2).

The proposal is to develop a 75MW (MegaWatt) Solar Photovoltaic (PV) Facility and associated infrastructure that will include an on-site substation, auxiliary buildings, access and internal roads, overhead electrical transmission line and perimeter fencing. While detailed specifications and development layouts of the proposed solar facility and associated infrastructure will be guided and determined by the Environmental Impact Assessment (EIA) process, the current development layout plan is shown in Figure 2.

Activities associated with the proposed development of the AEP Legoko Solar Facility trigger the National Heritage Resources Act (Act 25 of 1999), and therefore, this author was appointed to provide archaeological input for the broader integrated Heritage Impact Assessment that is being undertaken by Perception Planning in terms of Section 38(8) of the National Heritage Resources Act. Cape Environmental Assessment Practitioners (CapeEAPrac) is facilitating the EIA process.

The current phase of the process involves a Scoping Archaeological Impact Assessment (SAIA) of the affected environment. Because the proposed development activities - construction and installation - may have a permanent negative impact on archaeological resources in the development footprint, this SAIA provides a preliminary report on the findings made during a detailed archaeological foot and vehicle survey of the affected landscape. The archaeological survey focused on the 220 ha study area, access road as well as the proposed grid connection routes to the Ferrum Sub-Station (Figure 2). A detailed Archaeological Impact Assessment (AIA) report will be provided at a later date and will form part of the integrated Heritage Impact Assessment.

## Study Area

The terrain is essentially flat with very minor undulation in places. A few small, shallow pans or depressions were noted, however, and these are likely to collect rain water and may have been attractive to game animals and hunters in the past. Surface sediments consist mostly of orange-red Hutton Sands that overlie a very flat plane of calcrete. The latter is intermittently exposed at the surface and is variably solid and nodular. More surface calcrete was observed here relative to that on Portion 1 of Farm 460 Legoko. Vegetation is generally open, but not sparse, and consists of grasses, bush and some thorny shrubs as well as a variety of thorny *Acacia* trees. There are notably fewer *Acacia* trees here in comparison with Portion 1 of Farm 460 Legoko. From a botanical perspective, the current study area is less sensitive than the proposed site for AEP Mogobe Solar, which is situated immediately to the south. The environmental setting of both the proposed PV area, access road as well as the grid connection route are very similar.

Archaeological visibility is excellent across the vast bulk of the studied area. The surrounding land use is agricultural and undeveloped and is mainly used for the grazing of domestic stock (cattle, sheep and goats). Recent human related disturbances to the environment include a road (N14), vehicle tracks, fencing, farmsteads and associated structures and infrastructure, minor earthmoving activities and overhead power lines. Natural disturbances include burrowing by large and small animals. A few examples of the

immediate surroundings and environment (topography, vegetation cover, disturbances and exposed surfaces) of the proposed PV area, grid connection route and access road are shown in Plates 1 and 2.

## **Overview of Previous Studies**

A considerable amount of archaeological research and heritage-related impact studies have been undertaken in the surroundings of Kathu. Much of the information concerning the history and archaeology of the area was obtained through heritage and archaeological studies associated with environmental impact assessments for a variety of development activities. While a wide range of heritage resources have been identified and documented in the area, it is best known for the abundant, high density and extensive scatters of Early Stone Age or Acheulian stone artefacts at the various Kathu Pan localities as well as Uitkoms 4, which is situated at the Kathu Cemetery. Middle and Later Stone Age materials have also been recorded, but these often occur in low densities and are not associated with other cultural materials or faunal remains. The latter type sites are normally considered to be of low significance. Nevertheless, it was anticipated that the areas studied here may be rich in pre-historic archaeology.

A more detailed description of the archaeological record in the surroundings of Kathu and the present study area will be provided in the AIA report. A selection of previous studies in the nearby surroundings is given in the reference section below, and the findings of these will be summarised in more detail in the AIA report. To the best of my knowledge, no previous archaeological or heritage related work has been done on the relevant portions of the affected properties under investigation here.

## **Potential Impacts on Archaeological Resources**

Because tangible heritage resources are non-renewable and each archaeological occurrence is unique, it is important that areas affected by development are assessed for the presence and sensitivity of such resources prior to development. The AEP Legoko Solar Facility will involve both area and linear developments that could have a permanent negative impact on archaeological resources if they were to occur in the area. This scoping study has shown that archaeological resources do occur in the surrounding environment and also on the properties in question. The purpose of the broader EIA process is to assess the sensitivity of environmental resources in the affected area, to determine the potential impacts on such resources, and to avoid and/or minimize such impacts by means of management and/or mitigation measures. The future AIA will serve the same purpose concerning archaeological resources.

Because the planning and design phase of the development is being informed by the broader EIA, any direct negative impacts on significant environmental resources can be avoided or minimized by altering the design and layout plans accordingly. A construction phase Environmental Management Plan (EMP) will further avoid or minimize direct negative impacts.

Potential direct negative impacts on archaeological and tangible heritage resources will occur during the construction and installation phase of the proposed development. Indirect and cumulative impacts may occur during the operational phase, but these can be avoided or minimized by means of an EMP that should be implemented during the operational phase of the development.

Based on results from previous archaeological research and heritage impact studies in the surrounding environment it seemed likely that significant archaeological sites could be identified during the AIA.

## **Methodology for the Archaeological Impact Assessment**

The purpose of an AIA is to conduct a survey of the affected areas in order to identify, record and rate the significance of archaeological resources, to assess the impact of the proposed area and linear developments on such resources and to recommend mitigation measures where necessary.

To assess the nature and significance of the archaeological record in the affected area, it was necessary to conduct a comprehensive foot survey. The latter focused on the provisional development layout plan including the 220ha portion of the affected property as well as the power line route and access road (Figure 2).

The potential for different landforms, sediments or landscape features to contain archaeological traces is assessed according to type, such as rocky surfaces, sandy surfaces, cultivated areas, previously developed or disturbed areas, rock shelters, and so on. Overall, the significance of archaeological occurrences or sites are evaluated in terms of their content and context. Attributes to be considered in determining significance include artefact and/or ecofact types, rarity of finds, exceptional items, organic preservation, aesthetic appeal, potential for future research, density of finds and the context in which archaeological traces occur.

Open vegetation and large expanses of exposed ground surfaces provided excellent archaeological visibility and allowed for a good understanding of the archaeological record in the area based on surface observations made during the foot survey for AEP Mogobe Solar Facility as well as that conducted in the current study area. Due to good archaeological visibility, and based on the very sparse and low significance of archaeological occurrences identified during the comprehensive foot survey on Portion 1 of Farm 460 Legoko, survey walk tracks were spaced between about 100 and 200m apart and were fixed with a hand held GPS to record the search area. The position of archaeological occurrences, observations and photo localities were also fixed by GPS. Digital audio notes of observations and a comprehensive, high quality digital photographic record were made.

Once archaeological traces have been identified, recorded and assessed in terms of their significance, the aim of the AIA is to assess the potential negative impacts of development on such resources and to make recommendations in mitigation. The end product of the AIA is a report that forms part of the Integrated Heritage Impact Assessment and that meets standards required by the South African Heritage Resources Agency (SAHRA) in terms of the National Heritage Resources Act, No. 25 of 1999. The AIA report will detail results from the literature review and fieldwork, and will assess potential negative impacts associated with the proposed development and make recommendations in mitigation where necessary.

## **Preliminary Results of the Archaeological Survey**

The future AIA report will provide a detailed description of the methods, findings, assessment of impacts and recommendations regarding the proposed development. Presented here is a summary overview for the purpose of the scoping phase of the EIA process.

The only portion of the survey conducted by vehicle was the access road entering the study area from the North-West. This approach was adopted because most of the area for the access road is already disturbed by an existing tar road, and the narrow strip closer to the study area could be adequately inspected by travelling at around 6km per hour in both directions. The stretch for the proposed access road accounted for about 5.7km of the total distance that was surveyed. For the remaining development areas (PV areas and grid connection routes), the archaeological survey was conducted on foot over a 5 day period from 11 to 15 May 2015. A total distance of around 75km was walked, covering an area of approximately 100ha in extent (Figure 3). Archaeological visibility was excellent with open vegetation providing between 60 and 80% of exposed ground surfaces that were open for archaeological inspection.

The archaeological record observed here is identical to that seen on Portion 1 of Farm 460 Legoko that is situated immediately to the south. Several archaeological occurrences were identified and recorded, but these are few and occur as isolated stone artefacts or very low density stone artefact scatters. No other cultural or faunal remains are associated with these stone artefact scatters. Most of the finds are of Later Stone Age origin and only a single specimen was identified that may be of either Later Stone Age or Middle Stone Age origin. Like the situation observed at the proposed site for AEP Mogobe Solar, small scrapers are by far the most common formal tools and second most common are notched pieces or adzes (Plates 3 & 4). One of the very low density scatters occurs on the edge of a shallow pan or depression. This suggests that early hunters may have waited for game at these naturally occurring water holes. The absence of Early Stone Age material was surprising given their abundance in the immediate surroundings of Kathu. No further tangible heritage resources were identified.

Because significant archaeological resources were not identified during the survey, the proposed layouts of the area and linear developments do not need to be altered. It is suggested that the documentation of the archaeological record in the affected areas made during the current study is sufficient and that no further investigation is needed. It is further noted that there are no fatal flaws or constraints from an archaeological perspective and that there are no objections to the proposed linear and area developments associated with the AEP Legoko Solar Facility.

## **Selected References**

Beaumont, P.B. 2008. Phase 1 Heritage Impact Assessment Report on Portion 463/8 of the Farm Uitkoms 463, near Kathu, Kgalagadi Municipality, Northern Cape Province. An unpublished report by The McGregor Museum on file at SAHRA as: 2008-SAHRA-0072.

Beaumont, P.B. 2008. Phase 1 Archaeological Impact Assessment Report on Portion 459/49 of the Farm Bestwood 459 at Kathu, Kgalagadi District Municipality, Northern Cape Province. An unpublished report by The McGregor Museum on file at SAHRA as: 2008-SAHRA-0292.

Beaumont, P.B. 2008. Phase 1 Heritage Impact Assessment Report on a Portion of the Remainder of the Farm Sekgame 461, Kathu, Gamagara Municipality, Northern Cape Province. An unpublished report by The McGregor Museum on file at SAHRA as: 2008-SAHRA-0069.

Beaumont, P.B. 2007. Supplementary Archaeological Impact Assessment Report on Sites near or on the Farm Hartnolls 458, Kgalagadi District Municipality, Northern Cape Province. An unpublished report by The McGregor Museum on file at SAHRA as: 2007-SAHRA-0022.

Beaumont, P.B. 2007. Phase 1 Heritage Impact Assessment Report on a 15 Ha Portion of the Allotment Area That Borders on the Skerpdraai and Diepkloof Townships at Olifantshoek, Gamagara Municipality, Northern Cape Province. An unpublished report by The McGregor Museum on file at SAHRA as: 2007-SAHRA-0235.

Beaumont, P.B. 2007. Phase 1 Heritage Impact Assessment Report on a Portion of the Farm Hopkins 486, North of Olifantshoek, Siyanda District Municipality, Northern Cape Province. An unpublished report by The McGregor Museum on file at SAHRA as: 2007-SAHRA-0155.

Beaumont, P.B. 2007. Phase 1 Heritage Impact Assessment Report on a Portion of the Farm Fuller 578 near Olifantshoek, Siyanda District Municipality, Northern Cape Province. An unpublished report by The McGregor Museum on file at SAHRA as: 2007-SAHRA-0154.

Beaumont, P.B. 2006. Phase 1 Heritage Impact Assessment Report on Portions A and B of the Farm Sims 462, Kgalagadi District, Northern Cape Province. An unpublished report by The McGregor Museum on file at SAHRA as: 2006-SAHRA-0165.

Beaumont, P.B. 2006. Phase 1 Heritage Impact Assessment Report on Erf 1439, Remainder of Erf 2974 and Remainder of Portion 1 of the Farm Uitkoms No 463, and Farms Kathu 465 and Sims 462 at and near Kathu in the Northern Cape Province. An unpublished report by The McGregor Museum on file at SAHRA as: 2006-SAHRA-0127.

Beaumont, P.B. 2006. Phase 1 Heritage Impact Assessment Report on Portion 5 of the Farm Uitkoms 463, Kgalagadi District, Northern Cape Province. An unpublished report by The McGregor Museum on file at SAHRA as: 2006-SAHRA-0164.

Beaumont, P.B. 2005. Heritage Impact Assessment of an Area of the Sishen Iron Ore Mine that may be Covered by the Vliegveldt Waste Dump. An unpublished report by The McGregor Museum on file at SAHRA as: 2005-SAHRA-0230.

Beaumont, P.B. 2000. Archaeological Impact Assessment: Archaeological Scoping Survey for the Purpose of an EMPR for the Sishen Iron Ore Mine. An unpublished report by The McGregor Museum on file at SAHRA as: 2000-SAHRA-0023.

Dreyer, C. 2008. First Phase Archaeological and Cultural Heritage Assessment of the Proposed Residential Developments at a Portion of the Remainder of the Farm Bestwood 459 Rd, Kathu, Northern Cape. An unpublished report on file at SAHRA as: 2008-SAHRA-0433.

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 as: 2007-SAHRA-0052.

Kaplan, J.M. 2008. Phase 1 Archaeological Impact Assessment: Proposed Housing Development, Erf 5168, Kathu, Northern Cape Province. An unpublished report by the Agency for Cultural Resources Management on file at SAHRA as: 2008-SAHRA-0487.

Morris, D. 2008. Archaeological and Heritage Phase 1 Impact Assessment for Proposed Upgrading of Sishen Mine Diesel Depot Storage Capacity at Kathu, Northern Cape. An unpublished report by The McGregor Museum on file at SAHRA as: 2008-SAHRA-0489.

Morris, D. 2008. Archaeological and Heritage Phase 1 Predictive Impact Assessment for Prospecting on Magoloring Portions 4 & 5 (Japies Rust), near Glosam, Northern Cape. An unpublished report by The McGregor Museum on file at SAHRA as: 2008-SAHRA-0321.

Morris, D. 2005. Report on a Phase 1 Archaeological Assessment of Proposed Mining Areas of the Farms Bruce, King, Mokaning and Parson, Between Postmasburg and Kathu, Northern Cape. An unpublished report by The McGregor Museum on file at SAHRA as: 2005-SAHRA-0032.

Morris, D. 2005. Report on a Phase 1 Archaeological Assessment of Proposed Mining Areas on the farms Ploegfontein, Klipbankfontein, Welgevonden, Leeuwfontein, Wolhaarkop and Kapstevl, west of Postmasburg, Northern Cape. An unpublished report by The McGregor Museum on file at SAHRA as: 2005-SAHRA-0184.

Morris, D. 2001. Report on Assessment of Archaeological Resources in the Vicinity of Proposed Mining at Morokwa. An unpublished report by The McGregor Museum on file at SAHRA as: 2001-SAHRA-0078.

Van Ryneveld, K. 2005. Cultural Heritage Site Inspection Report for the Purpose of a Prospecting Right EMP - (Portion of) Skeyfontein 536, Postmasburg District, Northern Cape, South Africa. An unpublished report by The McGregor Museum on file at SAHRA as: 2005-SAHRA-0160.

Webley, L.E. & Halkett, D.J. 2008. Phase 1 Heritage Impact Assessment: Proposed Prospecting on the Farms Adams 328 and Erin 316, Kuruman, Ga-Segonyana Municipality in the Northern Cape. An unpublished report by the Archaeology Contracts Office on file at SAHRA as: 2008-SAHRA-0580.

**Figures and Plates** (on following pages)



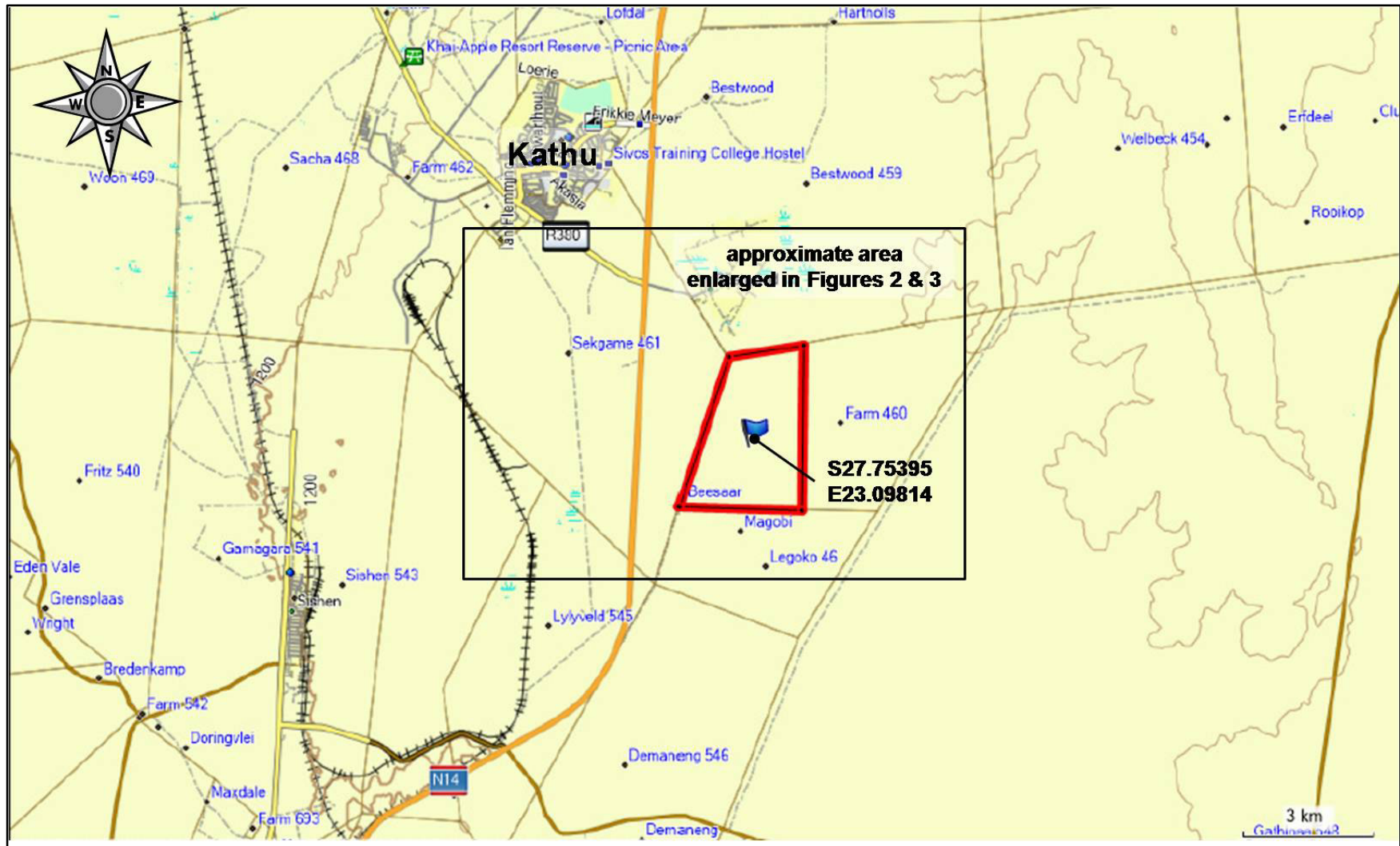


Figure 1. Location of study area (red polygon) relative to Kathu, Northern Cape Province. Relevant 1:50 000 maps are 2723CA & 2723CC (courtesy of Garmin MapSource).

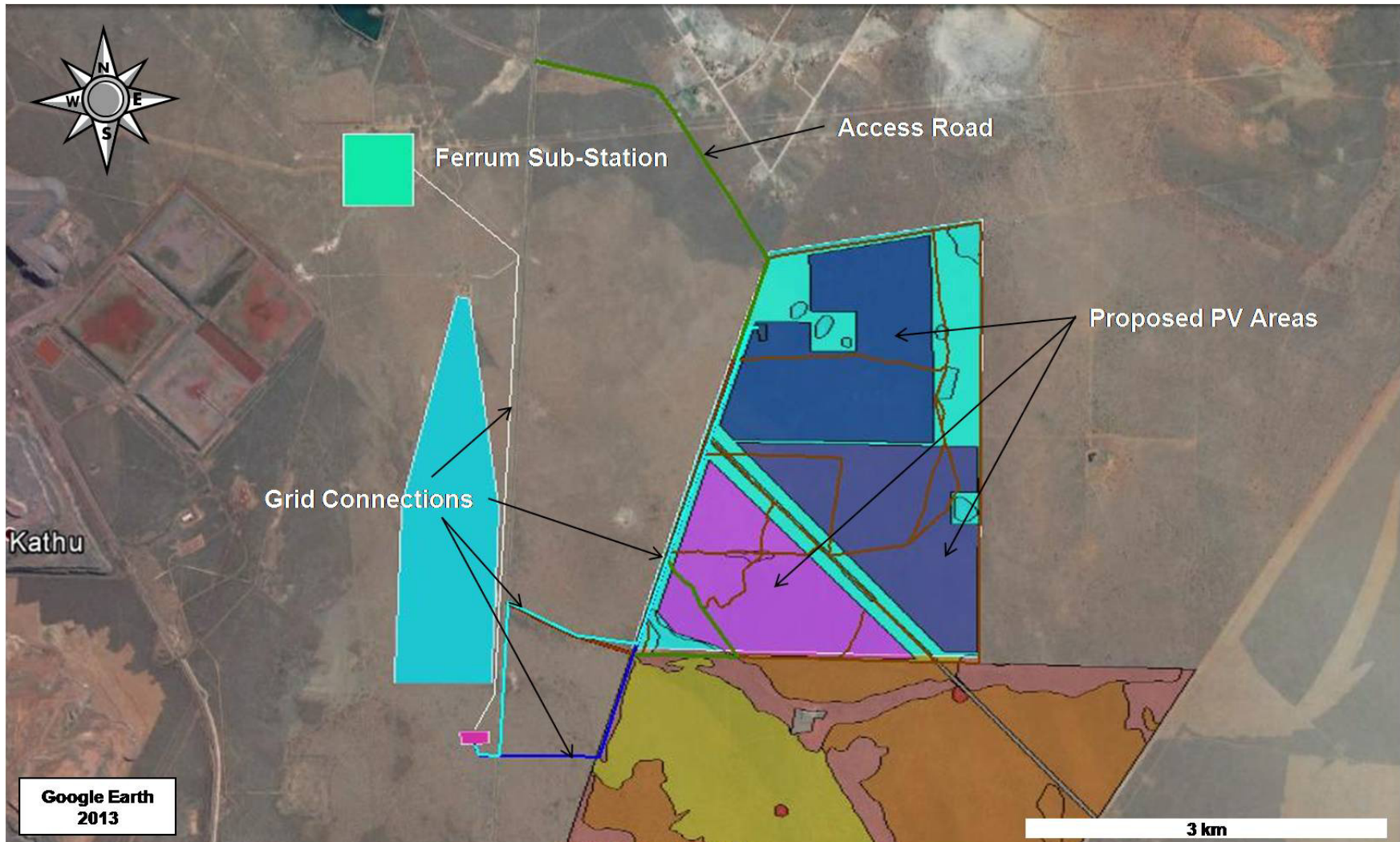


Figure 2. Provisional development layout on the affected properties showing PV Areas (solar panels), access road and grid connection routes.

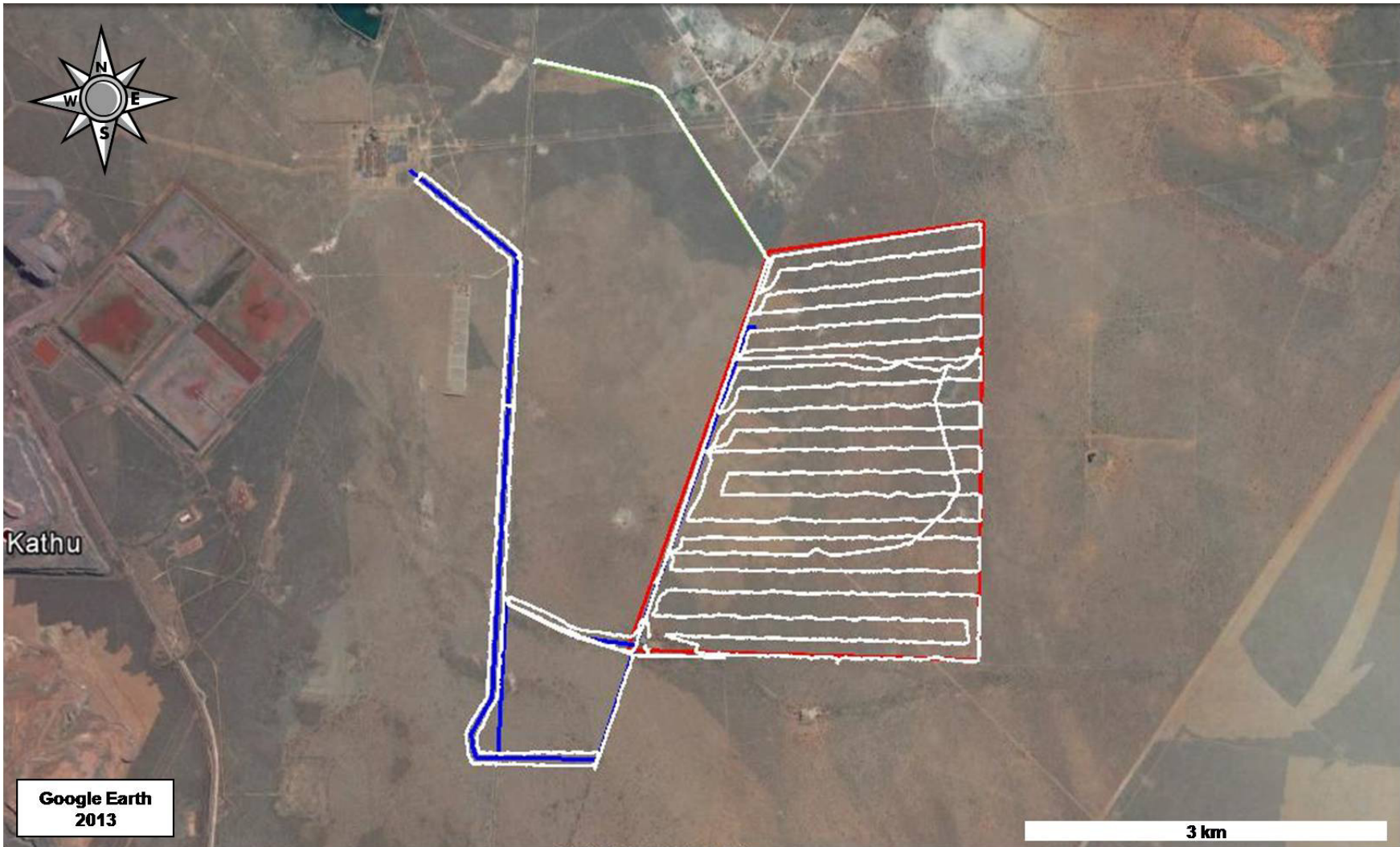


Figure 3. Studied areas indicated with white lines that represent survey tracks as fixed by a hand held GPS.



Plate 1. Examples of the affected environment within the 220ha portion as indicated with the red polygons in above Figures. Note flat terrain, open vegetation, recent disturbances and exposed surfaces of both orange-red Hutton Sands and calcrete. Bottom centre image shows an example of a small, shallow pan / depression that would act as a natural point for water collection after rains.



Plate 2. Examples of the affected environment along the proposed grid connection alignment and access road as indicated in Figures 2 & 3. Note flat terrain, open vegetation, recent disturbances and exposed ground surfaces.



Plate 3. Examples of Later Stone Age stone artefacts including flakes, a finely retouched segment (top left and middle), scrapers and an adze / notched piece. Most specimens are in banded ironstone with far fewer pieces in chalcedony and other raw materials.



Plate 3. Examples of Later Stone Age stone artefacts including flakes and a variety of retouched pieces including scrapers and adzes / notched pieces. Most specimens are in banded ironstone with far fewer pieces in chalcedony and other raw materials.