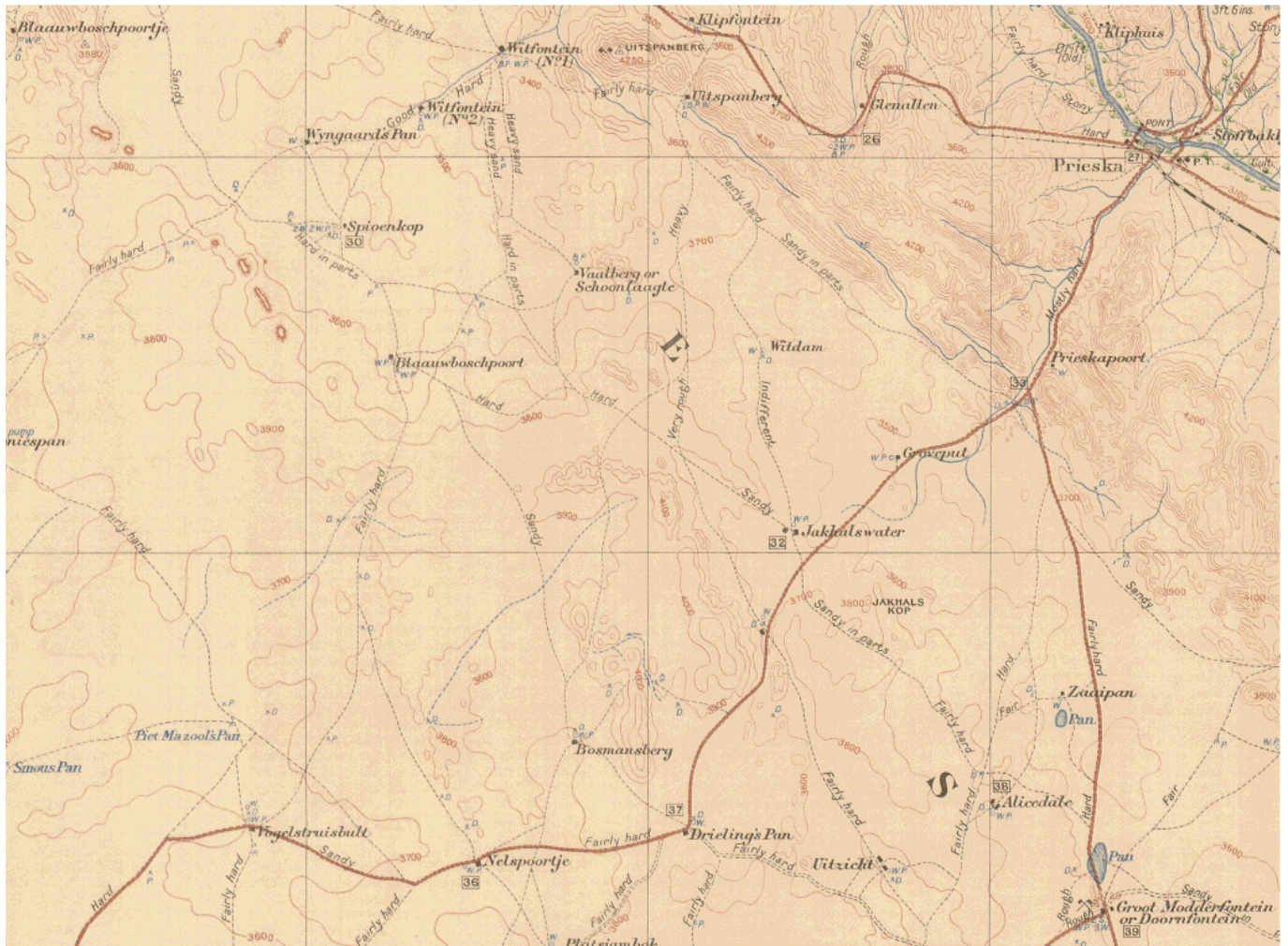


**INTEGRATED HERITAGE IMPACT ASSESSMENT IN TERMS OF SECTION 38(8)  
OF THE NATIONAL HERITAGE RESOURCES ACT, 1999 (ACT 25 OF 1999)**

**PROPOSED INSTALLATION OF HUMANSRUS PV 1 GRID CONNECTIONS WITH  
RELATION TO HUMANSRUS SOLAR PV ENERGY FACILITY 1 ON PORTIONS OF  
THE FARMS HUMANSRUS 147/ REM, HOEKPLAAS 146/ REM & VOGELSTRIUS  
BULT 104/1 , PRIESKA DISTRICT, NORTHERN CAPE**



**On behalf of: Humansrus Solar PV Facility 1 (Pty) Ltd**

**November 2014**

**STÉFAN DE KOCK**  
PERCEPTION Planning  
PO Box 9995  
GEORGE  
6530  
Tel: 082 568 4719  
Fax: 086 510 8357  
E-mail: [perceptionplanning@gmail.com](mailto:perceptionplanning@gmail.com)  
[www.perceptionplanning.co.za](http://www.perceptionplanning.co.za)



**COPYRIGHT RESERVED**

**CONTENTS:**

1. INTRODUCTION
2. INDEPENDENCE OF ASSESSOR
3. METHODOLOGY
4. DESCRIPTION OF STUDY AREA
5. PROPOSED DEVELOPMENT
  - 5.1 *Grid Connection and Cabling*
  - 5.2 *Grid Connection and Power line Routes*
    - 5.2.1 *Loop in Loop out Alternatives*
    - 5.2.2 *Self-build Alternatives from proposed onsite substation 1 and 3*
    - 5.2.3 *Self-build alternative from onsite Substation 2*
6. PLANNING CONTEXT
7. HISTORICAL BACKGROUND
8. HERITAGE RESOURCES & ISSUES
  - 8.1 *Landscape Character*
    - 8.1.1 *Cultural landscape context*
  - 8.2 *Visual Statement*
  - 8.3 *Archaeology*
    - 8.3.1 *Cumulative impacts*
  - 8.4 *Palaeontology*
  - 8.5 *Eco-tourism*
9. HERITAGE INFORMANTS/ INDICATORS & ASSESSMENT OF IMPACTS
  - 9.1 *Cultural landscape issues*
  - 9.2 *Visual-spatial issues*
  - 9.3 *Archaeology*
  - 9.4 *Palaeontology*
10. PUBLIC PARTICIPATION
11. LIMITATIONS AND ASSUMPTIONS
12. RECOMMENDATIONS

**ANNEXURES:**

1. Power of Attorney
2. Visual Statement
3. Archaeological Impact Assessment
4. Palaeontological Impact Assessment

**FIGURES:**

1. Locality plan
2. Current aerial image
3. Grid connection alternatives (loop in loop out)
4. Grid connection alternatives (self-build)
5. Typical rammed fixed frame
6. Extract early mapping
7. AIA findings

**REFERENCES and ACKNOWLEDGEMENTS:**

1. Cape Town Archives

2. Chief Directorate: Surveys & Mapping
3. Surveyor General Office

**ABBREVIATIONS:**

1. CDSM – Chief Directorate Surveys & Mapping
2. DEA – National Department of Environmental Affairs
3. HIA – Integrated Heritage Impact Assessment
4. NHRA - National Heritage Resources Act, 1999 (Act 25 of 1999)
5. PHRA – Provincial Heritage Resources Agency
6. PHS – Provincial Heritage Site

**COVER:** *Extract from 1906-1914 mapping for the area south of Prieska (Source: Reconnaissance Series No 16, CDSM)*

## 1. INTRODUCTION

*PERCEPTION Planning* was appointed by *Humansrus Solar PV Facility 1 (Pty) Ltd* to compile and submit to the *South African Heritage Resource Agency (SAHRA)* and *Ngwao Boswa Kapa Bokoni* an Integrated Heritage Impact Assessment (HIA) in terms of Section 38(8) of the National Heritage Resources Act, 1999 (Act 25 of 1999) with relation to proposed development of the properties listed below (hereafter referred to as, "the site"). Sanction for submission of this HIA was provided by Mr. Craig Stanley (*on behalf of registered owner*), and is attached as part of Annexure 1.

The cadastral land units subject to this application are as follows:

- Humansrus 147/ Remainder, Prieska District and Pixley ka Seme District Municipality, measuring 4,769.4155 ha, registered to Ms. Christina Susanna Human and held under title deed T28367/1978;
- Hoekplaas 146/ Remainder, Prieska District Pixley ka Seme District Municipality, measuring 5,012.1978 ha, registered to HG & MJ Human and held under title deed T102246/2006;
- Vogelstruis Bult 104/ 1, Prieska District and Pixley ka Seme District Municipality, measuring 6,085.5029 ha, registered to Request Trust and held under title deed T18939/2003.

This report serves as an ***Integrated Heritage Impact Assessment (HIA)*** and includes inputs from the following specialist reports sanctioned as part of the HIA:

- Basic archival background research (Perception Planning, S. de Kock);
- Archaeological Impact Assessment (ACO Associates, Dr. L. Webley & D. Halkett);
- Desktop Palaeontological Impact Assessment (Natura Viva, Dr. J. Almond).

## 2. INDEPENDENCE OF ASSESSOR

With relation to the author's appointment to compile an Integrated Heritage Impact Assessment in terms of Section 38(8) of the National Heritage Resources Act, 1999 (Act 25 of 1999), it is hereby declared:

- This consultancy (including the author) is not a subsidiary, legally or financially, of the proponents;
- Remuneration for professional services by the proponent in relation to this proposal is not linked to approval by any decision-making authority responsible for permitting this proposal;
- Nor this consultancy, nor the author has any interests in secondary or downstream activities as a result of the authorisation of this project.

It is further hereby certified that the author has 17 years professional experience as urban planner (3 years of which were abroad) and 8 years professional experience as heritage practitioner. The author holds the following qualifications:

- Urban and Regional Planning (B-Tech, CPU, 1997)
- Environmental Impact Assessment Management – Heritage, Environmental (Diploma, Dublin University, 2002)
- Architectural & Urban Conservation (CDP, UCT, 2007)
- Urban Design (CPD, UCT, 2009)

The author is professionally registered as follows:

- Professional Heritage Practitioner (Association for Professional Heritage Practitioners)
- Professional Planner (South African Council for Planners)

## 3. METHODOLOGY

As part of the compilation of this Integrated HIA report the site and its environs was studied, visited, photographed and assessed, which more specifically involved the following (for broad overview of HIA process refer to explanatory flow diagram below):

- Field work carried out by ACO Associates on 23<sup>rd</sup> October 2014;
- Liaising with project manager, environmental consultant and various specialist consultants;
- Assimilating findings and recommendations emanating from specialist inputs into HIA;
- Identification of heritage-related issues and concerns;
- Analysis of development site and its environs;
- Identification of contextual spatial informants;
- Establishing cultural significance, based on criteria set out in NHRA;
- Identification of heritage-related design informants based on the above;

- Focused public participation process to be coordinated as part of Environmental Impact Assessment facilitated by *Cape Environmental Impact Assessment Practitioners (Pty) Ltd*;
- Assess conformity of final proposed site layout to design informants identified;
- Submission to competent authorities (*SAHRA* and *Ngwao Boswa Kapa Bokoni*) via SAHRIS.

#### 4. DESCRIPTION OF STUDY AREA

The subject site is located  $\pm 50$ km southwest of Prieska and  $\pm 8$ km southeast of Copperton, within the jurisdiction areas of Siyathemba Local Municipality and Pixley ka Seme District Municipality, Northern Cape as shown through the locality plan (Figure 1). The site is bound by the R357 to the southeast, is  $\pm 6$ km east of the existing Cuprum Substation and  $\pm 6$ km north of the existing Kronos Substation. The main access road as well as decommissioned railway line leading to Copperton traverses the site



**Figure 1:** Location of proposed development site in relation to Prieska and Copperton (Source: GoogleEarth)

The proposed development area is a generally flat, undulating plain of low dunes of red Kalahari sands interspersed with gravel and stony plains. Soils are generally shallow silty soils which favour shrubs over grasses which usually dominate on more sandy soils. Towards the northern margin of the site, there are some deeper soils present with taller, denser vegetation present. There are also some patches of deeper or coarser soils present which are dominated by grasses. There are no significant rocky outcrops or large drainage lines within the proposed development area itself, although these features are present within the broader area<sup>1</sup>.

#### 5. PROPOSED DEVELOPMENT<sup>2</sup>

This proposal is associated with the proposed development of the *Humansrus Solar PV Facility 1* with a planned peak capacity of be 75 MW<sub>p</sub>, and estimated development footprint of 200ha to 275ha and which is the subject of a separate application (SAHRA Ref. 6332).

##### 5.1 Grid Connection and Cabling

The electrical feeding line (or two lines, depending on the line capacity) is proposed to be constructed to connect to the **Cuprum or Kronos Substations** or via Loop in Loop out to the nearest Burchell Cuprum 132kV line or Cuprum Hydra 132kV line. The power line alternative is investigated for different

<sup>1</sup> Final Scoping Report, RE Capital 13, Cape EAPrac, October 2014

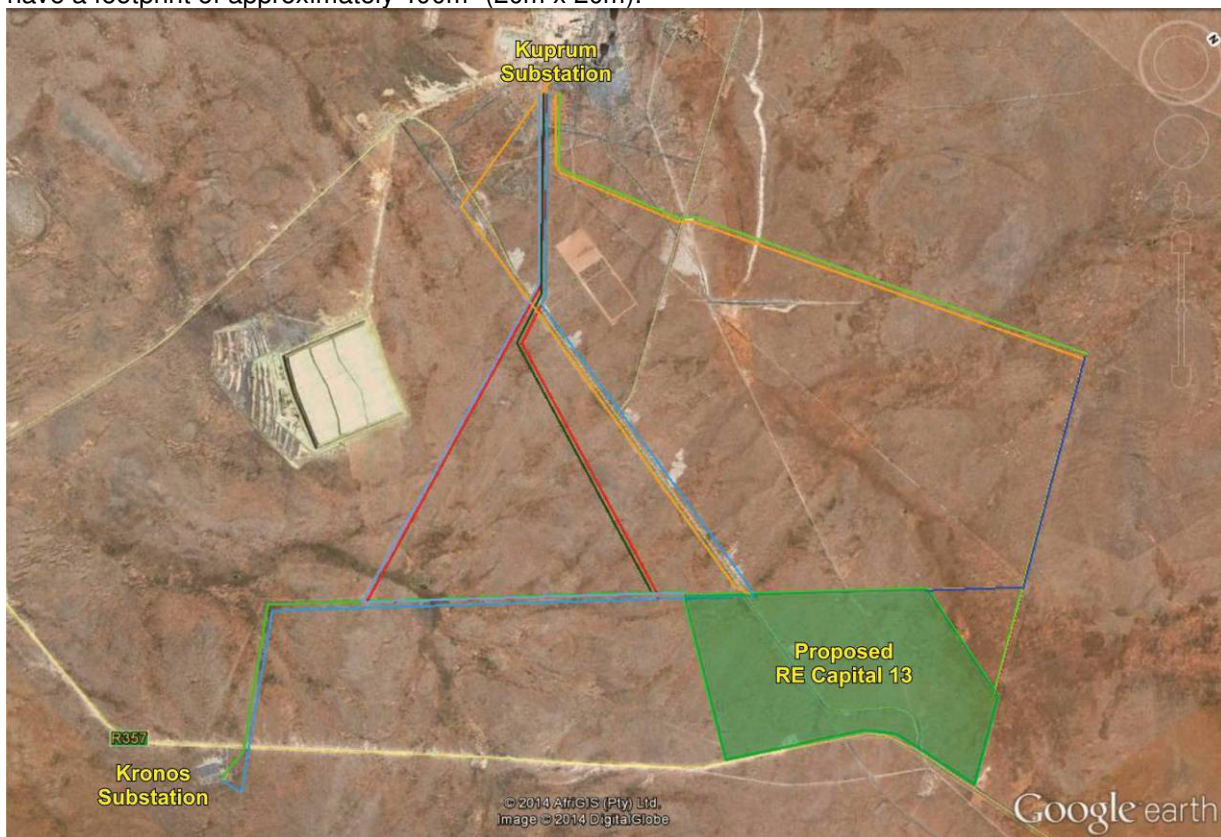
<sup>2</sup> Transposed from Final Scoping Report, RE Capital 13, Cape EAPrac, October 2014

routes. The electrical power line/s is planned to run along farm boundaries so as to minimise the effect on the environment and practicalities of utilising the farm land as far as possible.

A 75MW installation will have various electrical components to meet the national grid code requirements in order to supply generated electricity onto the national grid. The installed infrastructure will ensure the correct conversion of produced power from the generated panel Direct Current (DC) to Alternate Current (AC), this conversion from DC to AC is done by means of inverter stations. A single inverter station is connected to a series of arrays and would be placed along the service roads to give quick and easy access.

A number of inverter stations will be installed, of which each of these inverter stations are connected to the on-site substation from where a power line is constructed. The power line is constructed from the substation to the point of supply either directly to the substation or onto an existing power line (loop-in/loop-out).

The final placement of the inverter stations and on-site substation has to take the ground conditions into consideration, meaning that suitable areas with a minimal impact on the environment would be preferred. Interconnecting cables may be trenched where practically possible. However, in areas of high sensitivity cables would be mounted to the structure to avoid excessive excavation works and clearing of vegetation should this be required. An inverter station would typically be built into a transportable container and will have an onsite footprint of 56 m<sup>2</sup> (14m x 4m). The on-site substation is expected to have a footprint of approximately 400m<sup>2</sup> (20m x 20m).



**Figure 2:** Alignment of alternative grid connections and power lines routes in relation to proposed development site and its environs (Source: GoogleEarth)

## 5.2 Grid Connection and Power line Routes

In the Scoping Phase numerous power line route alternatives have been investigated, including “self-build line options” and “loop-in loop-out” route option. Due to the fact that the project is closely situated to both Cuprum substation and Kronos substation of ESKOM, the route options offer several more possibilities than usual. These will be refined during the ongoing environmental process. The loop-in option will be most cost effective, but this is dependent on the capacity on the available transmission lines. However, the feasibility of most of these options will depend on the neighbouring project’s servitude consent. That is also the reason for the large number of alternative options.

### 5.2.1 Loop in Loop out Alternatives

The alternative Loop in Loop out options from onsite Substation 1 and onsite Substation 3 to loop into the existing Burchell-Cuprum 132 kV line was investigated as one of the primary connection alternatives. These options are indicated in Figure 3 below as “REC 13 PV Loop in Loop out sub1\_01” and “REC 13 PV Loop in Loop out sub3\_01”. The Loop in Loop out alternative from onsite substation 2 to loop into the Cuprum-Hydra 132kV line is indicated in Figure 3 as “REC 13 PV Loop in Loop out sub2\_01”.

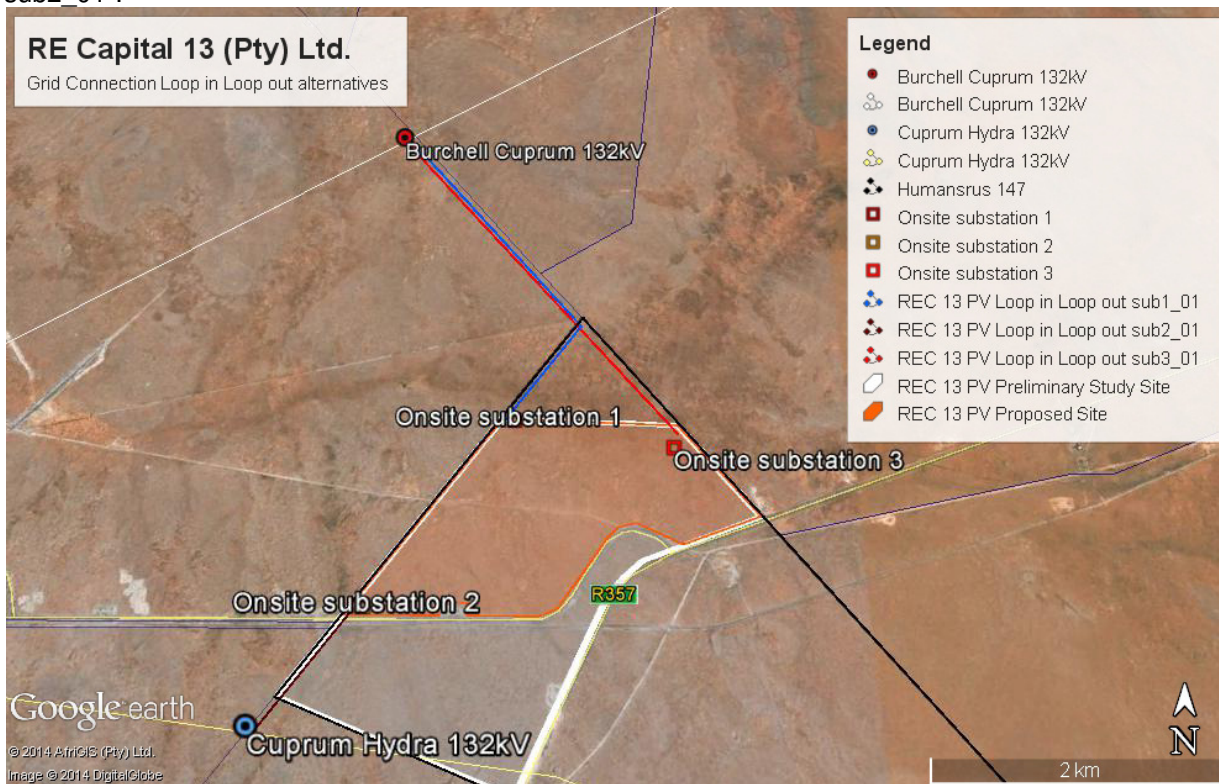


Figure 3: Grid connection Loop in Loop out alternatives (Source: Cape EAPrac, October 2014)

### 5.2.2 Self-build Alternatives from proposed onsite substation 1 and 3

The two self-build power line alternative from onsite substation 1 and 3 are illustrated in Figure 4. The power lines will follow the same routes exiting the Humansrus property. The self-build alternative “REC 13 PV PLine Selfbuild sub3\_01” starts at Onsite substation 3 runs in a north-western direction parallel to the Humansrus 147 eastern boundary crossing over to Vogelstruisbult and runs parallel to the Vogelstruisbult boundary up to the Burchell-Cuprum 132kV line intersection. From here the line is planned to continue parallel to either side of the Burchell-Cuprum 132kV line, running South-West from the intersection to Cuprum, effectively connecting to Cuprum substation.

The self-build alternative “REC 13 PV PLine Selfbuild sub1\_01” starts at Onsite substation 1 and runs North-east to the intersection with the farm boundary. From here it follows the same route as the previous alternative (north-west) up to the Burchell-Cuprum 132kV line intersection. Again following same route to Cuprum (parallel to the existing Burchell-Cuprum 132kV line) to connect with Cuprum substation.

There are six grid connection alternatives of which all of these start at the Onsite substation 2. The proposed self-build alternative 1 runs south-west parallel to the Humansrus 147 boundary crossing over to Vogelstruisbult up to the intersection with the existing Cuprum-Hydra 132kV Power line. From here alternative 1 grid connection runs parallel to the existing Cuprum-Hydra 132kV power line (on the northern side of the existing power line). The grid connection runs in an initial western direction where after it takes a turn to the north to connect at Cuprum substation.

### 5.2.3 Self-build alternative from onsite Substation 2

The proposed self-build alternative 2 follows the same route as alternative 1 but runs on the other side of the existing Cuprum-Hydra 132kV line (south of the line), while alternative 1 runs on the northern side of the existing line. The proposed self-build alternative 3 runs south-west along the Humansrus 147 boundary crossing over to Vogelstruisbult, crossing the existing Cuprum-Hydra 132kV line and follows Vogelstruisbult boundary up to the Kronos-Karoo 66kV line intersection. From here alternative 3 runs

parallel with the Kronos-Karoo 66kV line (on the eastern side of the existing line) connecting to Cuprum substation.

The proposed self-build alternative 4 follows the same route as alternative 3 up to the Kronos-Karoo 66kV line and continues parallel to the existing Kronos-Karoo 66kV line (on the western side of the existing line) connecting to Cuprum substation. The proposed self-build alternative 5 runs in a western direction, north of the R357 Copperton road along the Vogelstruisbult property up to the Cuprum-Hydra 132kV line the and runs parallel north of the Cuprum-Hydra 132kV power line connecting to Cuprum substation.

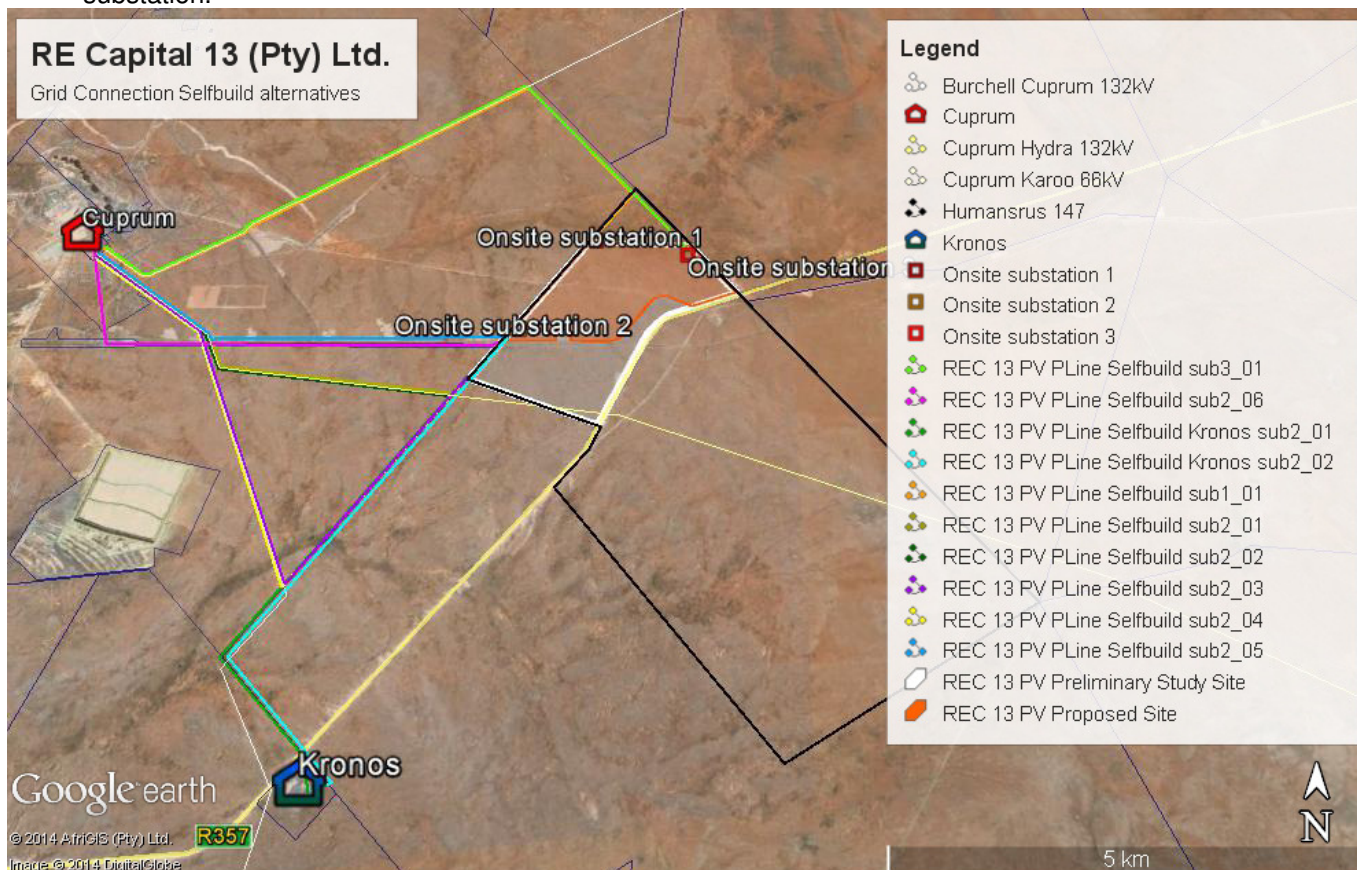


Figure 4: Self-build alternative routes and grid connection points (Source: CapeEAPrac, October 2014)

The proposed self-build alternative 6 utilises the decommissioned railway servitude (running east-west) connecting to Cuprum substation as indicated in Figure 5.

The two self-build power line alternatives from onsite substation 2 connecting to Kronos substation are illustrated in Figure 4 above.

The proposed self-build alternative “REC 13 PV PLine Selfbuild Kronos sub2\_01” runs south along the Humansrus 147 boundary crossing over to Vogelstruisbult and follows Vogelstruisbult boundary crossing over to Klippgats Pan and follows parallel to Klippgats Pan Boundary connecting to Kronos substation.

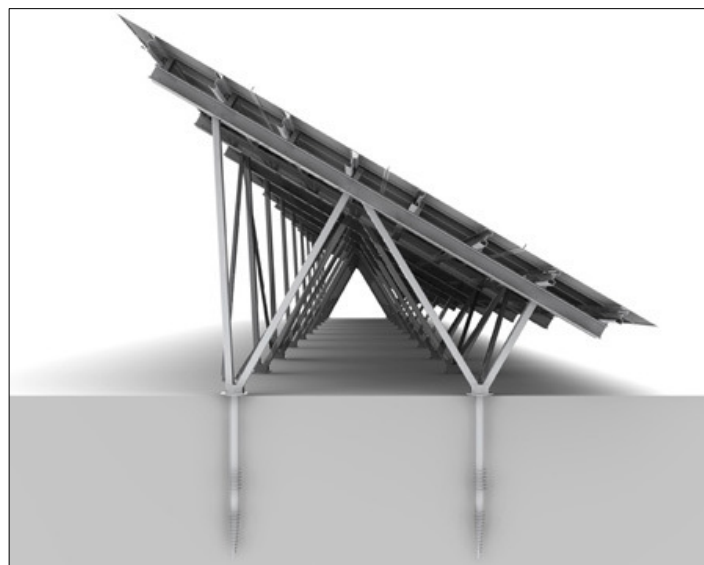


Figure 5: Typical rammed or screwed method with fixed frame

The self-build alternative “REC 13 PV PLine Selfbuild Kronos sub2\_02” runs south along the Humansrus 147 boundary crossing over to Hoekplaas following Hoekplaas western boundary up to the



south corner and then parallel the south boundary staying on Hoekplaas property connecting to Kronos substation on the Klipgats Pan property.

**Table 1: Summary of Grid connection alternatives and distances**

Alternative grid connection	Distance (km)
<b>Loop in Loop Out alternatives</b>	
REC 13 PV PLine Loop in Loop out sub1_01	3.5 km
REC 13 PV PLine Loop in Loop out sub3_01	3.7 km
REC 13 PV PLine Loop in Loop out sub2_01	1 km
<b>Onsite Substation 2 connecting to Cuprum</b>	
REC 13 PV PLine Selfbuild sub2_01	7 km
REC 13 PV PLine Selfbuild sub2_02	7 km
REC 13 PV PLine Selfbuild sub2_03	10 km
REC 13 PV PLine Selfbuild sub2_04	10 km
REC 13 PV PLine Selfbuild sub2_05	6.2 km
REC 13 PV PLine Selfbuild sub2_06	6.8 km
<b>Onsite Substation 2 connecting to Kronos</b>	
REC 13 PV PLine Selfbuild Kronos sub2_01	7.2 km
REC 13 PV PLine Selfbuild Kronos sub2_02	7 km
<b>Onsite Substations 1 and 3 connecting to Cuprum</b>	
REC 13 PV PLine Selfbuild sub3_01	10.2 km
REC 13 PV PLine Selfbuild sub3_02	10.5 km

## 6. PLANNING CONTEXT

A Town and Regional Planner will be appointed to facilitate the necessary Planning Application process for the proposed *Humansrus PV1 Grid Connection*, which will include a land use application for the rezoning of approximately 275ha, from Agricultural Zone I to Special Zone, will be lodged at the Siyathemba Local Municipality, in accordance with the Northern Cape Planning and Development Act (Act 7 of 1998), to allow for the development of the proposed *Humansrus PV1 Grid Connection*.

Parallel to the rezoning application, a long term lease application will be lodged at the National Department of Agriculture, in accordance with the Subdivision of Agricultural Land Act (Act 70 of 1970) to allow for the development of the proposed *Humansrus PV1 Grid Connection*.

## 7. HISTORICAL BACKGROUND<sup>3</sup>

Smith (1995b) notes that c. 1880/1890 white farmers were making extensive use of Bushmanland for summer grazing and that this led to the extermination of the massive springbok herds on which the indigenous population subsisted. This in turn led to the descendants of indigenous groups turning to the farmers for food (and employment), effectively ending the span of prehistory in the region.

The farm houses of Humansrus and Platsambok lie outside the study area. The farm Humansrus comprises portions of the early farms Vogelstruis Bult 104 and Platsjambok 102 as depicted through early mapping shown in Figure 3. The farm Vogelstruis Bult 104 was surveyed during 1880<sup>4</sup> and transferred on 24<sup>th</sup> October 1882 (transferee not legible) while the farm Platsjambok 102 was also surveyed during the same year<sup>5</sup> and transferred to GF Rens on 26<sup>th</sup> October 1892.

Early mapping (1906-1914) shows the location of former farmsteads on early farms Vogels Bult, Nelspoortje, Platsjambok and others in relation to the proposed site boundary. This also shows the historic road alignment passing just north of the proposed site boundary and describes soil conditions on and within the proximity of the site as, "fairly hard". At the time, grazing conditions at Nelspoortje were described as poor with only a limited water source during wet periods.

The nearby town of Copperton was established in 1972 to provide housing for the nearby copper mine, but after the mine closed down in 1992 the town was sold and some of the housing has been demolished. Basic historic background research did not identify or highlight any significant historic or other heritage-related themes, which may be negatively impacted through the proposed development.

<sup>3</sup> Partly transposed from AIA, ACO Associates, November 2014

<sup>4</sup> SG Diagram 1733/1880

<sup>5</sup> SG Diagram 1750/1880

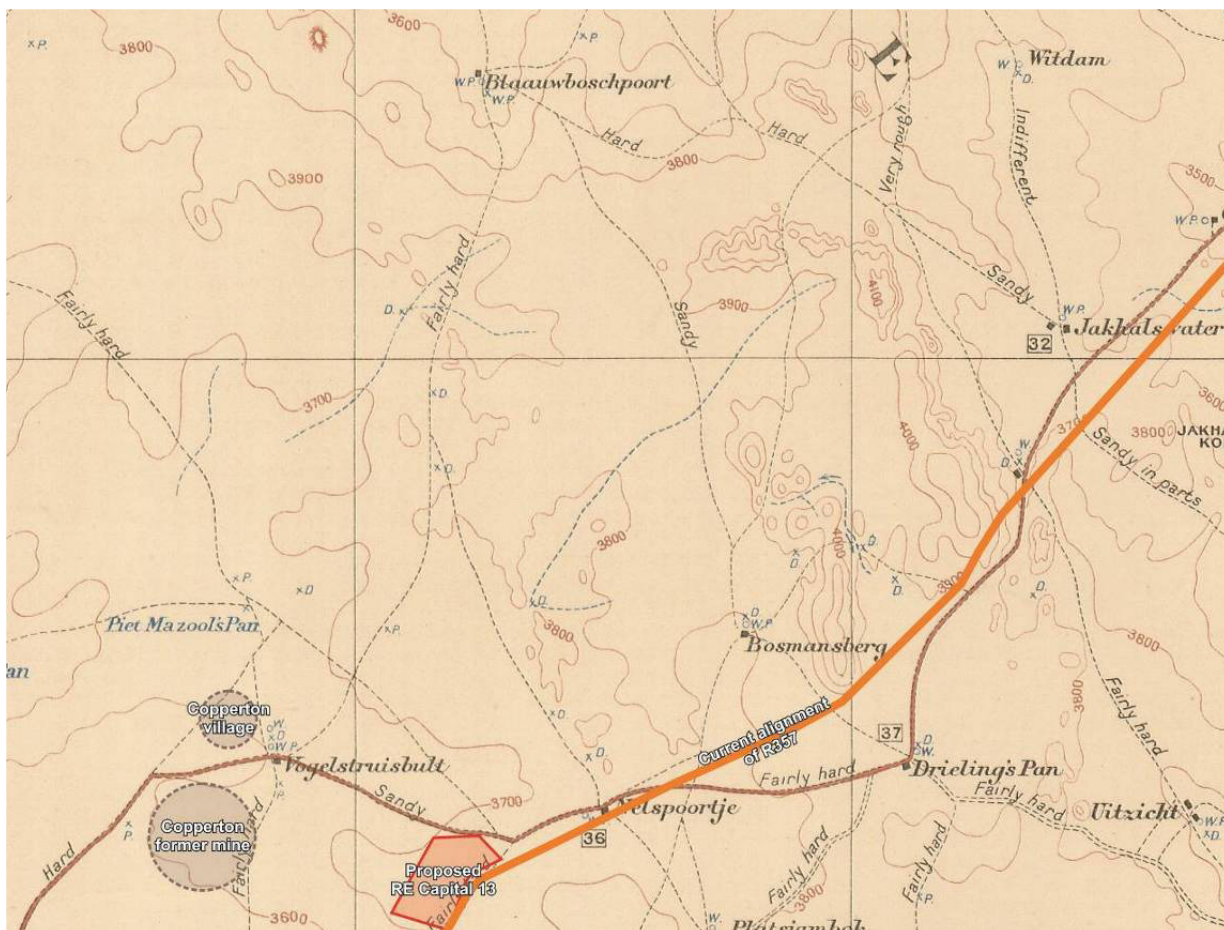


Figure 6: Extract from early (1906-1914) mapping for the area showing the location of the site, Copperton and current alignment of R357 (Source: CDSM)

**8. HERITAGE RESOURCES AND ISSUES**

**8.1 Landscape Character**

**8.1.1 Cultural landscape context**

The term “cultural landscape” refers to the imprint created on a natural landscape through human habitation and cultivation over an extended period of time. While the Cape has been inhabited for many hundreds of thousands of years (pre-colonial history) prior to Western settlement (colonial history), the nomadic lifestyles of early inhabitants are not always as evident within the landscape as the significant imprints made by humans during the last two – three hundred years and more. Unlike ancient landscapes in parts of the world where environmental conditions allowed more intensive cultivation over periods much longer than locally have allowed natural and cultural components of the landscape to become interwoven, landscape components Northern Cape have not yet developed in such a manner. The fact that natural and cultural landscape components in the region is therefore more distinguished means that the cultural landscape is likely to be very vulnerable to the cumulative impact of inappropriate large-scale development.

Ultimately, definition of a cultural landscape can be informed by the following elements, weighed through professional opinion, public values and statutory (legal) framework:

- Natural Landscape
- Public Memory
- Social History
- Historical Architecture
- Palaeontology
- Archaeology

The site may be described as forming part of a typical Karoo landscape and defined by flat and wide open spaces overgrown by sparse, low-growing vegetation. From a Pre-Modern perspective, the site formed part of an area mostly used for small stock farming and so, modern man-made features noted on the site included e.g. shallow pans, fences, wind pumps and cement water reservoirs related to said land use. An abandoned railway line, numerous powerlines also traverses the site.

West-facing views across the landscape are however dominated by spoil heaps from the former Copperton mine and further impacts of mining activities have materially and permanently altered the adjoining landscape. From a cultural landscape perspective, the site is therefore considered to be of no local cultural significance.

While two stone cairns were noted, these are considered unlikely to represent graves given its small size and location in the veld<sup>6</sup>. No ruins or significant structures were noted on or within the direct proximity of the site.

## 8.2 Visual Statement

The Visual Statement considers the anticipated visual impacts related to the proposal and assesses the implications of various transmission line alternatives associated with the proposed photovoltaic development (*Humansrus Solar PV Facility 1/ RE Capital 13*), as transposed from said report below (with permission from author). Note that findings and recommendations made with relation to transmission lines associated with the proposal are not reflected below. This report is attached as Annexure 2.

*“A broad brush regional landscape survey was undertaken to identify key features that define the landscape context within the project approximate viewshed area. The following landmarks were identified as significant in defining the surrounding areas characteristic landscape:*

- *Copperton mine and tailing storage facility*
- *Eskom substation and powerlines*
- *Solar energy context*
- *R357 road*
- *Old railway line*
- *Isolated farmsteads*

*It was found that the proposed alternatives would not constitute a significant visual impact to the characteristic landscape and further detailed visual assessment is not necessary for the following reasons:*

- *The proposed project's close proximity to the Copperton mine and TSF.*
- *The old railway line and borrow pits degrade the landscape in the immediate vicinity.*
- *The area is an unofficial node for Solar Energy development with adjacent sites already having authorization.*
- *The alignment of the proposed project with municipal planning.*

*To assist in reducing the massing and crowding effects of the proposed PV structures the following is recommended:*

- *To reduce visual intrusion from the possible multiple power lines linking up to different proposed PV projects in the vicinity, it is recommended that the power lines as much as possible follow existing transmission line corridors.*
- *Transmission lines are not routed within 50m of the roads.*
- *There is a strong preference for Power Line 2\_01 as it is further away from the roads.*

*From a cumulative perspective, power lines should not be route on either side of the road i.e. one side of the road should be kept open with a preference for keeping eastern views away from the mine open.”*

## 8.3 Archaeology

A copy of the Archaeological Impact Assessment (AIA), compiled by ACO Associates, is attached as Annexure 3/ Figure 7, the findings of which are summarised below with permission from authors. Kindly refer to specialist's full report and findings.

*“The area was surveyed by Lita Webley and David Halkett on 23 October 2014. The property was accessed by the local farm roads and transects were walked across the study area. We drove along sections of the access roads and powerline options where this was possible”.*

*The field assessment did not identify any significant archaeological occurrences along any of the proposed transmission/ grid line alignments. Based on the findings of previous similar studies within the*

<sup>6</sup> ACO Associates, November 2014 - See Section 8.3 of this report

direct proximity of the site as well as the potential low impact associated with installation of the proposed transmission/ grid line infrastructure, no further archaeological study is recommended, unless required by the relevant competent authority.

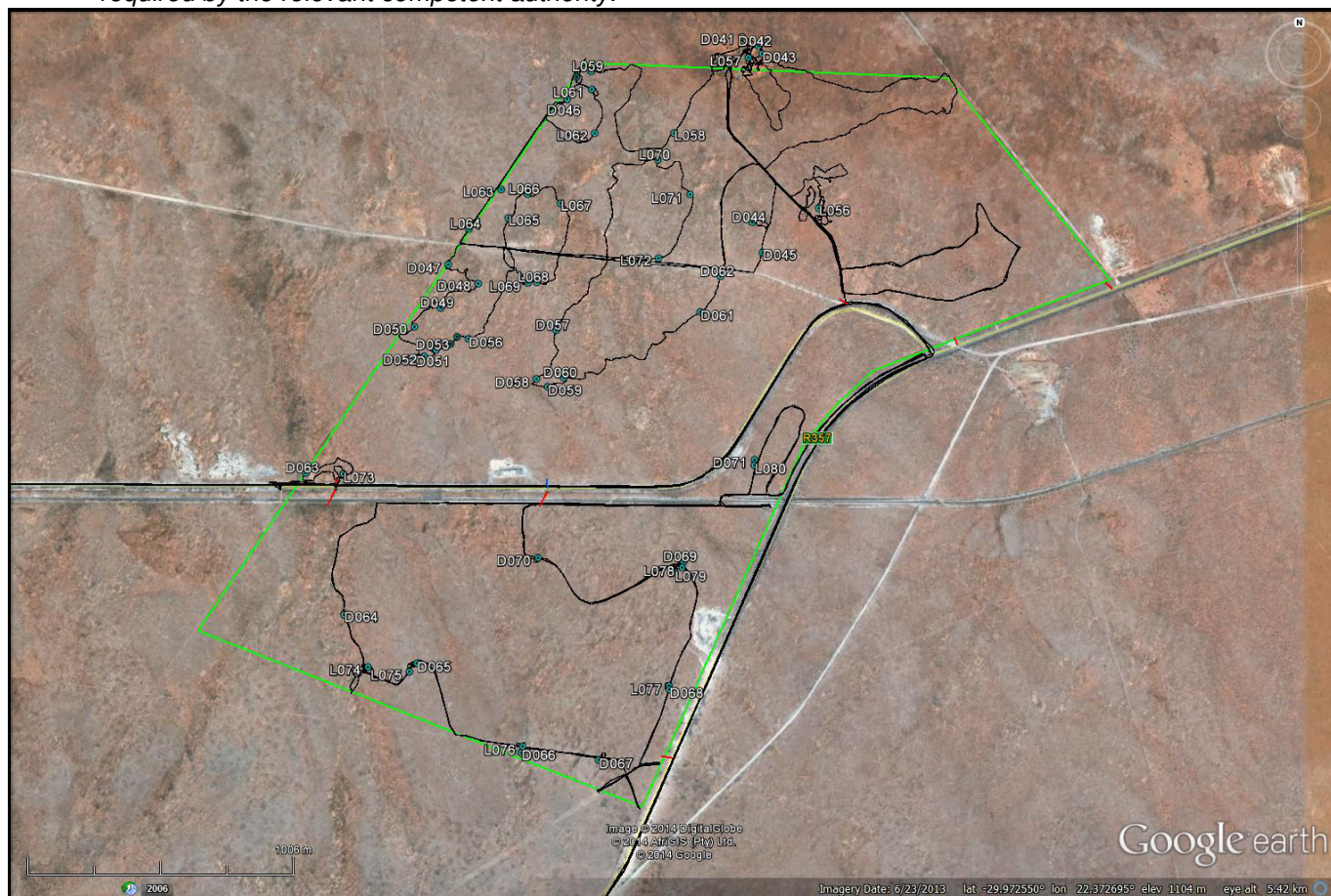


Figure 7: The tracks and sites recorded during the field survey of the property (Source: ACO Associates, GoogleEarth)

### 8.3.1 Cumulative impacts

Of concern, is the increasing number of solar facilities in this area. The cumulative impacts of the developments will result in widespread destruction of surface distributions of ESA and MSA material. Although many of these distributions/sites have, individually, been rated as having low significance, the cumulative impact of the removal of all archaeological material will result in the destruction of large areas of archaeology.

### 8.4 Palaeontology

The findings and recommendations from a desktop palaeontological study (summarised below), compiled by *Natura Viva* (Dr. John Almond) conclude that no further related studies or mitigation would be required. Kindly refer to specialist's full report and recommendations, attached to this report as Annexure 4.

*"The igneous and metamorphic Precambrian basement rocks underlying the Humansrus study area at depth are entirely unfossiliferous. The overlying Permo-Carboniferous glacially-related sediments of the Dwyka Group (Karoo Supergroup) are, at most, sparsely fossiliferous, with occasional transported stromatolitic carbonate erratics. Kalahari Group sediments (calcretes and aeolian sands) mantling the older bedrocks, especially in the northern portion of the study area, are generally of low palaeontological sensitivity. Mammalian bones and teeth have been recorded from similar rocks elsewhere in Bushmanland but are very scarce.*

*It is concluded that the both the proposed Humansrus Solar PV Energy Facility 1 near Copperton, including the associated short transmission lines, are unlikely to have significant impacts on local palaeontological heritage resources. It is therefore recommended that, pending the discovery of significant new fossils remains before or during construction, exemption from further specialist palaeontological studies and mitigation be granted for the proposed Humansrus Solar PV Energy Facility 1 on Farm Humansrus 147 near Copperton.*

*Should any substantial fossil remains (e.g. well-preserved stromatolites, mammalian bones and teeth) be encountered during excavation, however, these should be safeguarded, preferably in situ, and reported by the ECO to SAHRA, i.e. The South African Heritage Resources Authority, as soon as possible (Contact details: Mrs Colette Scheermeyer, P.O. Box 4637, Cape Town 8000. Tel: 021 462 4502. Email: cscheermeyer@sahra.org.za) so that appropriate action can be taken by a professional palaeontologist, at the developer's expense. Mitigation would normally involve the scientific recording and judicious sampling or collection of fossil material as well as associated geological data (e.g. stratigraphy, sedimentology, taphonomy) by a professional palaeontologist."*

### **8.5 Eco-tourism<sup>7</sup>**

One of the goals of ecotourism is to offer tourists insight into the impact of human beings on the environment, and to foster a greater appreciation of our natural habitats and from an economic perspective, heritage resources may prove to be valuable resources when used in sustainable manner through eco-tourism. This may for example include investment in adaptive reuse of historic buildings so as to conserve and enhance the unique character and historic themes pertinent to this area. Heritage tourism can therefore serve as a driver for economic development, including infrastructure development and poverty alleviation through job creation. The broader region's rich archaeological, palaeontological, historical and natural heritage has the potential to provide unique tourism opportunities when developed and used in responsible and sustainable ways.

Given the location as well as pattern of existing land use within the proximity of the site and furthermore, the relative low density of heritage resources considered of cultural significance noted as part of this assessment, we do not consider that the proposed development would offer significant heritage-related eco-tourism opportunities associated with the development site.

## **9. HERITAGE INFORMANTS AND INDICATORS**

According to the requirements of Section 38(3) of the NHRA, land use planning and EIA processes must be informed by and incorporate heritage informants and indicators (as done through the mapping and grading of relevant heritage resources in Section 8 of this report). It is the purpose of this Section to define heritage informants and indicators pertaining to the way in which heritage resources must be incorporated into the overall layout and design of the proposed development as read in conjunction with preceding Sections.

### **9.1 Cultural landscape issues**

From a regional and natural landscape perspective, the proposed development site forms part of a highly-transformed landscape altered through mining activities as well as high concentration of proposals for development of several renewable energy (solar) facilities. While the proposal would relate to a landscape modification, we do not consider that it would alter any natural or cultural landscape of cultural significance.

### **9.2 Visual-spatial issues**

Recommendations reflected in the Visual Statement, as summarised in Section 8.2 of this HIA report shall be adhered to.

### **9.3 Archaeology**

All recommendations contained in AIA, as summarised in Section 8.3 of this HIA report shall be adhered to.

### **9.4 Palaeontology**

It is recommended that no further palaeontological studies or mitigation be undertaken in respect of the proposed development site. Should substantial fossil remains be exposed during construction, however, the ECO should safeguard these, preferably *in situ*, and alert SAHRA as soon as possible so that appropriate action (e.g. recording, sampling or collection) can be taken by a professional palaeontologist.

<sup>7</sup> Section included in accordance with requirements set by National Department of Environmental Affairs

## 10. PUBLIC PARTICIPATION

Due to the fact that there are no known local heritage conservation bodies in the Humansrus area (registered as such with the relevant provincial heritage resources authority in terms of Section 25 of the National Heritage Resources Act, 1999 (Act 25 of 1999)), the Public Participation Process (PPP) for this HIA will be coordinated with that of the EIA Process facilitated by *Cape Environmental Assessment Practitioners (Pty) Ltd* (Cape EAPrac) in terms of the National Environmental Management Act, 1998 (Act 107 of 1998), so as to solicit possible heritage-related comments with relation to the proposed development.

## 11. LIMITATIONS AND ASSUMPTIONS

- This report is limited to the assessment of the potential impact of the proposed facility on heritage resources found on/ within the proximity of the development site as defined in this report;
- There is a limitation in terms of understanding the cumulative impacts of the project when taken in conjunction with other similar future development projects in the surrounding area.

## 12. RECOMMENDATION

Having regard to the above assessment, it is recommended that:

12.1 This report fulfils the requirements of an Integrated Heritage Impact Assessment (HIA);

12.2 That the recommendations below be incorporated into the proposed development and that the Department of Environmental Affairs be informed accordingly:

<b>Recommended Conditions of Approval</b>	
VS-1	<i>To reduce visual intrusion from the possible multiple power lines linking up to different proposed PV projects in the vicinity, it is recommended that the power lines as much as possible follow existing transmission line corridors</i>
VS-2	<i>Transmission lines are not routed within 50m of the roads</i>
VS-3	<i>There is a strong preference for Power Line 2_01 as it is further away from the roads</i>
PIA-1	<i>Should any substantial fossil remains (e.g. mammalian bones and teeth) be encountered during excavation, however, these should be safeguarded, preferably in situ, and reported by the ECO to SAHRA, i.e. The South African Heritage Resources Authority, as soon as possible (Contact details: Mrs Colette Scheermeyer, P.O. Box 4637, Cape Town 8000. Tel: 021 462 4502 (Email: cscheermeyer@sahra.org.za), so that appropriate action can be taken by a professional palaeontologist, at the developer's expense. Mitigation would normally involve the scientific recording and judicious sampling or collection of fossil material as well as associated geological data (e.g. stratigraphy, sedimentology, taphonomy) by a professional palaeontologist.</i>

**PERCEPTION Planning**  
27<sup>th</sup> November 2014

**SE DE KOCK**  
B-Tech(TRP) EIA Mgmt (IRL) Pr Pln PHP