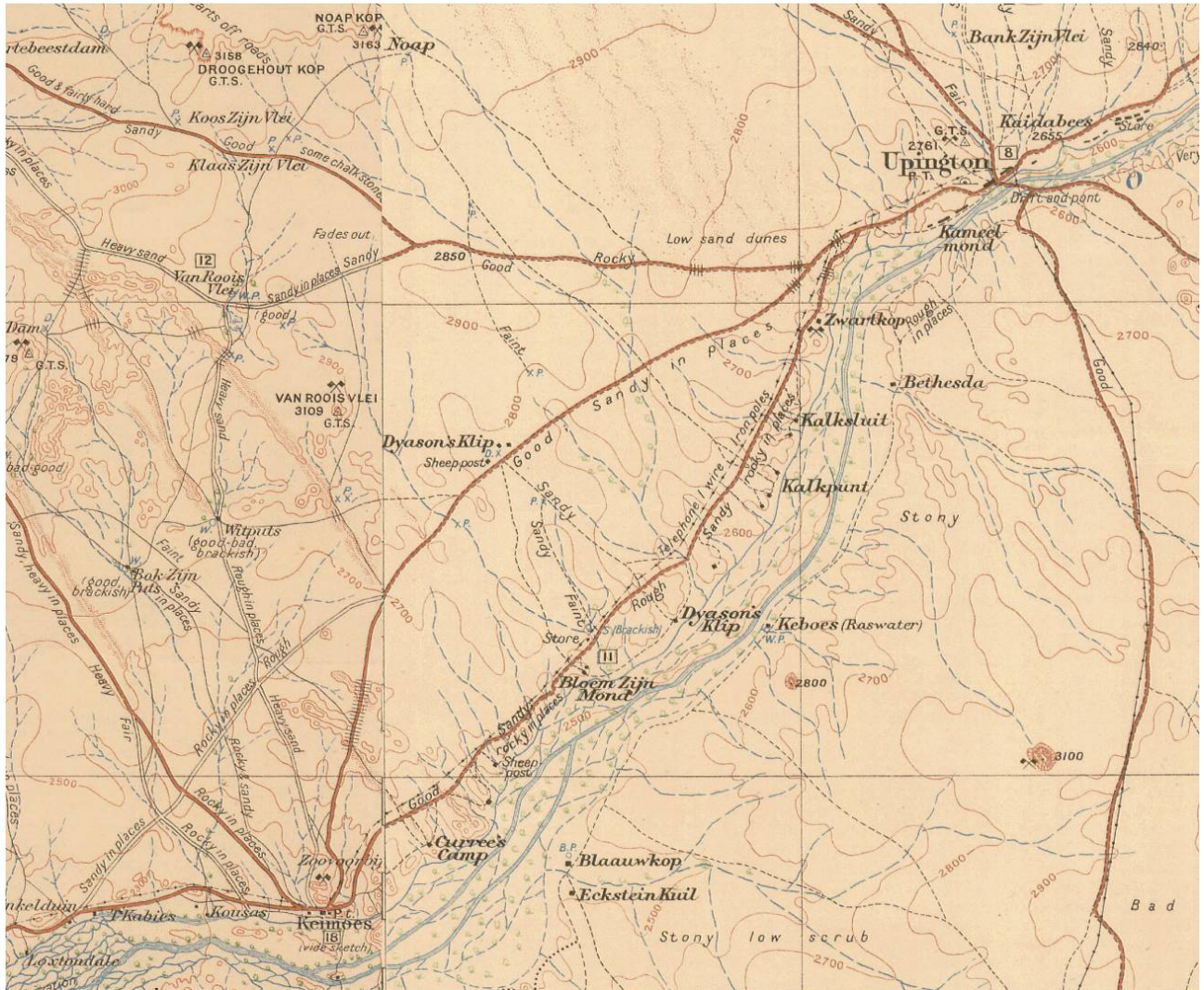


INTEGRATED HERITAGE IMPACT ASSESSMENT IN TERMS OF SECTION 38(8) OF THE NATIONAL HERITAGE RESOURCES ACT, 1999 (ACT 25 OF 1999)

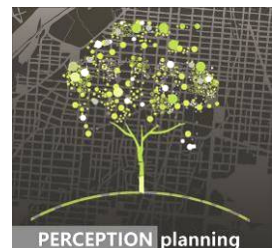
PROPOSED CONSTRUCTION OF COMBINED DYASKONKLIP AND SIRIUS GRID CONNECTIONS ON PORTIONS OF THE FARM DYASKON'S KLIP 454/ REMAINDER, FARM 638/ REMAINDER AND AGRICULTURAL HOLDING 1080, SIYANDA DISTRICT, KHAI GARIB LOCAL MUNICIPALITY, NORTHERN CAPE.



On behalf of: Scatec 163 (Pty) Ltd

September 2015

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2. Dyasonsklip 1/ RE Capital 3 - SAHRA Final Comment dated 20th June 2014
3. Dyasonsklip 2/ RE Capital 3B - SAHRA Final Comment dated 20th June 2014
4. Visual Impact Statement, VRM Africa, 19th August 2015

REFERENCES and ACKNOWLEDGEMENTS:

1. National Geo-Spatial Information, Department of Rural Development and Land Reform
2. Cape Town Archives
3. Cape Town Deeds Office
4. SG Office, Cape Town

ABBREVIATIONS:

1. NGSi – National Geo-Spatial Information, Department of Rural Development and Land Reform, Mowbray
2. DEA – Department of Environmental Affairs (National)
3. HIA – Heritage Impact Assessment
4. NHRA - National Heritage Resources Act, 1999 (Act 25 of 1999)
5. NID – Notice of Intent to Develop
6. PHRA – Provincial Heritage Resources Agency
7. PHS – Provincial Heritage Site

COVER: *Compilation of early (1906-1914) mapping for the area between Upington and Keimoes (Source: Reconnaissance Series No 16, NGSi)*

1. INTRODUCTION

PERCEPTION Planning was appointed by *Scatec 163 (Pty) Ltd* during August 2015 to compile 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 the proposed construction of a combined transmission line/ grid connection for the already authorised Dyasonsklip and Sirius Renewable energy projects as described herein. Sanction for submission of this HIA was provided by *Scatec 163 (Pty) Ltd*, (on behalf of the registered property owners).

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

- Dyason's Klip 454/ Remainder, Upington District and Kai! Garip Municipality, ZF Mgcawu District Municipality, measuring approximately 5,725.2825 ha, registered to Owen Davies Trust and held under T1269/1997;
- Farm 638/ Remainder Upington District and Kai! Garip Municipality, ZF Mgcawu District Municipality, registered to Zelpy 2418 (Pty) Ltd;
- Agricultural Holding 1080, Upington District and Kai! Garip Municipality, ZF Mgcawu District Municipality, registered to Eskom Holdings Ltd.

This report serves as an **Integrated Heritage Impact Assessment (HIA)** and includes inputs from the following heritage reports/ HIA's compiled as part of the environmental impact assessment processes for three solar energy facilities, which have now been approved and to which this particular proposal relate:

- Scoping phase heritage input: RE Capital 3, 3b and 3c (Dr David Morris, July 2013);
- HIA report: Sirius Solar 1 (GA Heritage, October 2013);
- Integrated HIA: Dyasonsklip SEF 1 (Perception Planning, ACO Associates & Natura Viva, November 2014);
- Integrated HIA: Dyasonsklip SEF 1 Transmission lines (Perception Planning, ACO Associates & Natura Viva, November 2014).

Existing approvals applicable to the abovementioned three solar energy facilities, issued by the South African Heritage Resource Agency (SAHRA), being the competent authority, in terms of Section 38 of the National Heritage Resources Act, 1999 (Act 25 of 1999) are:

- Sirius Solar 1 - SAHRA Final Comment dated 4th March 2014 (Case Id 1844, Ref. 9/2/032/0001), attached as Annexure 1;
- Dyasonsklip 1/ RE Capital 3 - SAHRA Final Comment dated 20th June 2014 (Case Id 5713, Ref. 9/2/032/0004), attached as Annexure 2;
- Dyasonsklip 2/ RE Capital 3B - SAHRA Final Comment dated 20th June 2014 (Case Id 5714, Ref. 9/2/032/0004), attached as Annexure 3.

2. INDEPENDENCE OF ASSESSOR

The developer appointed *SE de Kock (PERCEPTION Planning)* as an independent professional heritage practitioner to compile the Integrated Heritage Impact Assessment, coordinate the public participation process and submit the report to the relevant provincial heritage resources authority, being Heritage Western Cape, in accordance with relevant statutory requirements and guidelines.

With relation to the author's appointment to compile and submit to the South African Heritage Resources Agency 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 that:

- 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 18 years professional experience as urban planner (3 years of which were abroad) and 9 years professional experience as heritage practitioner. The author holds the following qualifications:

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

The author is professionally registered as follows:

- Accredited Heritage Practitioner – Association for Professional Heritage Practitioners
- Registered as Professional Planner with South African Council for Planners
- Registered as Corporate Planner with South African Planning Institute

3. METHODOLOGY

This Integrated HIA is based on existing studies, field work and detailed impact assessments undertaken during the respective environmental authorisation processes for the already authorised Dyasonsklip and Sirius Renewable energy projects as described herein, which more specifically involved the following components:

- Field work carried out by GA Heritage, Dr. David Morris and ACO Associates during October 2013, July 2013 and October 2014 respectively;
- Liaising with project manager and environmental consultant;
- Assimilating findings and recommendations emanating from various specialist inputs which formed part of the already-authorised solar energy facilities, to which this application apply, into this HIA report;
- 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;
- Focussed public participation process to be coordinated as part of Environmental Impact Assessment (Basic Assessment) facilitated by *Cape Environmental Impact Assessment Practitioners (Pty) Ltd*;
- Compare potential impact of proposed revised transmission line alignments on heritage resource with that of transmission line alignments already authorised.

4. DESCRIPTION OF STUDY AREA

From a regional perspective the study area is situated ± 28 km southwest of Upington, ± 25 km northeast of Keimoes and northwest of the Orange River (Figure 1). It is ± 1.7 km northwest of the N14 National Road and adjoins the Khi Solar One CSP (Concentrated Solar Power) facility currently under construction (see Figure 2). The study area is located within the ZF Mgcawu district of the Northern Cape Province and jurisdiction area of the Khai Garib Local Municipality.

Morris (2013) describes the environment of the farm as an arid, gently sloping plain with shallow drainage lines running through it. The landscape is very sparsely vegetated. Higher ground drains towards multiple depressions (seasonal washes), forming waterways towards the river corridor. No structures or ruins were noted along the proposed transmission line alignments.

5. PROPOSED DEVELOPMENT

According to the development description provided by Scatec Solar (July 2015), the three already-authorised solar energy facilities (being Sirius 1 and Dyasonsklip 1 & 2¹) will each have

¹ Note Dyasonsklip 1 and Dyasonsklip 2 previously "RE Capital 3" and "RE Capital 3B"

a generation capacity of 75MW. Authorisation for these facilities include various overhead transmission line alignments as illustrated in Figure 2.

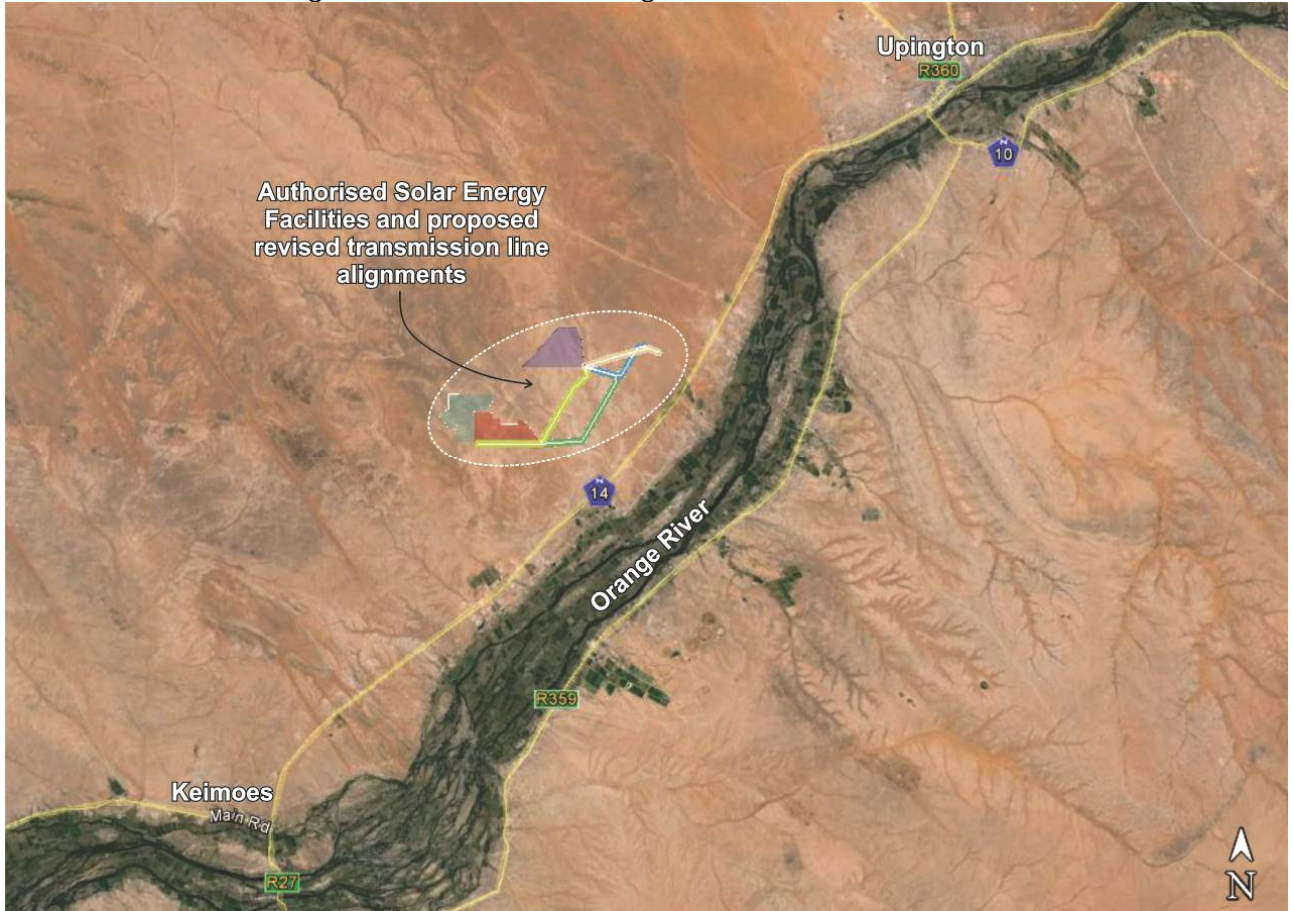


Figure 1: Study area location in relation to towns of Upington and Keimoes (Source: GoogleEarth)

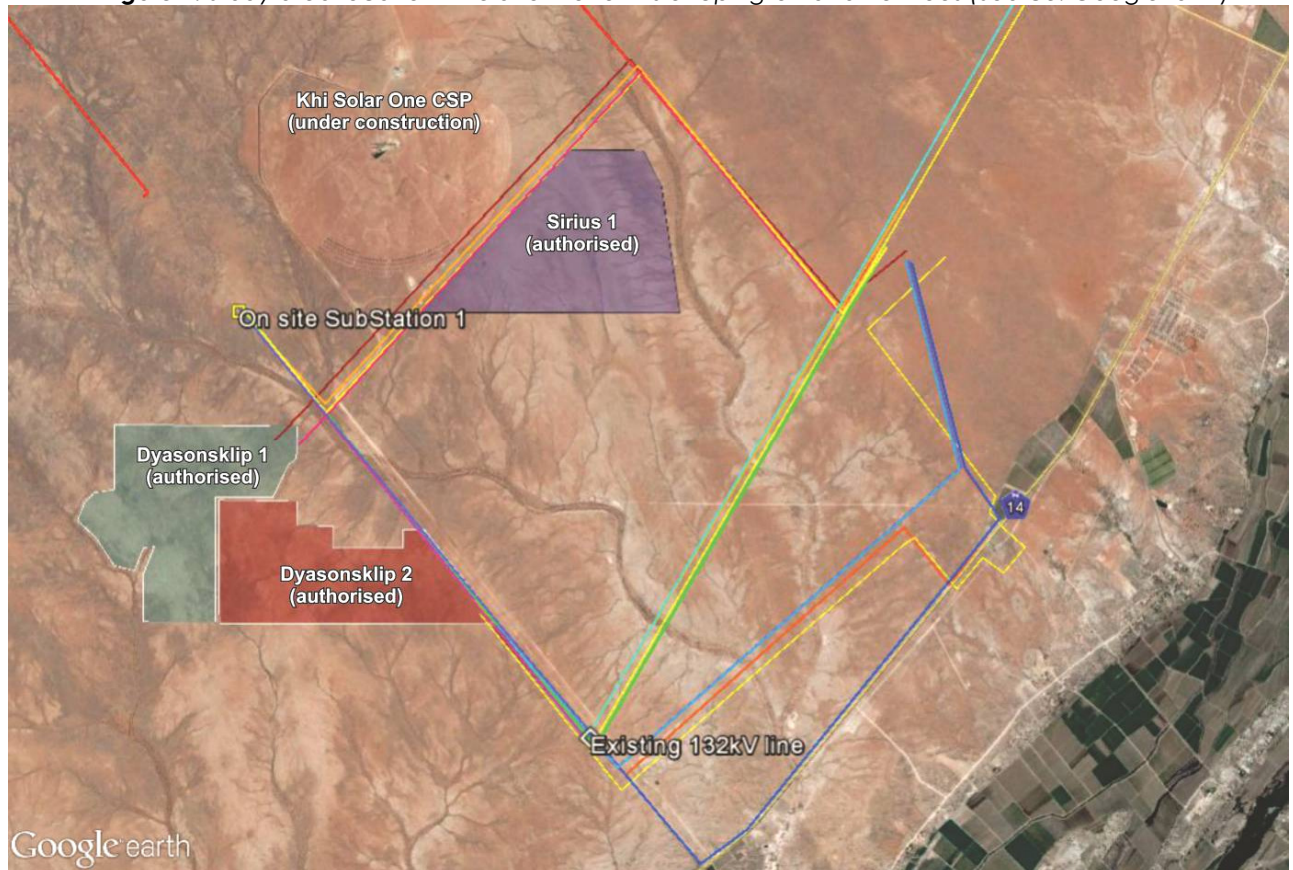


Figure 2: Authorised solar energy facilities as well as various transmission line alignments assessed as part of respective environmental authorisation processes for these (Source: CapeEAPrac, 2015)

From economic and environmental perspectives, replacement of these various transmission lines by a single alignment, designed to evacuate generated electricity through a single transmission line, would therefore make sense. The proposal is therefore that Dyasonsklip 1 and 2 will share a substation, called Dyasonsklip Substation and evacuate generated power to Sirius substation by means of a single circuit (SCt) Twin Tern line. From Sirius substation the power shall be evacuated by means of a SCt Twin Tern line to the new Upington MTS. Eskom planning has opted for the use of Twin Tern to accommodate future generating plants planned in the area.

Two potential transmission line alignments are being proposed as a single connection between three abovementioned substations as follows (see Figure 3):

Route One (Preferred alternative) - Highlighted in **green**, this route follows the Dyasonsklip 1 and 2 and Sirius 2 solar farm boundaries, crossing over a dirt access road, to connect to Sirius substation. From Sirius substation it follows a straight trajectory towards McTaggerts 132kV Line where it makes an underpass crossing. The line then bends in a south-east direction towards the existing Oranje-Oasis 132kV wood pole line where it crosses over at approximately midspan and heads towards its final bend before termination at the new Upington MTS. The corridor adjacent to McTaggerts 132kV Turn-in Lines has been earmarked as a 400kV line corridor to the new Upington MTS. In addition to this, the corridor will host a planned access road to the planned Eskom CSP plant located on the eastern side of the Khi Solar One CSP (Concentrated Solar Power) facility. The underpass crossing at the McTaggerts 132kV Turn-in Line will be made such that clearance to the planned 400kV line and access road is maintained.

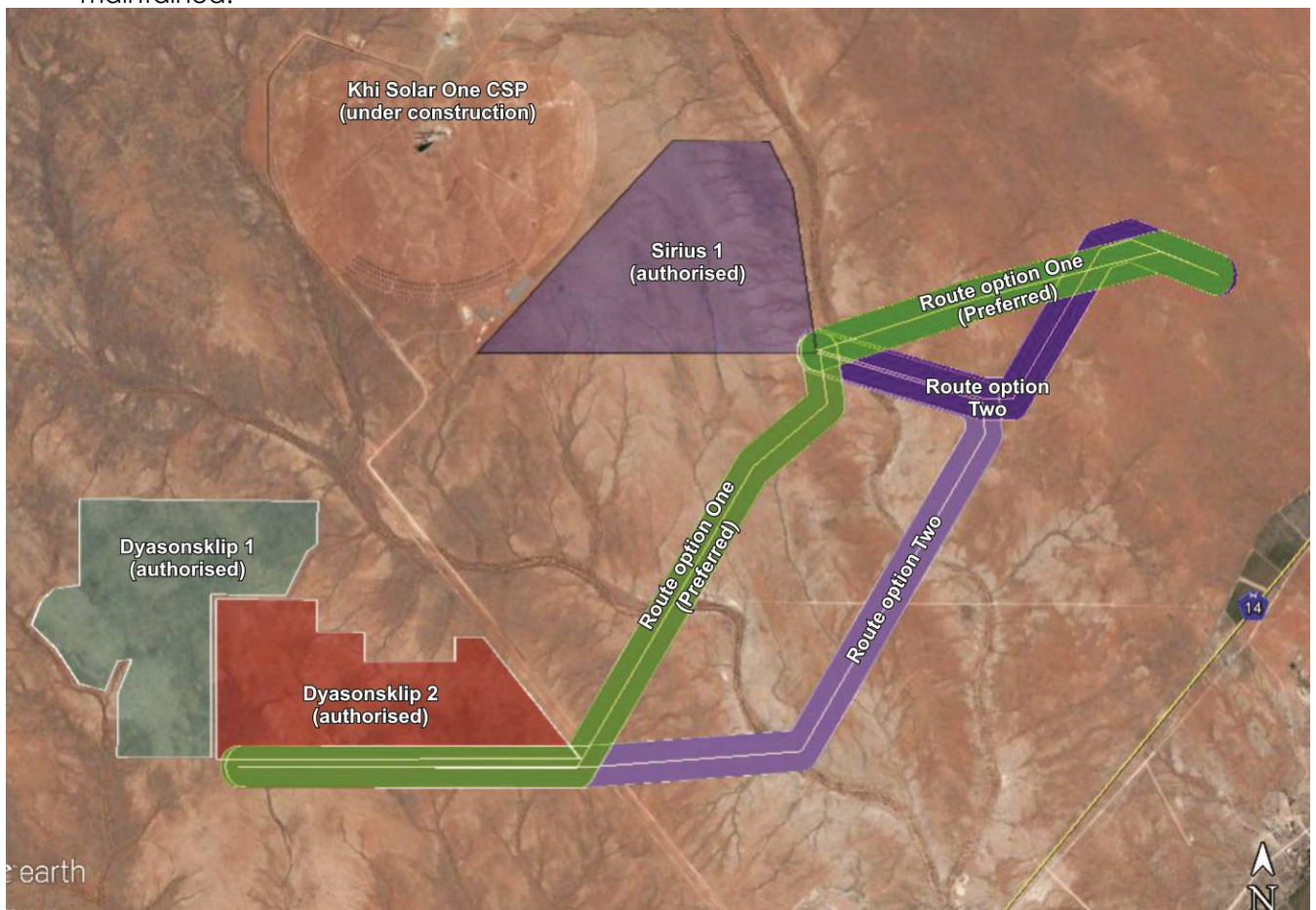


Figure 3: Proposed new transmission line route alignments serving three solar energy facilities (Source: Scatec Solar, July 2015)

Route Two - Highlighted in **purple**, also follows the solar farm boundaries of Dyasonsklip 1 and 2 and bends toward the existing Oranje-Oasis 132kV line where it runs parallel until turning into Sirius Substation. The line exits Sirius Substation in a southern direction towards the existing wood pole line, where it crosses over at approximately midspan and bends to again run

parallel to the existing 132kV line. The last two bends allows it to turn and terminate at the new Upington MTS.

6. BRIEF HISTORIC BACKGROUND

From a colonial perspective, early travellers such as Wikar and Gordon travelled along the Orange River in the 1770s and described various communities living along the river (Penn 1995). By the mid-19th century the stretch of the Orange River to the west of Upington was settled by the Korana, a Khoekhoen group whose origins are still unclear (Strauss 1979). With increasing Trekboer encroachment from the south, the Korana became involved in a struggle to maintain an independent existence. The attempt by the Korana to resist resulted in two wars, that of 1868-9 and 1878-9.

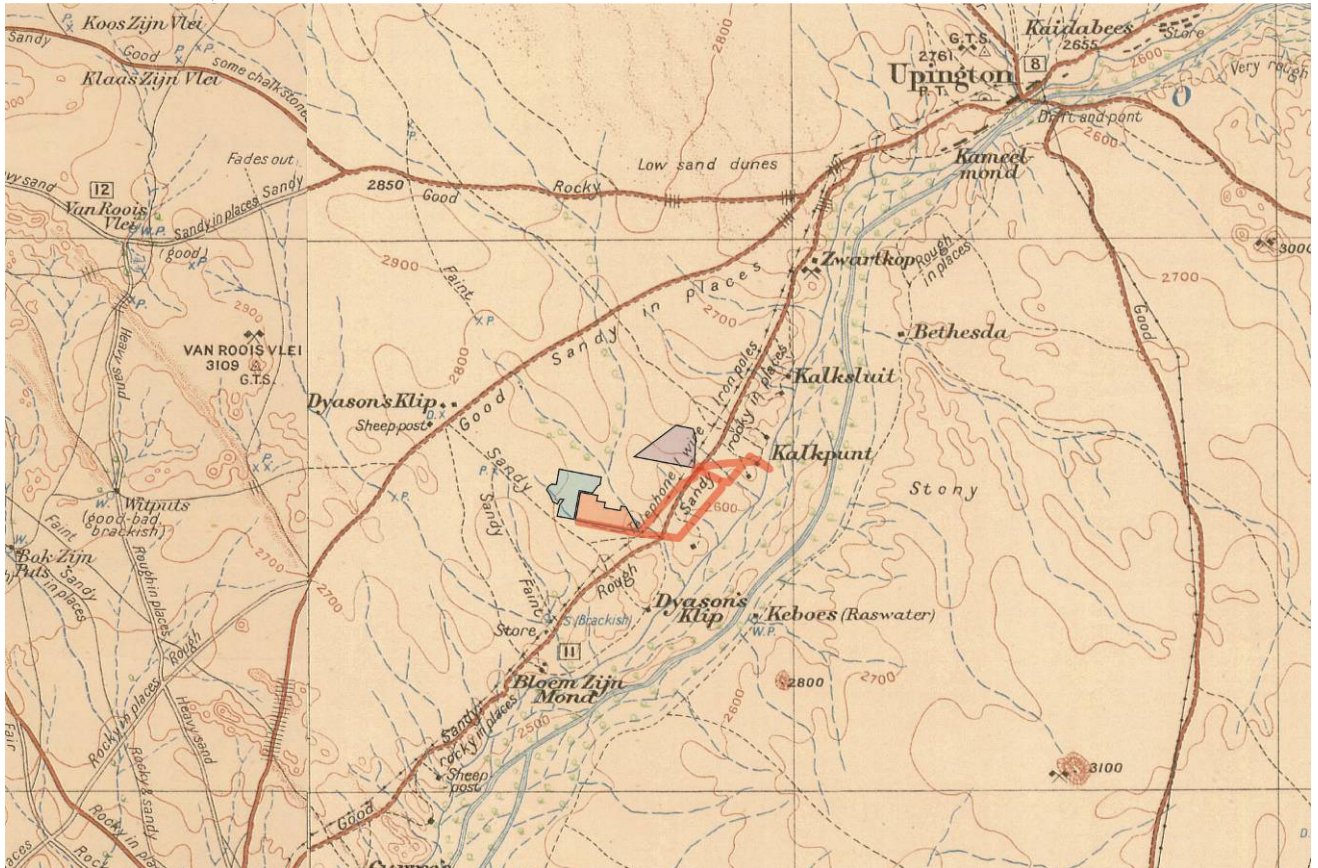


Figure 8: Approximate location of study area transposed onto extract from early (1906-1914) mapping for the area south of Upington (Source: NGS)

According to Morris (2013), the name Dyason's Klip is derived from events which occurred during the Korana War of 1879-1880. Apparently a certain Captain Dyason of the Northern Border Police was killed by Korana adversaries while walking between two rocks at this place in 1880. However, it is not recorded exactly where these stones are situated. The adjoining property of McTaggart's Camp also derives its name from events during the Korana War when Captain McTaggart set up his military camp here. It is assumed that the camp was located close to the river and that it is unlikely to have left much of an archaeological trace.

In his assessment of the farm Olyvenhout's Drift, Dreyer (2006) reported finding a heavily soldered food tin resembling British rations from the Anglo-Boer War (1899-1902). He considered it possible that a British camp may have existed in the area. Van der Walt (2011) reported the presence of a sandy track marking an old wagon-track on the farm Geel Kop to the west of Dyason's Klip. The wagon road between Keimoes and Upington crossed the farm and is marked on maps dating to 1908 (Van der Walt 2011). To the north of the farm Geel Kop, on the farm Van Rooi's Vley 443, is the Rebellion Tree monument (Van der Walt 2011). It marks the Rebellion of 1914 in which many Afrikaners opposed the plan of the South African

government to invade German South-West Africa at the commencement of World War I (Van Vollenhoven 2012). The site is a Provincial Heritage site.

Van der Walt (2011) mentions the presence of mining exploration trenches on the farm Geel Kop dating to 1929 and Morris (2013) also reports on tungsten mining on the north-western portion of the farm McTaggart's Camp dating to the early 1930s. Morris (2013) identified two ruined mud-brick structure, presumably that of 19th/20th century farm workers, on the farm Dyason's Klip.

Early mapping (1906-1914) shows the location of former farmsteads on early farms in relation to the proposed site boundary. The mapping highlights the alignment of several historic roads through the area, including that of the current N14, which remains roughly unchanged. Mapping furthermore emphasises use of the area for sheep farming and describes soil conditions as sandy, with several pans and dams within the proximity Dyason's Klip.

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.

7. HERITAGE RESOURCES AND ISSUES

7.1 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 rarely as evident within the landscape as the imprints made by humans during the last two – three hundred years and more. Unlike ancient landscapes in parts of the world where intensive cultivation over periods much longer than locally have allowed natural and cultural components of the landscape to become interwoven, landscape components along the Southern 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 tends to be very vulnerable to the cumulative impact of inappropriate large-scale development.

"The concept of landscape gives expression to the products and processes of the spatial and temporal interaction of people with the environment. It may thus be conceived as a particular configuration of topography, vegetation cover, land use and settlement pattern which establishes some coherence of natural and cultural processes and activities." (Green, B.H.1995).

Taken in conjunction of the above the study area therefore forms part of a cultural landscape, which by itself, as well as within a broader context, provides a more lasting framework for the understanding and management of heritage resources. While it itself a heritage resource, cultural landscape could in a sense the cultural regarded as a "patchwork" within which all other heritage resources are embedded and which adds to their meaning and sense of place.

While the NHRA does not clearly define the term "cultural landscape", it is briefly referred to in the schedule of definitions. Based on local and international best-practice and within the context of definitions assigned to the terms heritage resource, place and cultural significance, cultural landscape can be defined as "*A place of cultural significance, which engenders qualities relating to its aesthetic, architectural, historical, scientific, social, spiritual, linguistic, technological, archaeological or palaeontological value*"².

The site may be described as forming part of a typical Kalahari landscape and defined by flat and wide open spaces overgrown by sparse, low-growing vegetation. From a Pre-Modern

² Winter, S (October 2004)

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. The study area is north of the Orange/Gariep River Corridor, which is characterised by intensive agricultural farming, including vineyards. The landscape within the direct proximity of the study area is visually dominated by the 200m high CSP structure, directly east of the subject site. Of further relevance is the fact that several other solar energy facilities had already been authorised within the study area. From a cultural landscape perspective therefore, the study area is considered to be of **no local cultural significance**.

7.2 Archaeology

Findings from archaeological impact assessments undertaken with relation to the already-authorised solar energy facilities to which this proposal relate, did not identify or highlight any archaeological resources considered of high or moderate cultural significance. These findings may be summarised as outlined below:

While *Morris (July 2013)* identifies vleis as potential areas of interest from archaeological perspective, none of these features occur along the proposed transmission line alignments. Morris did not identify any archaeological resources of significance and did not recommend any mitigation or archaeological monitoring to be undertaken.

During field work, *ACO Associates (November 2014)* identified, "Very ephemeral scatters of ESA and MSA material; Some stone cairns which are unlikely to represent graves; A ruined mud brick shepherd's hut and Evidence for 20th century mining, possibly of tungsten". The report concludes that potential impacts of the proposal are likely to be limited and controllable and does not recommend any mitigation or the need for archaeological monitoring during the construction phase. The report recommends that:

- If any human remains are uncovered during construction, the ECO should have the area fenced off and contact SAHRA (Tel: 021 462 4502) immediately;
- If there are any significant changes to the layout of the facility, the new design should be assessed by a heritage practitioner.

GA Heritage (October 2013) identified scatterings of Stone Age archaeological occurrences, most of which were likely to be of Later Stone Age origin and one of Middle Stone Age origin. The report indicates that finds were not concentrated or unique but recommends that archaeological monitoring of construction excavations be undertaken.

7.3 Palaeontology

The findings and recommendations of three desktop palaeontological studies for each of the already-permitted solar energy facilities, all of which were compiled by *Natura Viva* (Dr. John Almond) conclude that no further related studies or mitigation were required for any of said facilities. With relation to the Dyasonsklip area, the reports all indicate that, "The igneous and metamorphic Precambrian basement rocks underlying the Dyasonsklip study area at depth are entirely unfossiliferous. The overlying aeolian sands and stream gravels of the Kalahari Group mantling the older bedrocks are generally of low palaeontological sensitivity" and concludes that, "the proposed Dyasonsklip Solar Energy Facility 1 near Upington, including the associated transmission line, is unlikely to have significant impacts on local palaeontological heritage resources".

The reports furthermore recommends that, pending the discovery of significant new fossils remains before or during construction, exemption from further specialist palaeontological studies and mitigation be granted" but that, "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."

7.4 Eco-Tourism³

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 a 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 in and within the proximity of the study area and furthermore, the very 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.

8. HERITAGE INFORMANTS AND ASSESSMENT OF IMPACTS

According to the requirements of Section 38(3) of the NHRA it is crucial that the land use planning and EIA processes be informed by and incorporate heritage informants and indicators as done through mapping and grading of relevant heritage resources identified as part of a HIA. It is the purpose of this Section to summarise heritage informants and indicators and the manner in which heritage resources should be incorporated into the overall design of the proposed development and should therefore be read in conjunction with the findings reflected in Section 7.

8.1 Cultural Landscape Context

From a regional and natural landscape perspective, the proposed development site forms part of a highly-transformed landscape that has already been altered through mining activities as well as high concentration of proposals for development of renewable energy (solar) facilities. The proposal put forward in this report would relate to a significant reduction in the total distance of transmission lines required to be installed for the Sirius 1 and Dyasonsklip 1 & 2 solar energy facilities by combining the three already approved transmission line alignments into a single route alignment.

While the proposal would relate to a landscape modification, we are of the view that this proposal would significantly reduce the overall visual impact of the proposal. Even if not the case, we are of the view that none of the two route alignment alternatives would materially alter any natural or cultural landscape of cultural significance.

8.2 Archaeology

Findings and recommendations from archaeological impact assessments undertaken with relation to the already-authorized solar energy facilities to which this proposal relate, did not identify or highlight any archaeological resources considered of high or moderate cultural significance. Given the nature of the proposal, which would not traverse any archaeological occurrences identified, it is our view that none of the two route alignment alternatives as put forward herewith would warrant any further archaeological investigation, subject to the recommendations set out in Section 7.2 of this report.

8.3 Palaeontology

It is concluded that none of the two route alignment alternatives are likely to have any significant impacts on local palaeontological heritage resources. However, the recommendations reflected in the desktop palaeontological study, as summarised in Section 7.3 of this report shall be adhered to.

³ Section included in accordance with requirements set by National Department of Environmental Affairs

8.4 Visual - Spatial issues

The Visual Statement compiled by VRM Africa (Annexure 4), undertaken specifically in relation to the two potential transmission line alignments as proposed with this application, recommends that the Route One (Preferred Alternative) be supported. From a visual perspective, the report rates the currently-approved transmission line alignments as being of medium to high visual impact significance, whereas the Route One (Preferred Alternative) as proposed herewith is rated as being of low visual impact significance. No mitigation was recommended save for straightening of the proposed routing (where technically possible).

9. PUBLIC PARTICIPATION

Due to the fact that there are no known local heritage conservation bodies in the Upington 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.

10. 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.

11. RECOMMENDATIONS

Based on the information submitted and the findings of this assessment it is recommended that the recommendations below be incorporated into the proposed development and that the Department of Environmental Affairs be informed accordingly:

Recommended Conditions of Approval	
11.1	<i>If any human remains are uncovered during construction, the ECO should have the area fenced off and contact SAHRA (Tel: 021 462 4502) immediately</i>
11.2	<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>

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17th September 2015

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