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The Case Officer
South African Heritage Resources Agency
(Via SAHRIS)

Dear Sir/Madam,

SOL INVICTUS POWERLINE WEST OF AGGENEYS: REQUEST FOR DESKTOP AIA

A number of heritage assessments of mining and renewable energy projects have been undertaken in the vicinity of the proposed Sol Invictus powerline over a number of years. The regional location of the project is shown in Figure 1. The studies consist primarily of Archaeological and Palaeontological impact assessments as per the list of references attached.

Archaeological sites are indeed found in this landscape, but the majority tend to be unfocussed, low density surface occurrences, most frequently of low significance. It has been demonstrated that more significant sites are far more likely to be found at rock outcrops or around pans. Bedrock exposures, particularly those with depressions that collect seasonal water or at or near pans, are likely to have grinding grooves present.

The proposed ~22.7 km long (200m corridor), 132kV powerline to evacuate power from the authorised Sol Invictus PVSEF on Ptn 5/66 to the Aggeneys sub-station, is mostly through dune fields or flat featureless landscape (Figure 2). An interrogation of the route via Google Earth has indicated few heritage indicators of the type likely to contain significant archaeology as described in existing heritage assessments.

An intensive survey of the whole of Ptn 5/66 which is the location of the Sol Invictus PVSEF site (Orton 2016a,b,c,d), failed to produce many significant archaeological sites except in the very far south of the area. The area where the PVSEF is located with its associated infrastructure, was found not to contain any resources requiring mitigation. Orton also assessed a powerline as part of his studies which has been rejected in favour of the new proposed alignment.

Orton stated the following:" The vast majority of the study area was found to be a flat, featureless plain that is completely unconducive to finding traces of Stone Age archaeological settlement. Even isolated artefacts attributable to the background scatter were very rarely encountered. This would be unusual in parts of Bushmanland, but is unsurprising here, given that the surface is either sandy or else, when rocks are present, they are totally unsuited to the production of stone artefacts. Those isolated artefacts that were found were all in quartz. It is also notable that many fragments of quartz were picked up and checked with many seeming similar to artefacts but revealed not to be on close inspection. No part of the broader study area seemed more likely to produce such isolated artefacts than any other. In terms of age, the majority are likely to date from the Middle Stone Age (MSA). No Early Stone Age (ESA) material was seen. The only place outside of the south-western part of the study area where a minor concentration of artefacts was found was at waypoints 007 and 010, both located atop a red sand dune within the transmission corridor. At 007 there were two CCS flakes and an ostrich eggshell fragment (Figure 12), while nearby at 010 there were two quartz flakes. These two points were 150 m apart from one another and are unlikely to be related. They are all Later Stone Age (LSA) artefacts. All the important archaeology was found in the south-western corner of the study area in association with depressions in the sand body, usually with exposed gneiss in their bases. A few sandy areas had low density scatters of artefacts, while a few smaller depressions with exposed gneiss contained low density versions of what the largest depression contained. As such, the finds from this largest depression serve to illustrate the kinds of things found in the broader area. This largest depression held standing water at the time of assessment and, after good summer rains, probably serves as a water source for several months. This would have attracted settlement

around it. Although the periphery of the pan was not completely surveyed, it is likely that the majority of the archaeological occurrences scattered around it were recorded. Certainly, all the rock outcrops were visited."

He included the following rider: "If any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution."

Smith (2012) assessed the then proposed Boesmanland 75MW Solar Facility on 2/62 Zuurwater south west of Aggeneys, co-incidentally crossed by a section of the Sol Invictus powerline. He sated the following: "Tracks, dry pans and sub-surface indications using spring-hare and aardvark holes all produced widely scattered material with no concentrations of note. The potential access routes were also inspected, with similar results. The conclusions are that the flat, open terrain has a low archaeological signature, and that there are no inhibitors, from an archaeological perspective, preventing the solar facility from proceeding with construction".

Morris (2013) prepared a heritage impact assessment of four proposed PVSEFs on 3/62 Zuuwater, which lies between Sol Invictus PVSEF and the town of Aggeneys. He stated the following having looked at 4 array sites and targeted heritage indicators on the broader farm: From an archaeological perspective the observed heritage resources are in most instances of very low significance (low occurrence). One site of high significance requires a change in the planned PV array layout in Phase 4. If the archaeological or heritage significance of the resources in question is considered to be low – which is the case here for areas other than the site cluster referred to above – then the significance of the permanent loss is low.

He included the following rider: "In the event that any heritage feature (which may be sub-surface, such as an unmarked grave) is encountered during the development or operational life of the facility, work is to be halted immediately and contact made with SAHRA (Ms C. Scheermeyer at 021-4624502) and/or the Northern Cape Heritage Authority Ngwao Boswa jwa Kapa Bokone (Mr A. Timothy) who would arrange for the evaluation of the find for possible mitigation."

Webley & Halkett (2011) assessed three 400kv powerline alternatives between Aggeneys and Oranjemond. Sections of these routes cross through the same landscape as other assessments discussed here. While a walkdown of the selected route would be requited, few sites were observed on the alignments west of Aggeneys. Some of those found, were later also found by Morris 2013.

Most of the assessments therefore seem to broadly concur with Beaumont et al. (1995:263) who noted that almost all sites "appear to be ephemeral occupations by small groups in the hinterland on both sides of the [Orange] River". "Surveys of large areas away from [such water sources] have failed to yield any signs of human occupation, except around the granite inselbergs extruding from the peneplain…" (Beaumont et al. 1995:264).

Similarly, most palaeontological impact assessments of these mining and renewable energy projects in similar contexts to the proposed powerline, generally find that Palaeontological impacts will be limited. for example and probably most relevant to the powerline is the Palaeontological heritage desktop study of the Sol Invictus solar PV development (Almond 2015) in which he states "The overall impact significance of the proposed Sol Invictus Solar PV development on fossil heritage is considered to be **very low** because:

- Most of the study area is underlain by unfossiliferous metamorphic basement rocks (gneisses etc) or mantled by superficial sediments of low palaeontological sensitivity;
- Most fossils within the superficial deposits are likely to be of widespread occurrence (i.e. not unique), with the exception of rare vertebrate remains;
- Extensive, deep excavations into older alluvial deposits are unlikely to be involved in this solar park project.

It is therefore recommended that exemption from further specialist palaeontological studies and mitigation be granted for this solar plant development."

Almond (2012) also assessed the Boesmanland 75MW Solar Facility on 2/62 Zuurwater south west of Aggeneys. He sated the following: "It is concluded that overall impact significance of the proposed 75 MW solar plant development on fossil heritage is considered to be **very low** because:

- Most of the study area is underlain by unfossiliferous metamorphic basement rocks (granite-gneisses etc) or mantled by superficial sediments of low palaeontological sensitivity;
- Extensive, deep excavations are unlikely to be involved in this sort of solar park project.

It is therefore recommended that exemption from further specialist palaeontological studies and mitigation be granted for this solar plant development."

A common rider contained in many of the PIA's is that should substantial fossil remains be exposed during construction/mining, the ECO and/or SAHRA should be alerted as soon as possible so that appropriate action (e.g. recording, sampling or collection) can be taken by a professional palaeontologist.

Based therefore on the findings of these numerous assessments, we propose compiling a desktop HIA/AIA and a brief palaeontological study/exemption letter for the Sol Invictus 132kV powerline and request that SAHRA indicate that this method is acceptable.

Yours sincerely,

David Halkett: Director
For ACO Associates cc

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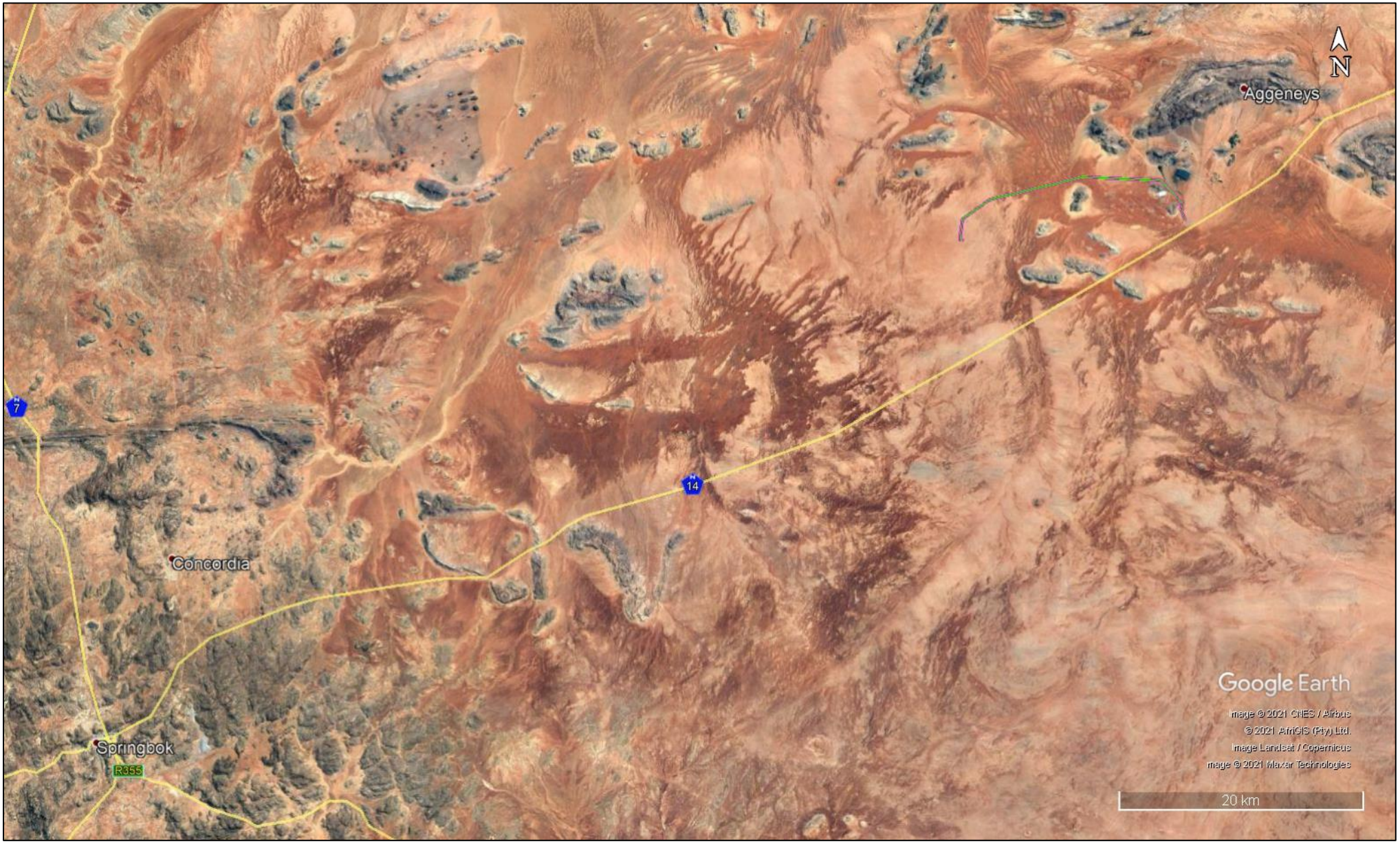

Figure 1: Regional location of the Sol Invictus powerline (green)

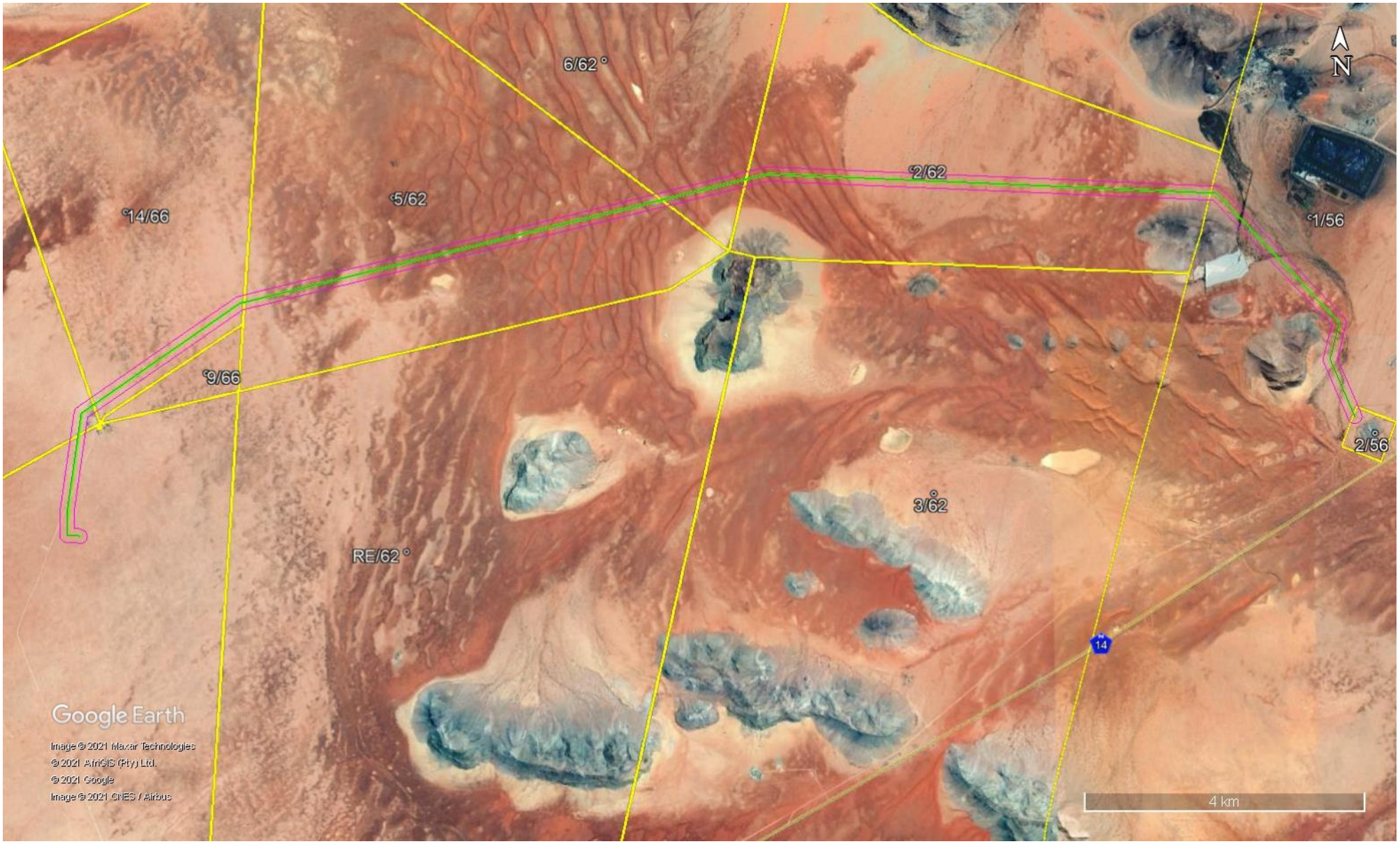

Figure 2: Sol Invictus powerline (green) 200m wide corridor (purple)