

HERITAGE IMPACT ASSESSMENT

In terms of Section 38(8) of the NHRA for the

Proposed Grid Connection Infrastructure for the Great Karoo Wind Energy Facility development near Richmond in the Northern Cape

Prepared by CTS Heritage

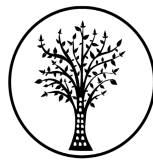


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For

Savannah Environmental

March 2022



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EXECUTIVE SUMMARY

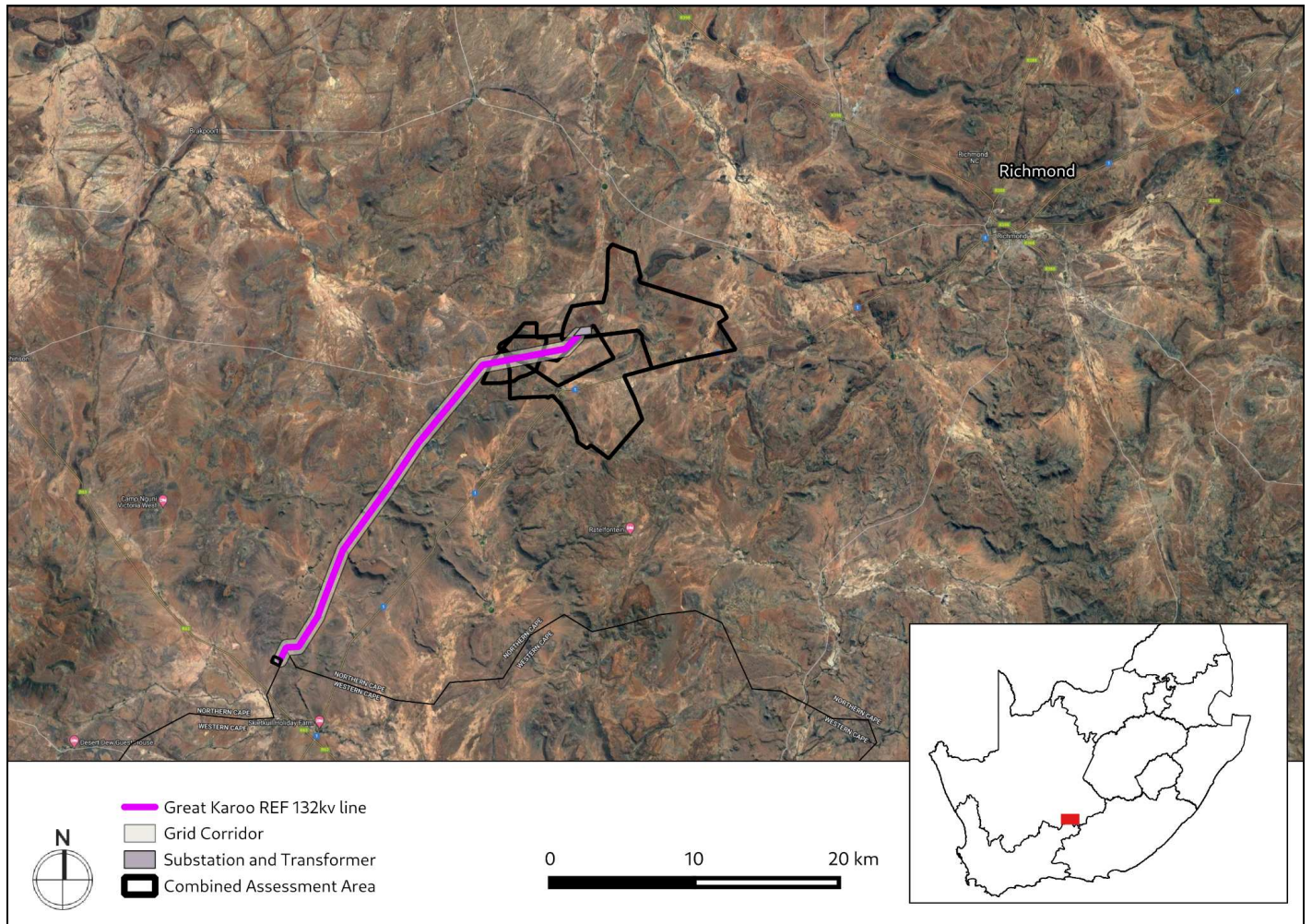
1. Site Name:

Great Karoo Renewable Energy Facility Grid Connection Infrastructure

2. Location:

Approximately 30km to 60km south west of Richmond in the Northern Cape

3. Locality Plan:



4. Description of Proposed Development:

Great Karoo Renewable Energy (Pty) Ltd is proposing the development of a 132kV central collector substation and a 132kV double circuit power line on a site located approximately 35km south-west of Richmond and 80km south-east of Victoria West, within the Ubuntu Local Municipality and the Pixley Ka Seme District Municipality in



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the Northern Cape Province. The collector substation that comprises, both the Eskom switching station and the IPP's substation, is proposed on Portion 0 of Farm Rondavel 85. One grid corridor has been considered for assessment and placement of the 132kV double circuit power line.

5. Heritage Resources Identified:

The landscape of the development area has been assessed for cultural heritage significance, and found to have five distinct character areas:

1. Historic movement corridors.
2. Open plains interrupted by low koppies.
3. Elevated areas with steep sided mountain ridges.
4. Areas of landscape that have been transformed by significant infrastructural development.
5. Remote landscape with wilderness qualities.

Of the five distinct character areas identified in the Cultural Landscape Assessment (Winter, 2021), the grid connection corridor falls within Area 4 - Areas of landscape that have been transformed by significant infrastructural development.

A total of 24 archaeological observations were identified along the grid corridor. None of the identified archaeological resources were determined to be conservation-worthy. Six modern windmill and water storage structures were identified within the grid alignment but none of these were determined to be conservation-worthy.

No palaeontological Very High Sensitivity / No-Go areas have been identified within the grid connection project areas. With the exception of two fossil sites of low scientific value, none of the recorded fossil sites overlaps directly with, or lies close to (< 20 m), the proposed infrastructure

6. Anticipated Impacts on Heritage Resources:

In terms of impacts to archaeological resources, the findings of this assessment largely correlate with the findings of other assessments completed in the vicinity such as the findings of the ACO (2013, SAHRIS NID 503074) who note that "Because of the scarcity of caves and shelters, more than 90% of Karoo archaeological sites are open sites of stone artefacts, ostrich eggshell fragments and occasionally, pottery. Bone remains are rarely preserved. Artefacts of both the Early and Middle Stone Age are widespread and may generally be described as an ancient litter that occurs at a low frequency across the landscape." This same archaeological signature has been identified within the development footprint.



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No archaeological resources of significance were identified within the grid connection corridor and as such, no impact to significant archaeological heritage is anticipated.

In terms of impacts to palaeontological resources, the area proposed for development falls within a geological area that is very sensitive for impacts to significant palaeontological heritage. While the site visit conducted did not identify significant fossil material, the likelihood of uncovering significant palaeontology that is preserved below the ground surface remains high. As such, it is recommended that the attached Chance Fossil Finds Procedure be implemented for the duration of construction activities.

In terms of impacts to the Cultural Landscape, the proposed development is broadly located in an area with a culturally significant sense of place. That being said, the grid corridor follows a route of existing infrastructure. The impact to the cultural landscape of the additional infrastructure is acceptable, as it makes little material difference to the already disturbed landscape.

7. Recommendations:

Based on the outcomes of this report, it is not anticipated that the proposed development of the grid connection infrastructure will negatively impact on significant heritage resources. The following recommendations are made:

- The attached Chance Fossil Finds Procedure must be implemented for the duration of construction activities
- Although all possible care has been taken to identify sites of cultural importance during the investigation of the study area, it is always possible that hidden or subsurface sites could be overlooked during the assessment. If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils, burials or other categories of heritage resources are found during the proposed development, work must cease in the vicinity of the find and SAHRA must be alerted immediately to determine an appropriate way forward.

8. Author/s and Date:

Jenna Lavin

February 2022



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Details of Specialist who prepared the HIA

Jenna Lavin, an archaeologist with an MSc in Archaeology and Palaeoenvironments, and currently completing an MPhil in Conservation Management, heads up the heritage division of the organisation, and has a wealth of experience in the heritage management sector. Jenna's previous position as the Assistant Director for Policy, Research and Planning at Heritage Western Cape has provided her with an in-depth understanding of national and international heritage legislation. Her 8 years of experience at various heritage authorities in South Africa means that she has dealt extensively with permitting, policy formulation, compliance and heritage management at national and provincial level and has also been heavily involved in rolling out training on SAHRIS to the Provincial Heritage Resources Authorities and local authorities.

Jenna is on the Executive Committee of the Association of Professional Heritage Practitioners (APHP), and is also an active member of the International Committee on Monuments and Sites (ICOMOS) as well as the International Committee on Archaeological Heritage Management (ICAHM). In addition, Jenna has been a member of the Association of Southern African Professional Archaeologists (ASAPA) since 2009. Recently, Jenna has been responsible for conducting training in how to write Wikipedia articles for the Africa Centre's WikiAfrica project.

Since 2016, Jenna has drafted over 250 Screening and Heritage Impact Assessments throughout South Africa.

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1. INTRODUCTION

1.1 Background Information on Project

Great Karoo Renewable Energy (Pty) Ltd is proposing the development of a 132kV central collector substation and a 132kV double circuit power line on a site located approximately 35km south-west of Richmond and 80km south-east of Victoria West, within the Ubuntu Local Municipality and the Pixley Ka Seme District Municipality in the Northern Cape Province. The collector substation that comprises, both the Eskom switching station and the IPP's substation, is proposed on Portion 0 of Farm Rondavel 85. One grid corridor has been considered for assessment and placement of the 132kV double circuit power line.

- Portion 0 of Farm Annex Rondavel 86;
- Portion 1 of Farm Uit Vlugt Fontein 265;
- Portion 0 of Farm Wynandsfontein 91;
- Portion 1 of Farm Wynandsfontein 91;
- Portion 3 of Farm Vlekfontein 90;
- Portion 0 of Farm Burgersfontein 92;
- Portion of Farm Nieuwe Fontein 89;
- Portion 1 of Farm Nieuwe Fontein 89;
- Portion 0 of Farm Rondavel 85
- Portion 1 of Farm Rondavel 85;
- Portion 0 of Farm Kleinfontein 93;
- Portion 1 of Farm Bult & Rietfontein 96; and
- Remaining Extent of Portion 3 of Farm Schietkuil

The entire extent of the site falls within the Central Corridor of the Strategic Transmission Corridors. The grid connection infrastructure is known as the Great Karoo Electrical Grid Infrastructure (EGI).

The development of the 132kV central collector substation and 132kV power line is required to enable the connection for the Great Karoo Cluster of Renewable Energy Facilities, which comprises three (3) 100MW solar photovoltaic (PV) energy facilities, and two (2) 140MW wind farms, to the national grid for the evacuation of the generated electricity. The connection point into the national grid will be the existing Eskom Gamma Substation.

The projects which the proposed grid connection infrastructure will facilitate the grid connection for are known as:

- Angora Wind Farm and Merino Wind Farm;
- Nku Solar PV Energy Facility;
- Moriri Solar PV Energy Facility; and
- Kwana Solar PV Energy Facility.

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Table 1: Details of the proposed grid connection infrastructure and alternatives are provided in the table below:

Corridor width (for assessment purposes)	One grid connection corridor has been identified for the assessment and placement of the grid connection infrastructure. The grid connection corridors comprise of a 1km wide power line corridor to allow for avoidance of environmental sensitivities, and suitable placement within the identified preferred corridor. Therefore, the entire corridor is being proposed for the development provided the infrastructure remains within the assessed corridor and environmental sensitivities within this corridor are avoided.
Power line capacity	580MVA at 132kV (double-circuit)
Tower height	Up to 32m
Power line servitude width	Up to 40m
Length of power line corridor alternatives	Collector Sub – Gamma ~ 37.5km
Development footprint of the Collector Substation (including the Eskom switching station)	1000mx700m
Capacity of the Collector Substation	580MVA at 132kV

1.2 Description of Property and Affected Environment

The majority of the proposed grid infrastructure is located along the northern and western end of the N1 highway about 30km southwest of Richmond in the Northern Cape. In the last two decades the N1 has become increasingly flooded with heavy trucking traffic due to the decreasing use of the railway system and the growth of the South African economy.

The area falls within the Eastern Upper Karoo region and the vegetation consists of a mix of grass and shrub dominated vegetation types. Acacia thorn trees are found in the riverine zones and much of the shrubland is currently in a very poor state due to the extended 5 year drought afflicting the area. Aeolian sands and floodplains form a thick (>1m) layer of overburden in many places surrounding the dolerite ridges and there has been extensive burial and re-surfacing of Middle Stone Age material. Later Stone Age was relatively well represented in the study area and most of the MSA and LSA material was concentrated around the lower slopes of the dolerite ridges and koppies. The dominant agricultural activity is sheep farming and a number of windmills with small farm dams were recorded that feature on the built landscape.

The western end of the properties hold the main route of South Africa's 765kV powerline infrastructure linking up the Western Cape to the coal-fired power stations in Mpumalanga and Gauteng.

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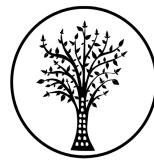
The area proposed for development is characterised as follows in the Cultural Landscape Assessment completed for this project (Winter, 2021);

- Regional location within the eastern upper area of the Great Karoo, which is a vast arid area with a dispersed pattern of settlement, extensive stock farms, more recent game farms, and irrigation based agriculture along the rivers; the vegetation cover is low consistent with the Nama Karoo Biome (Savannah Environmental 2021).
- Very distinctive topographical conditions, with a combination of steep slopes, ridgelines, flat topped mesa mountains and rounded koppies punctuating open plains.
- Location to the southwest of Richmond, which dates to the mid 18th century; it lies in a slight depression, surrounded by rises and hillocks, the most prominent of which is Vegkop to the north of town, which shields it from the N1; it is traversed by the occasional Ongers River
- The majority of the site lies directly to the north of the N1, being partially traversed and partially bounded by it. This sector of the N1 connects Three Sisters in the south to Richmond. It crosses the R63 approximately 30 km south of the site at a point midway between Victoria West and Murraysburg. This sector of the N1 is not recognised as a scenic route however it has historic longevity.
- The N1 traversing the Great Escarpment runs largely straight, with very little topographical change. However, this consistency is interrupted on the south west approach to Richmond by topographical variety, and a threshold condition at a historic bend in the route. This is located at the south west boundary of the study area.
- The alignment of the N1 through this landscape follows an early transport and wagon route to the interior dating to, at least, the late 18th century.
- Farming settlements along this portion of the N1 are experienced as “beads on a string”, with small nodal groupings clustered on the foothills of the mountain ridges in proximity to the road.
- The distinctive nature of farming settlements within a semi-arid landscape is generally associated with a loose collection of farm buildings adjacent to watercourses and springs, and marked by clusters of tree planting, dams and wind pumps.
- Existing Eskom power lines run parallel to the northern boundary of the site and extend to the power station near the intersection of the N1 and R63.
- Located outside of the REDZ, but in proximity to other existing and proposed power facilities.

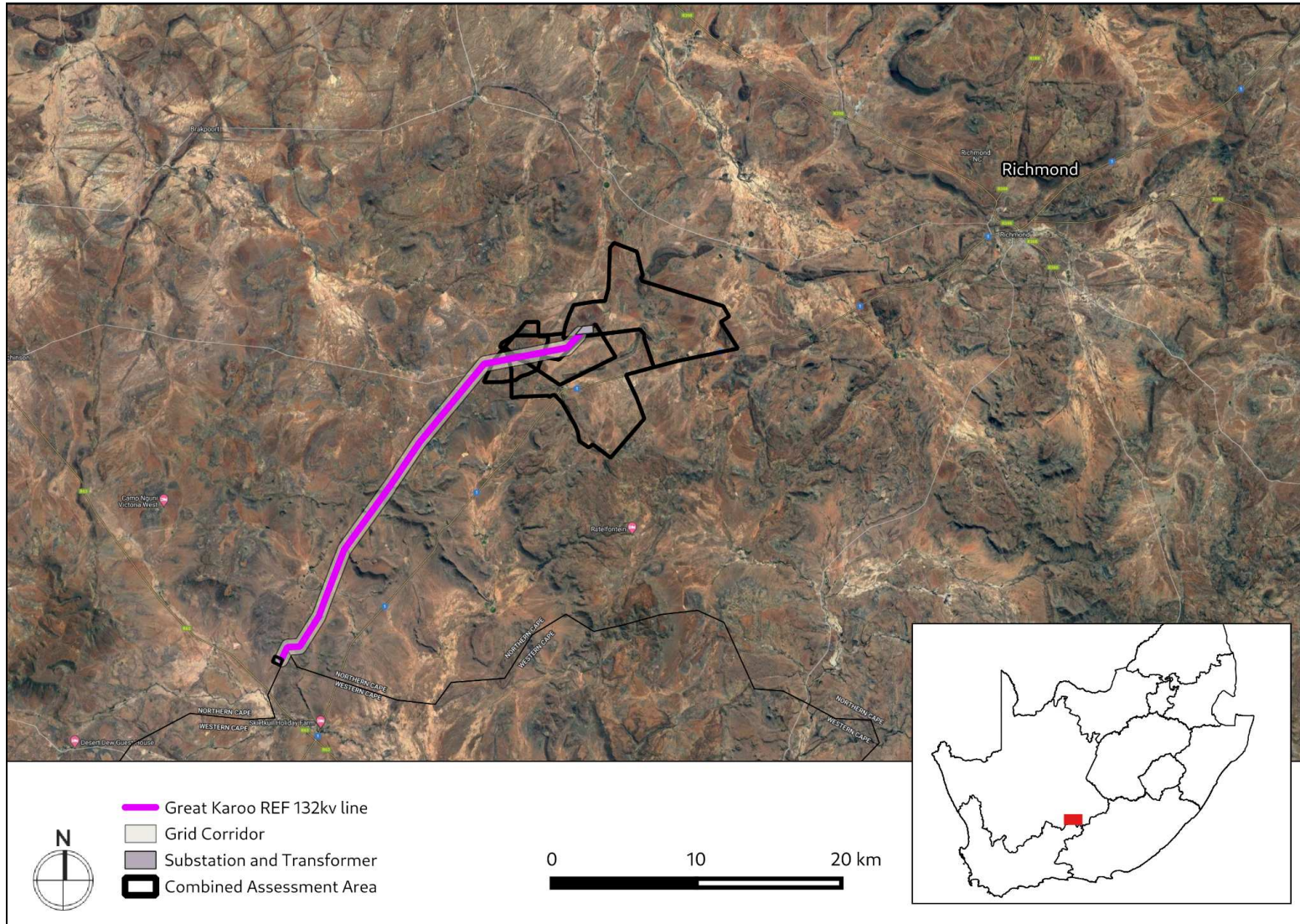
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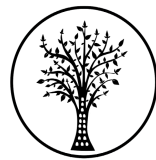


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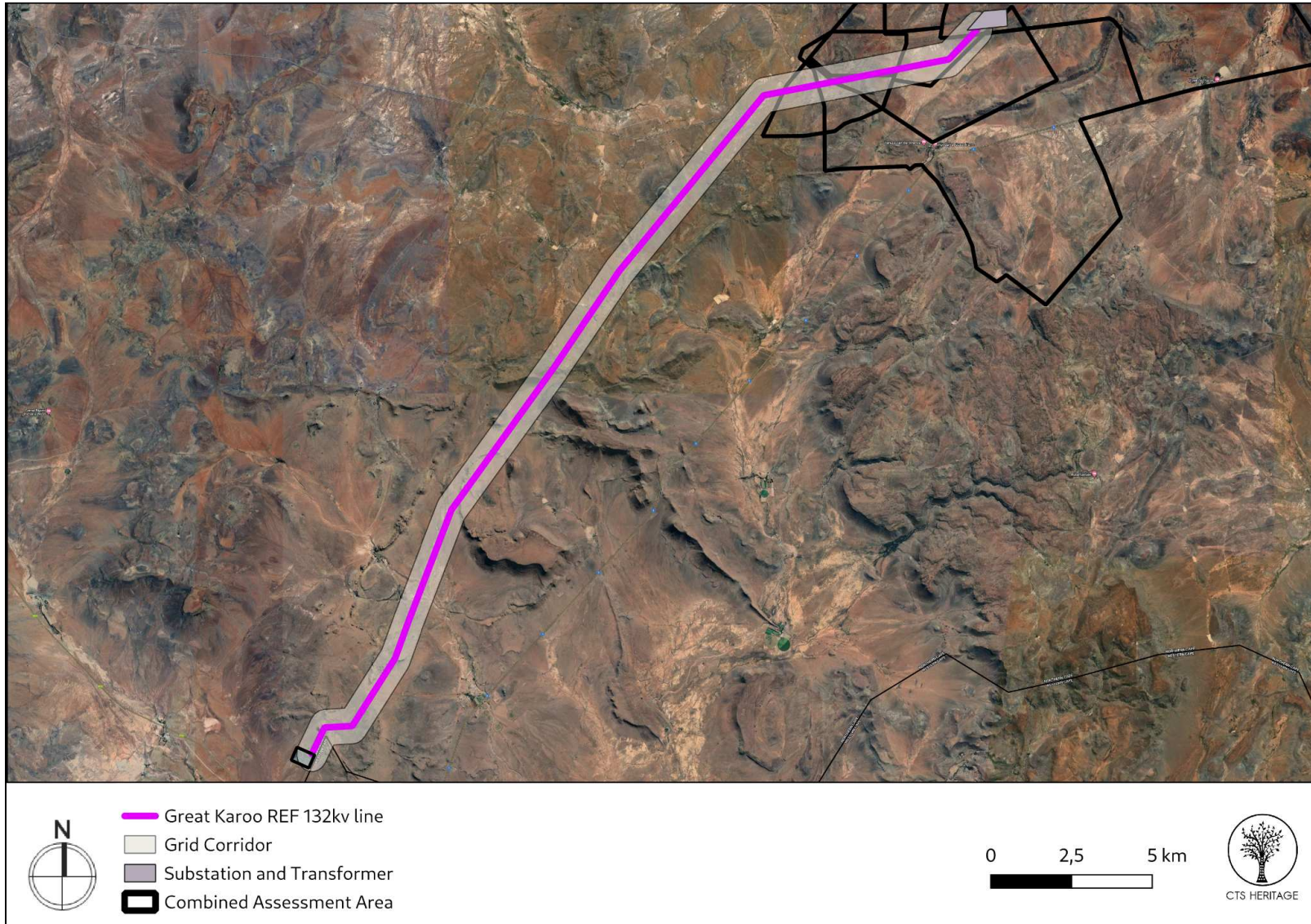


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Map 1b: The proposed development layout of the grid connection infrastructure

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2. METHODOLOGY

2.1 Purpose of HIA

The purpose of this Heritage Impact Assessment (HIA) is to satisfy the requirements of section 38(8), and therefore section 38(3) of the National Heritage Resources Act (Act 25 of 1999).

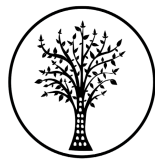
2.2 Summary of steps followed

- A Desktop Study was conducted of relevant reports previously written (please see the reference list for the age and nature of the reports used)
- An archaeologist conducted an assessment of archaeological resources likely to be disturbed by the proposed development. The archaeologist conducted his site visit from 11 to 16 September 2021
- A palaeontologist conducted an assessment of palaeontological resources likely to be disturbed by the proposed development. The palaeontologist conducted his site visit in November 2021
- A cultural landscape assessment was conducted that covers the proposed development area with fieldwork completed in November 2021. The results of this assessment were incorporated into this HIA.
- The identified resources were assessed to evaluate their heritage significance and impacts to these resources were assessed.
- Alternatives and mitigation options were discussed with the Environmental Assessment Practitioner

2.3 Assumptions and uncertainties

- The *significance* of the sites and artefacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.
- It should be noted that archaeological and palaeontological deposits often occur below ground level. Should artefacts or skeletal material be revealed at the site during construction, such activities should be halted, and it would be required that the heritage consultants are notified for an investigation and evaluation of the find(s) to take place.

However, despite this, sufficient time and expertise was allocated to provide an accurate assessment of the heritage sensitivity of the area.



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2.4 Constraints & Limitations

The current extended drought has led to poor conditions in the veld but this has also provided very good visibility of archaeological material exposed on the surface. A series of dongas were inspected to test whether archaeological material may be buried by aeolian and flooding events and this was confirmed in some places where exposed lines of gravels containing MSA artefacts were found buried over 1m below the surface. However, the exposure of MSA and LSA material was clearly evident on the lower slopes of the dolerite koppies and this provided a fair characterisation of the buried artefacts.

The experience of the heritage practitioner, and observations made during the study, allow us to predict with some accuracy the archaeological sensitivity of the receiving environment.

2.5 Savannah Impact Assessment Methodology

Direct, indirect and cumulative impacts of the issues identified through the Scoping study, as well as all other issues identified in the EIA phase were assessed in terms of the following criteria:

- The nature, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- The extent, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high).
- The duration, wherein it will be indicated whether:
 - The lifetime of the impact will be of a very short duration (0 – 1 years) – assigned a score of 1.
 - The lifetime of the impact will be of a short duration (2 – 5 years) – assigned a score of 2.
 - Medium-term (5 – 15 years) – assigned a score of 3.
 - Long term (> 15 years) – assigned a score of 4.
 - Permanent – assigned a score of 5.
- The consequences (magnitude), quantified on a scale from 0 – 10, where 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- The probability of occurrence, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1 – 5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).

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- The significance, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high.
- The status, which will be described as either positive, negative or neutral.
- The degree to which the impact can be reversed.
- The degree to which the impact may cause irreplaceable loss of resources.
- The degree to which the impact can be mitigated.

The significance is calculated by combining the criteria in the following formula:

$$S = (E + D + M) \times P$$

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The significance weightings for each potential impact are as follows:

- < 30 points: Low (i.e. where this impact would not have a direct influence on the decision to develop in the area).
- 30 – 60 points: Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated).
- > 60 points: High (i.e. where the impact must have an influence on the decision process to develop in the area).



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3. HISTORY AND EVOLUTION OF THE SITE AND CONTEXT

3.1 Desktop Assessment

Background:

The area proposed for the Great Karoo Renewable Energy Facility Projects including this proposed grid connection infrastructure is located approximately 35km southwest of Richmond in the Northern Cape, and 80km east of Victoria West outside of the identified Beaufort West REDZ (Figure 2b) along the N1. The town of Richmond was established in 1843 to service the needs of the growing farming community. It was renowned as a resort town in the 1800s for European aristocrats suffering lung disease due to its clean air and mineral-rich waters.

The central plateau of the Great Karoo, north of the Great Escarpment, falls in the Nama Karoo Biome. This is characterised by low rainfall and high temperatures, low-shrub vegetation and low relief topography punctuated by rugged outcrops. This expansive, arid region has lime-rich soils underlain by sediments of the Dwyka (glacial) formation covered by the Ecca and Beaufort groups, and is rich in substantial fossil records dating back 3 billion years (Seymour 2021). The archaeological record spans hundreds of thousands of years, with sites such as stone tool scatters typically occurring near dolerite outcrops due to the presence of underground water (Winter & Oberholzer 2013).

Historic settlement and the Cultural Landscape (Winter et al. 2021, Appendix 3)

The name Karoo has its roots in the Khoe word meaning “place of great dryness”. While used on a seasonal and nomadic basis by hunter-gather people, the uncertain access to water and grazing, and the extreme temperatures, made it less well suited to needs of pastoralist people. However, vast herds of antelope, quagga, white rhinoceros, hartebeest and ostrich moved through the landscape according to the availability water and seasonal rains.

Settled occupation of the region and the subsequent changes to the landscape followed over 100 years after the arrival of settlers in 1652. Settlement of the Cape and the privatisation of land and water alienated the Khoe people from their seasonal lands, pushing them northwards. From the 1700s, the growing settlement, hungry for more resources, followed in their wake, creating a shifting frontier of contact (Anderson 1985). This push was sanctioned by the VOC and largely undertaken by trekboers engaged in hunting, salt collection and cattle trade with inland groups. The lifestyle was essentially that of a semi-nomadic pastoralist as they followed transhumance routes dictated by annual rainfall and seasonal pastures. The expanding frontier came to a prolonged pause below the Great Escarpment, which was a natural barrier between the plains of the Karoo and the arid Central Plateau.

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Settled agriculture, water management through the creation of boreholes, and extensive sheep grazing profoundly changed the landscape. A study of the survey diagrams for parent farms in the site area shows formalisation of ownership from 1835, although it is highly likely that all land with access to water and grazing was already in use, and possibly occupied, prior to its first record of survey. (Note: Access to archived title deeds is not possible under the restrictions imposed by Covid-19; historic survey diagrams have been studied in their place). The survey diagrams also paint a clear picture of the priorities in land acquisition: springs, rivers and grazing is noted.

Wool farming remained the dominant activity and benefited from the wool boom of the 1930s, which continued into the 1950s, thereafter declining, with a shift to less labour-intensive meat production (Manyani 2020). The physical impact of segregation along racial lines introduced under the Group Areas Act 1950 was localised to Richmond town, altering its urban form. It had little impact on the nearby farming settlements. The N1, completed in the 1950s, connected Cape Town to Beit Bridge and by-passed many of the smaller towns, including Richmond, which protected the historic centre but impacted urban income generated from through-travellers.

From the 1970s a process of farm consolidation, which continues to this day, was begun. Modernised farming practice and commercial opportunities stimulated farm development, with the introduction of stud, and livestock adapted for better yields. From the 1980s diversification introduced a shift to game farming, re-wilding, and more recently the introduction of nature tourism, conferences and events. The current focus on renewable energies is set to transform the landscape on a scale reminiscent of that which resulted from the introduction of wool production.

Details regarding the establishment and development of Richmond town is included in Appendix 3 and is not repeated here.

Archaeology

Very few heritage assessments have been completed within close proximity to the area proposed for development (Map 2). According to Nilssen (2014, SAHRIS NID 504763), “The Karoo houses a long and rich archaeological record dating from the earliest stages of Stone Age technology that are over a million years old, to the historic period that consists of the last few hundred years of human occupation (see Nilssen 2011 and references therein). Archaeological sites include caves and rock shelters, open air artefact scatters, rock engravings and historic structures with their associated cultural materials.” According to ACO (2013, SAHRIS NID 503074), “Because of the scarcity of caves and shelters, more than 90% of Karoo archaeological sites are open sites of stone artefacts, ostrich eggshell fragments and occasionally, pottery. Bone remains are rarely preserved. Artefacts of both the Early and Middle Stone Age are widespread and may generally be described as an ancient



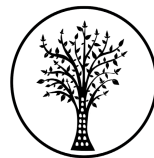
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litter that occurs at a low frequency across the landscape. Where definable scatters of Early and Middle Stone Age material occur, they are considered to be significant heritage sites. More intensive occupation of the Karoo started around 13 000 years ago during the Later Stone Age, which is essentially the heritage of Khoisan groups who lived throughout the region. The legacy of the San includes numerous open sites while traces of their presence can also be found in most large rock shelters, often in the form of rock art. They frequently settled a short distance from permanent water sources (springs or waterholes) and made use of natural shelters such as rock outcrops or large boulders or even large bushes. In the Great Karoo natural elevated features such as dolerite dykes and ridges played a significant role in San settlement patterns.” It is likely that similar archaeological heritage exists within the areas proposed for development and as such, impact to these resources must be assessed.

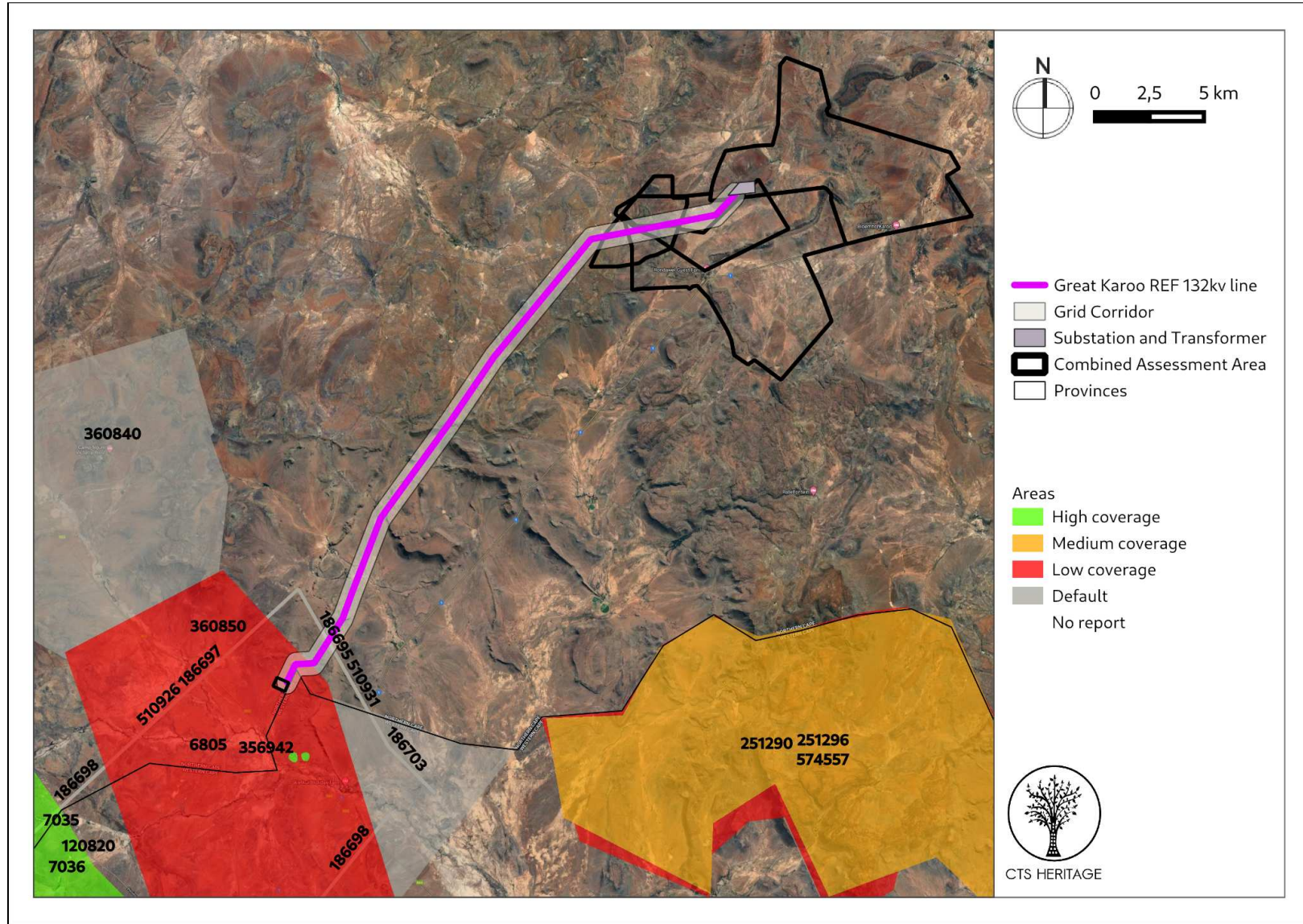
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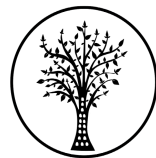
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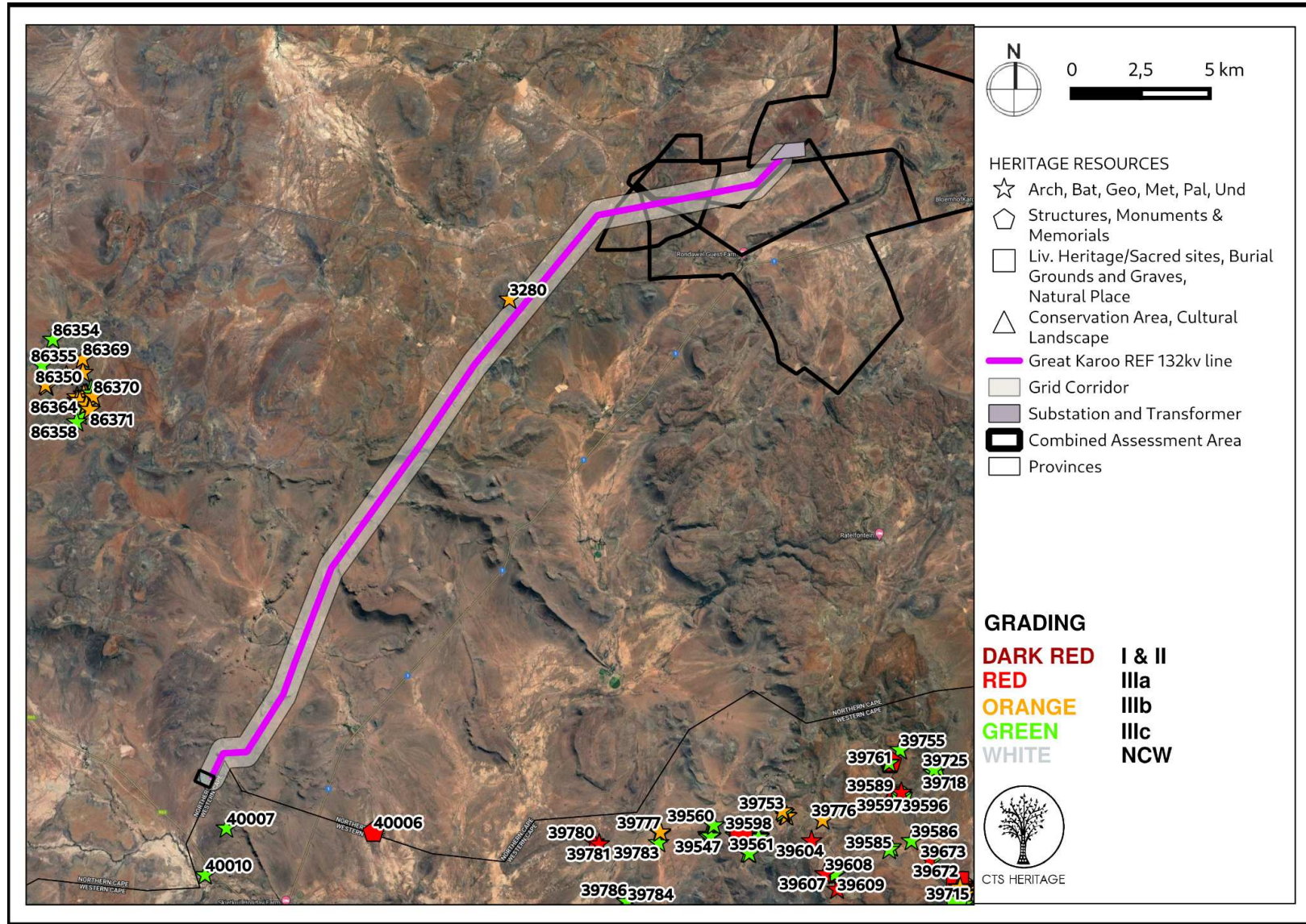
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Map 2: Spatialisation of heritage assessments conducted in proximity to the proposed development (see Appendices for insets)

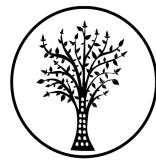


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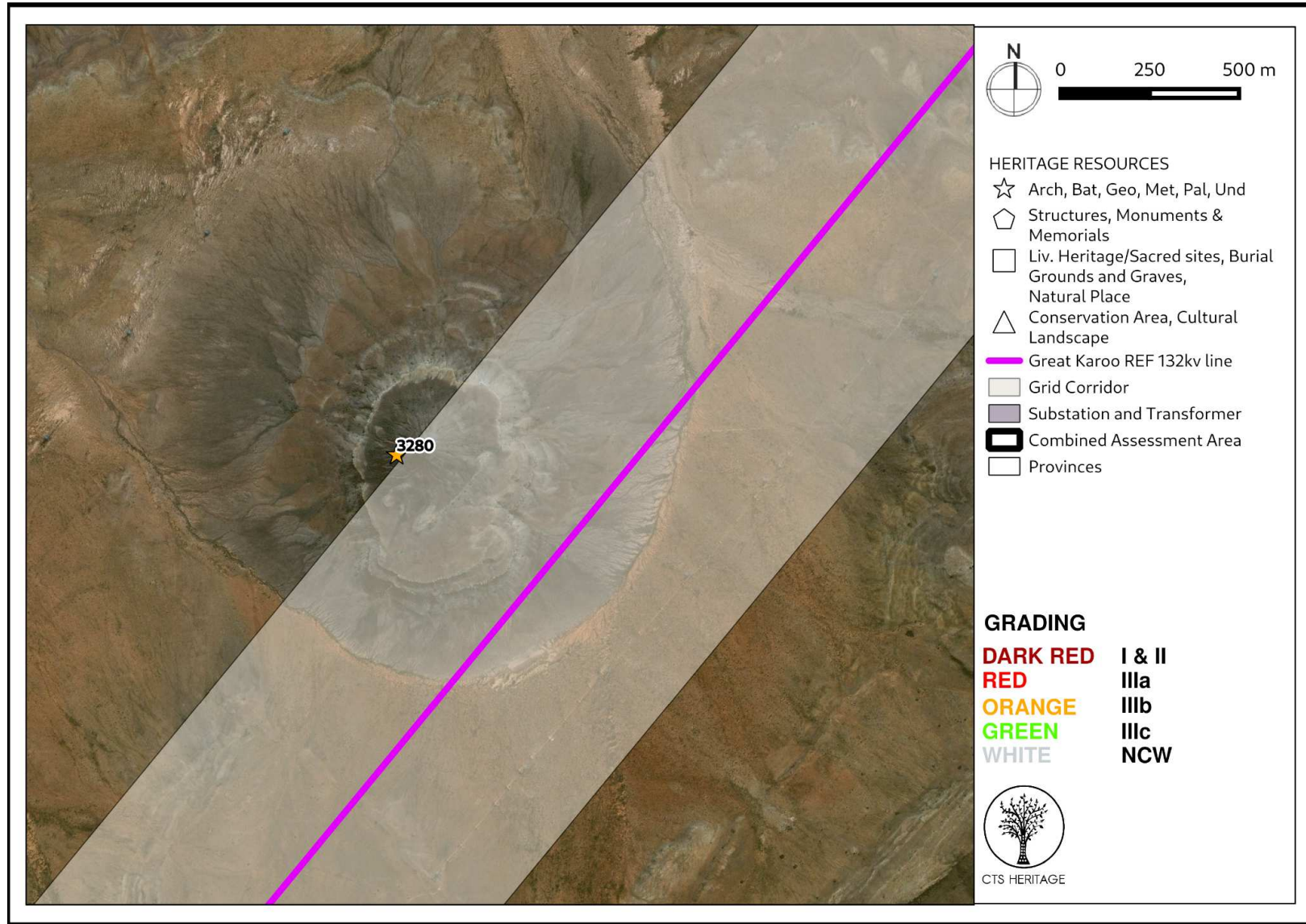


Map 3: Spatialisation of heritage resources known in proximity to the proposed development (see Appendices for insets)

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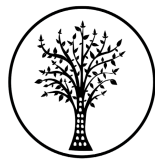
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Map 3a: Inset A

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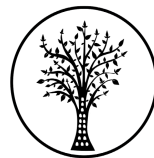


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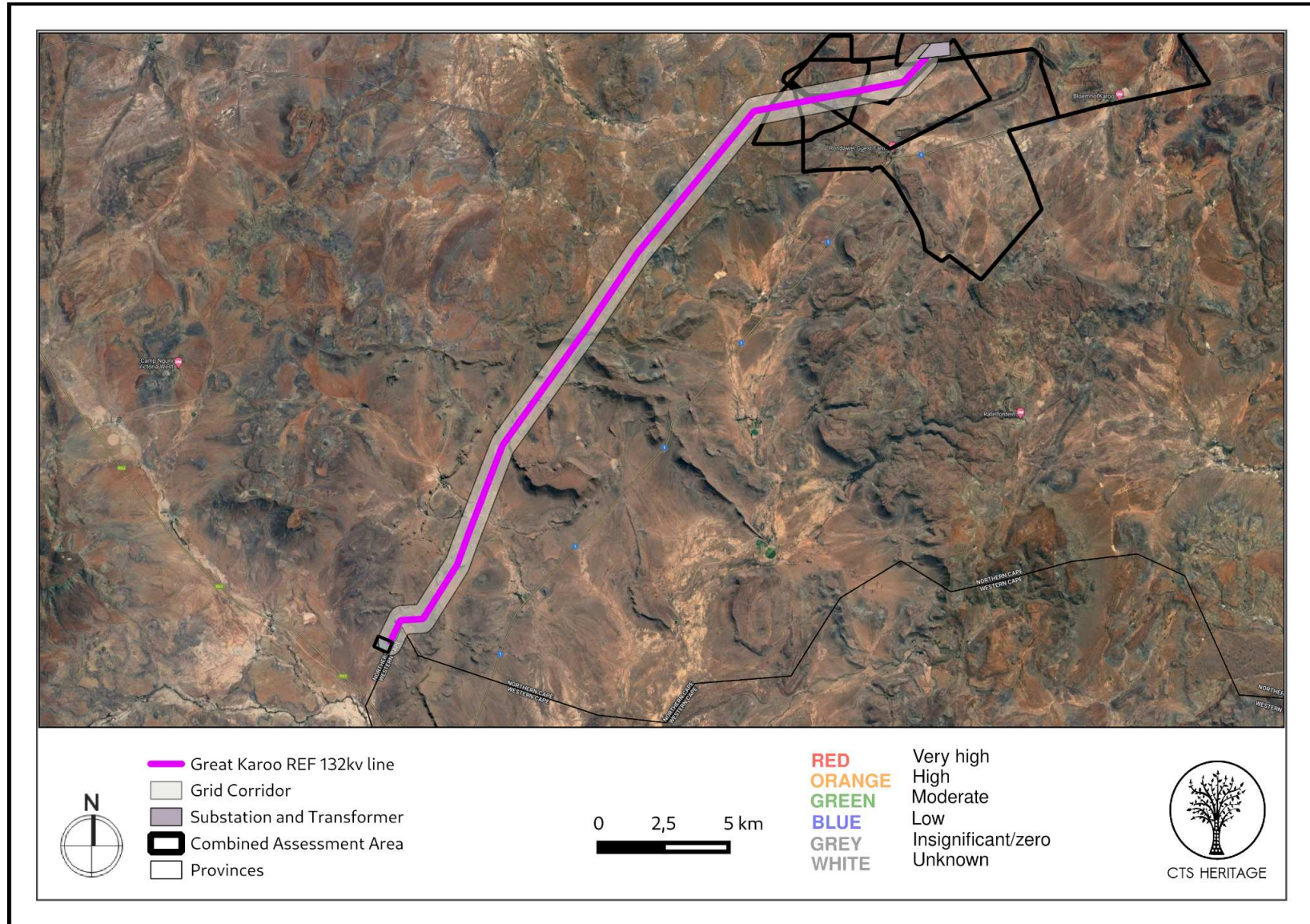
Palaeontology

According to the SAHRIS Palaeosensitivity Map (Map 4a), the area proposed for development is underlain by sediments of very high paleontological sensitivity. According to the extract from the Council for GeoSciences Map 3122 for Victoria West (Map 4b), the development area is underlain by the Abrahamskraal and Teekloof Formations, both of the Adelaide Subgroup of the Beaufort Group of sediments. According to the SAHRIS Fossil Heritage Browser and the Palaeotechnic Report for the Western Cape (Almond and Pether, 2008), the Beaufort Group sediments are known to preserve diverse terrestrial and freshwater tetrapods of *Tapinocephalus* to *Lystrosaurus* Biozones (amphibians, true reptiles, synapsids – especially therapsids), palaeoniscoid fish, freshwater bivalves, trace fossils (including tetrapod trackways) and sparse vascular plants (*Glossopteris* Flora, including petrified wood). Based on the known paleontological sensitivity of this area, it is very likely that activities associated with the development of the proposed grid connection infrastructure and the renewable energy facilities they will cater for will negatively impact on significant fossil heritage.

Site 3280 indicated as falling just outside the grid connection corridor in Map 2a records a palaeontological site and reinforces the palaeontological sensitivity of the broader landscape.



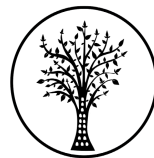
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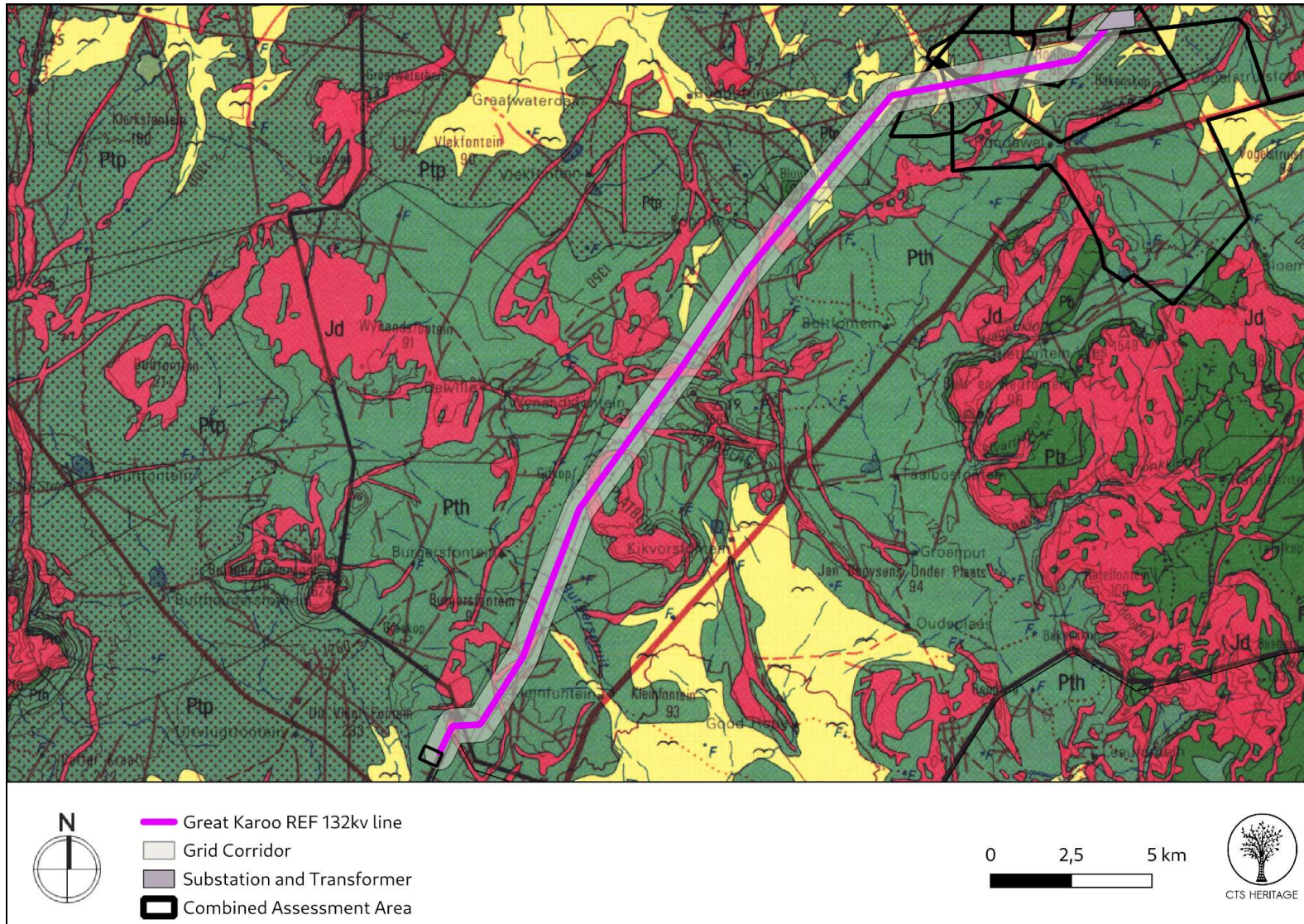
Map 4a: Palaeontological sensitivity of the proposed development area

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Map 4b: Geology Map. Extract from the CGS 3122 Victoria West Map indicating that the development area for the WEF development is underlain by sediments of Ptp: Poortjie Member and Pth: Hoedemaker Member of the Teekloof Formation of the Adelaide Subgroup and Jd: Jurassic Dolerite as well as Quaternary Sands

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4. IDENTIFICATION OF HERITAGE RESOURCES

4.1 Summary of findings of Specialist Reports

Cultural Landscape and the Built Environment (Winter et al. 2021, Appendix 3)

The concept of cultural landscape gives spatial and temporal expression to the processes and products of the interaction between people and the environment. It may thus be conceived as a particular configuration of topography, geology, vegetation, land use and settlement pattern and associations which establishes some coherence of natural and cultural processes.

The site forms part of an intact cultural landscape representative of the Central Plateau of the Great Karoo possessing heritage value for historical, aesthetic, architectural, social and scientific reasons. The site possesses a number of cultural landscape qualities and elements which are outlined below.

- The location of the site on the Central Plateau of the Great Karoo, separated from the Karoo vlakte by the Great Escarpment, characterised by a combination of flat open plains punctuated by mountains and koppies.
- The vast open qualities of the landscape, which are a function of its geology, semi-arid conditions and low vegetation cover; a relatively ephemeral pattern of human intervention on the landscape resulting in a sense of remoteness and stillness, known also for its night sky.
- Historical associations with colonial expansion of the northern frontier zone in the late 18th early 19th century resulting in the further displacement of transhumant pastoralism by settled agriculture and the emergence of extensive sheep farming in the early to mid-19th century; the farms Rondavel (1835), Ratelfontein (1835), Vogelfontein (1835), Gegundefontein (1846), Bult and Rietfontein (1835) being first surveyed during this period.
- A distinctive pattern of settlement informed by access to limited water resources with small, isolated farmsteads forming green oases in the semi-arid landscape, sheltered from the heat by exotic trees and associated with springs, streams, dams and windpumps. The manner in which homesteads are positioned at the base of hills and koppies forming distinctive topographical settings. The dry-packed stone walls constructed from the local shales, and historically used for kraals, are a characteristic feature of the landscape.
- The N1 corridor following the alignment of the late 18th century route to the interior and its role as a structuring element in the landscape along which dispersed settlement has occurred like “beads on a string”. Similarly, the route connecting Richmond to Victoria West as a historic linkage route to the north of the site.
- The stretch of the N1 corridor between Rondavel and Richmond which has distinctive experiential qualities: ranging from the ‘pinch point’ condition and kink in the alignment at Rondavel as the route passes through a hilly landscape and moves away from the national grid corridor; to the straight alignment of the

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route traversing an open flat landscape with expansive long views framed by mountains and koppies, and punctuated by farmstead settings; to the slight meandering and more enclosed nature of the route through undulating topography as it approaches Richmond.

- The high local and regional heritage significance of Richmond from a townscape and streetscape perspective, its role in the South African War, its distinctive topographical setting and cross route condition as part of a regional and national route network. While Richmond is located outside of the direct viewshed of the WEF portion of the proposed development, the experiential qualities of the N1 approaching the town will be potentially affected.

Archaeology (Appendix 1)

The findings of this assessment largely correlate with the findings of other assessments completed in the vicinity such as the findings of the ACO (2013, SAHRIS NID 503074) who note that “Because of the scarcity of caves and shelters, more than 90% of Karoo archaeological sites are open sites of stone artefacts, ostrich eggshell fragments and occasionally, pottery. Bone remains are rarely preserved. Artefacts of both the Early and Middle Stone Age are widespread and may generally be described as an ancient litter that occurs at a low frequency across the landscape.” This same archaeological signature has been identified within the development footprint.

It is noted that high numbers of quarried stone artefacts predominantly from the Middle Stone Age period were found within the development area which is consistent with observations on neighbouring farms through impact assessments and research surveys. These artefacts are particularly visible in deflated open sites where the top soil has washed away onto a harder gravel surface. Despite the large number of dolerite outcrops, no engravings were found. We are not currently aware of a large number of Stone Age engravings in this area and the lack of sites found might possibly be due to the routes chosen for the access roads and turbine positions. It was noted in the field assessment that the archaeology located around the dolerite ridges is very dense and exposed and as such, we would recommend caution should changes be made to pylon positions or access roads.

Palaeontology (Appendix 2)

Fossil specimens recorded from the Teekloof Formation bedrocks during a 3-day site visit to the grid connection project area mainly comprise a handful of scrappy therapsid cranial and post-cranial material. The only specimens of potential scientific or conservation interest are several skeletal elements of a small-bodied pareiasaur reptile - possibly a juvenile or dwarf taxon. Almost all the other specimens are fragmentary and very poorly preserved due to thermal metamorphism and metasomatism (*i.e.* alteration through secondary mineralisation and dissolution by hot circulating groundwaters) during dolerite intrusion.

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Thick deposits of Late Caenozoic, semi-consolidated alluvium might contain important assemblages of Plio-Pleistocene mammalian fossils (e.g. horn cores, bones and teeth) as well as reworked petrified wood and trace fossils (e.g. calcretised termitaria). However, the only fossils recorded here comprise assemblages of subvertical, calcretised rhizoliths (plant root casts) in riverbank settings. Voluminous, doleritic and quartzitic colluvial rock rubble mantling the steeper mountain slopes as well as younger alluvial sands and gravels mantling extensive *vlaktes* within the project area are unlikely to be fossiliferous.

4.2 Heritage Resources identified

The landscape of the development area has been assessed for cultural heritage significance, and found to have five distinct character areas:

1. Historic movement corridors.
2. Open plains interrupted by low koppies.
3. Elevated areas with steep sided mountain ridges.
4. Areas of landscape that have been transformed by significant infrastructural development.
5. Remote landscape with wilderness qualities.

Of the five distinct character areas identified in the Cultural Landscape Assessment (Winter, 2021), the grid connection corridor falls within Area 4 - Areas of landscape that have been transformed by significant infrastructural development.

Table 2: Cultural Landscape Character Area 4

Significance	Character	Carrying Capacity
4. Transformed landscape Electricity grid parallel to and set back from (4 km) the N1 corridor south of site.	Introduction of industrial activities and intrusion of large scale infrastructure in agricultural areas. Visual cluttering of the landscape by non-agricultural development.	Infrastructure can be concentrated in this area.



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In terms of the heritage resources identified in the archaeological field assessment, see Table 3 below.

Table 3: Observations made during the archaeological field assessment

POINT ID	Site Name	Description	Period	Co-ordinates		Grading	Mitigation
GK001	Great Karoo 001	Hornfels broken up source rock, one flake	MSA	-31,67536	23,41625	NCW	NA
GK002	Great Karoo 002	Siltstone flakes and cores near dolerite boulder shelter	MSA	-31,67466	23,41763	NCW	NA
GK003	Great Karoo 003	Quarrying of hornfels and greywacke, no formal tools seen	MSA	-31,67114	23,42757	NCW	NA
GK004	Great Karoo 004	Patinated hornfels assemblage, mainly blades near dry stream bed. Not early MSA	MSA	-31,66289	23,43376	NCW	NA
GK005	Great Karoo 005	Early MSA flake, edge slightly worked	MSA	-31,65061	23,44315	NCW	NA
GK006	Great Karoo 006	Hornfels cores and flakes, one white very patinated flake with old retouched edges	MSA	-31,64028	23,44753	NCW	NA
GK007	Great Karoo 007	Hornfels flakes, cores, greywacke cores and flakes. Partially buried in Kalahari sands	MSA	-31,61139	23,45934	NCW	NA
GK008	Great Karoo 008	Fine grained hornfels flakes, microliths, LSA. Patinated and older MSA cores and flakes in natural clearing surrounded by dolerite boulders	LSA, MSA	-31,59409	23,47433	NCW	NA
GK009	Great Karoo 009	Hornfels flake, cortex remaining on dorsal	MSA	-31,56952	23,49539	NCW	NA
GK010	Great Karoo 010	Rusted large metal spanner, pole, rings associated with powerlines	Modern	-31,54909	23,51106	NCW	NA
GK011	Great Karoo 011	Windmill, concrete tank	Modern	-31,55271	23,5267	NCW	NA
GK012	Great Karoo 012	Hornfels blade flake	MSA	-31,55056	23,52993	NCW	NA
GK013	Great Karoo 013	Patinated hornfels flakes and siltstone	MSA	-31,54143	23,55346	NCW	NA
GK014	Great Karoo 014	Brick plastered tank	Modern	-31,49752	23,56122	NCW	NA
GK021	Great Karoo 021	Hornfels flake buried in donga exposure	MSA	-31,50839	23,59374	NCW	NA

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GK031	Great Karoo 031	Windmill	Modern	-31,50086	23,57677	NCW	NA
GK032	Great Karoo 032	Very thin, weathered hornfels flake	MSA	-31,49897	23,56639	NCW	NA
GK052	Great Karoo 052	Windmill	Modern	-31,480756	23,640181	NCW	NA
GK083	Great Karoo 083	Windmill	Modern	-31,49136	23,59298	NCW	NA
GK085	Great Karoo 085	Hornfels core and flakes	LSA	-31,48695	23,58745	NCW	NA
GK096	Great Karoo 096	Hornfels flake blade	MSA	-31,48828	23,5975	NCW	NA
GK098	Great Karoo 098	Windmill	Modern	-31,49582	23,59807	NCW	NA
GK125	Great Karoo 125	greywacke and hornfels cores and flakes	MSA	-31,643632	23,451292	NCW	NA
GK126	Great Karoo 126	Hornfels flakes, dorsal reduction	MSA	-31,6384659	23,45974918	NCW	NA
GK127	Great Karoo 127	Quartzite flake	MSA	-31,63040907	23,47842969	NCW	NA
GK128	Great Karoo 128	Hornfels bladelet	LSA	-31,5979548	23,50175682	NCW	NA
GK129	Great Karoo 129	greywacke core	MSA	-31,60338828	23,49861806	NCW	NA
GK130	Great Karoo 130	Hornfels blade flake	MSA	-31,61165517	23,49280684	NCW	NA
GK131	Great Karoo 131	Hornfels bladelet	LSA	-31,61571999	23,49376	NCW	NA
GK132	Great Karoo 132	Hornfels flake	MSA	-31,62469267	23,49593221	NCW	NA

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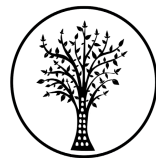


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In terms of the heritage resources identified in the palaeontological field assessment, see Table 4 below.

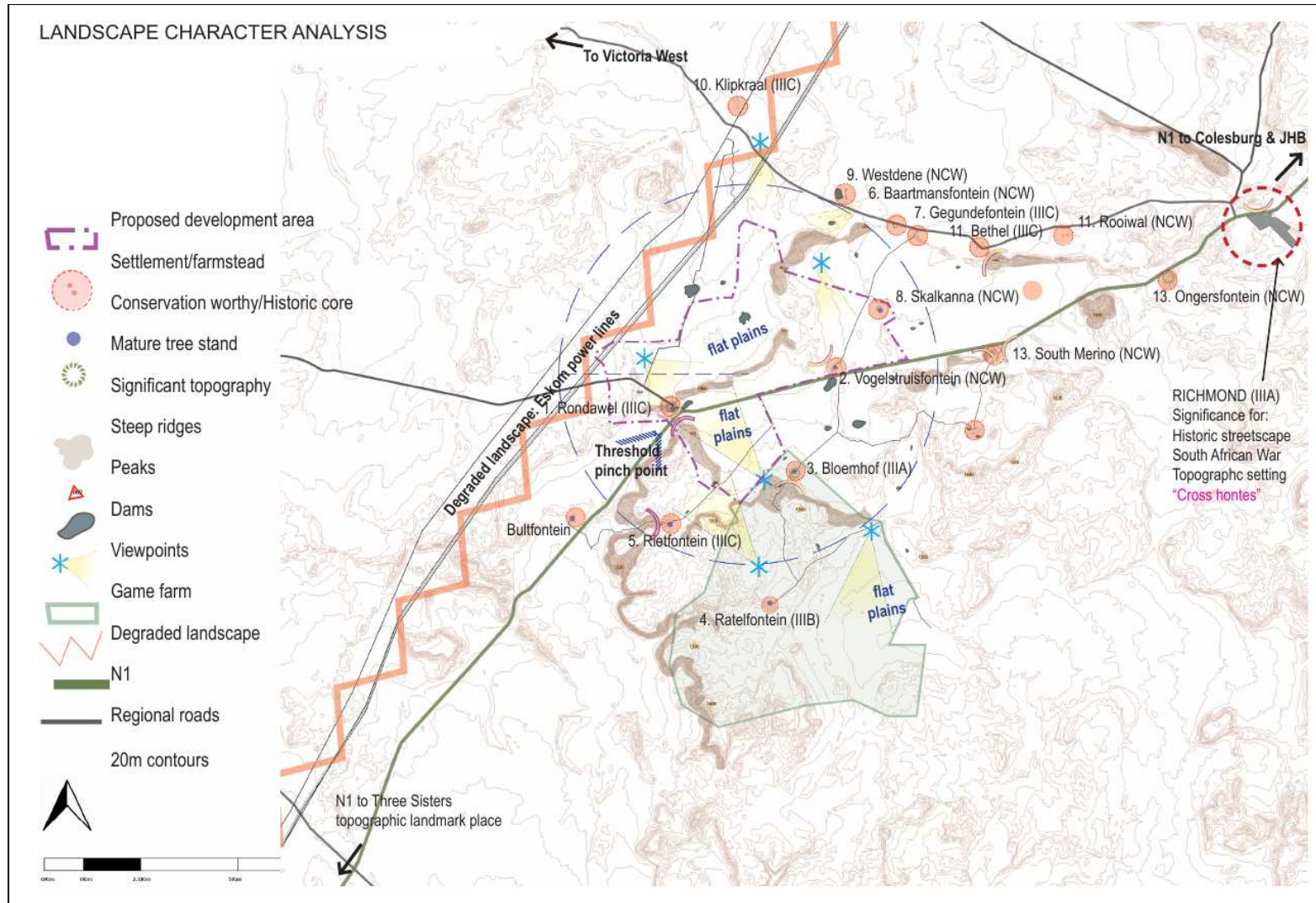
Table 4: Palaeontological observations made during the field assessment for the proposed Grid Connection Infrastructure

POINT ID	Description	Co-ordinates		Grading	Mitigation
884	Rondavel 85. Hoedemaker Member. Thin crevasse splay sandstone exposed in shallow borrow pit with sandstone-infilled mudcracks, microbial mat textures, small-scale invertebrate trace fossils (narrow horizontal burrows of undermat miners), possible vertical burrows or plant stem casts. Proposed Field Rating IIIC Local Resource. No mitigation recommended.	-31.49779201	23.59721803	IIIC	NA
896	Farm 96. "Balfour Formation" (Oukloof Member of Teekloof Fm). Scatter of baked white bone fragments of small-bodied tetrapod within quartzite surface gravels, in part preserved as moulds. Proposed Field Rating IIIC Local Resource. No mitigation recommended.	-31.54356097	23.51600602	IIIC	NA
914	Burgersfontein 92. Probable Poortjie Member, baked heterolithic package in bed of Burgerspruit. Fragment of skull (probably palate) of small tetrapod embedded within baked, grey-green wacke. Proposed Field Rating IIIC Local Resource. No mitigation recommended.	-31.63286403	23.450985	IIIC	NA
915	Burgersfontein 92. Probable Poortjie Member, bed of Burgerspruit. Postcranial bone of small tetrapod embedded within baked, grey-green wacke. Proposed Field Rating IIIC Local Resource. No mitigation recommended.	-31.63276596	23.450855	IIIC	NA
917	Burgersfontein 92. Late Caenozoic sandy to gravelly alluvium overlying calcrete-veined weathered dolerite exposed in banks of Burgerspruit. Assemblage of subvertical, subcylindrical calcretised structures – probably rhizoliths. Proposed Field Rating IIIC Local Resource. No mitigation recommended.	-31.63184898	23.44953099	IIIC	NA
918	Burgersfontein 92. Probable Poortjie Member. Crushed, baked probable small tetrapod skull within thin-bedded grey-green siltstone with possible baked gypsum roses exposed on bed of Burgerspruit. Proposed Field Rating IIIB. Site protected in river bed within standard ecological riverine buffer.	-31.63092203	23.44897603	IIIB	20m no-go buffer



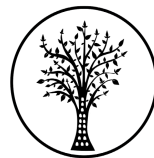
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4.3 Mapping and spatialisation of heritage resources

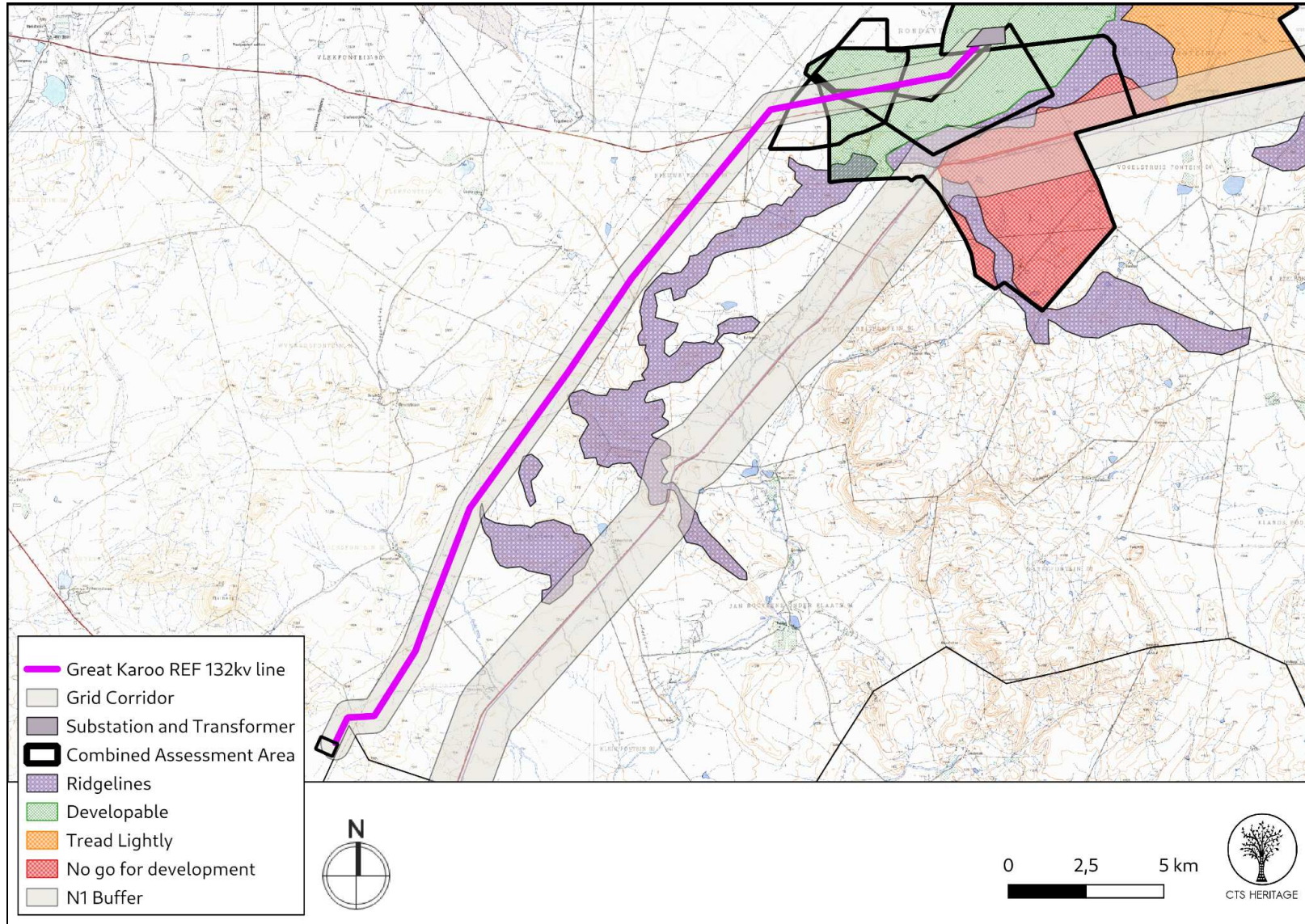


Map 5a: Map of cultural landscape heritage resources in proximity to the proposed development area

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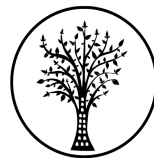
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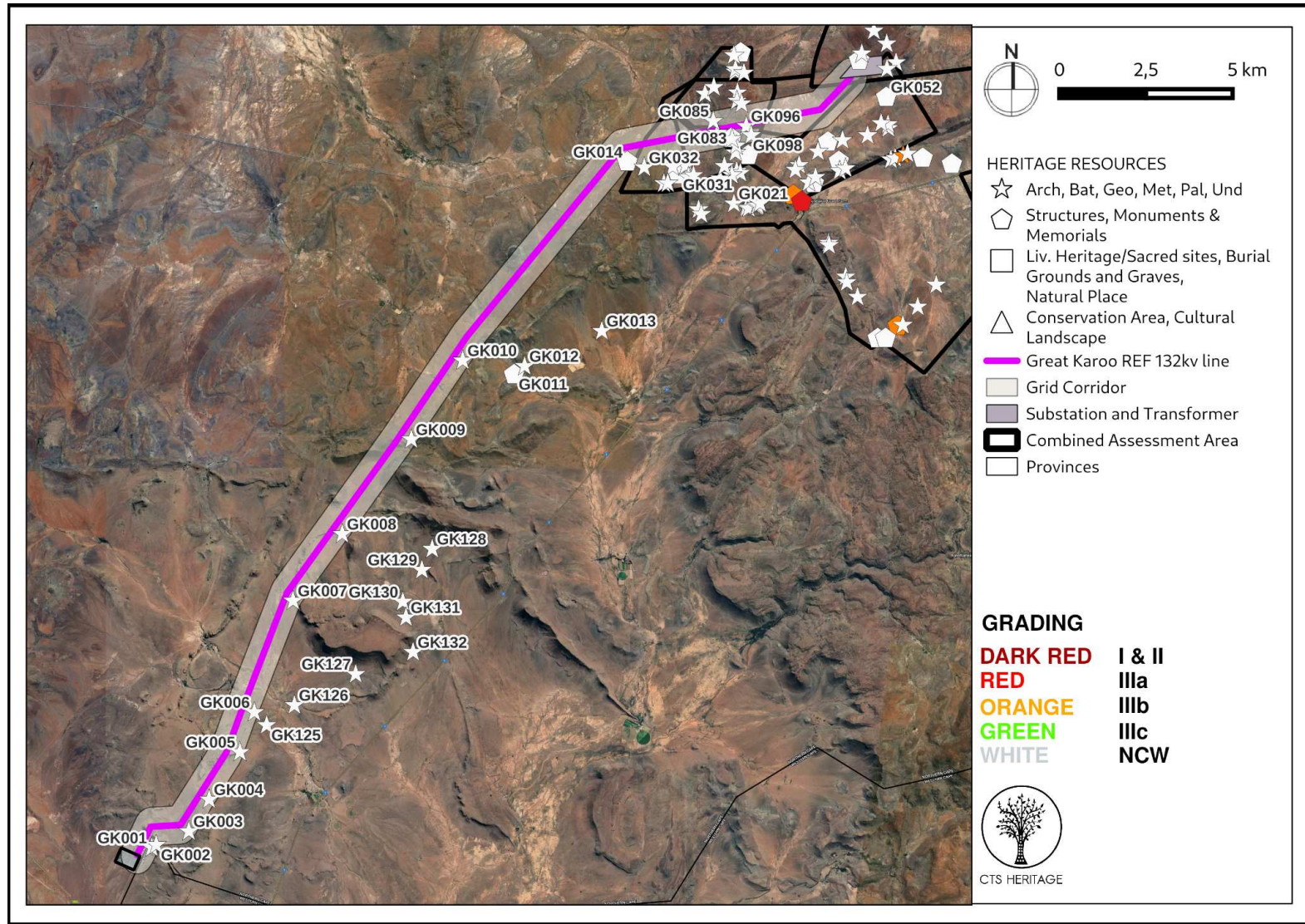
Map 5b: Map of ridgelines proximity to the proposed development area

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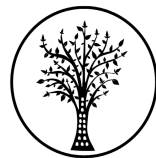
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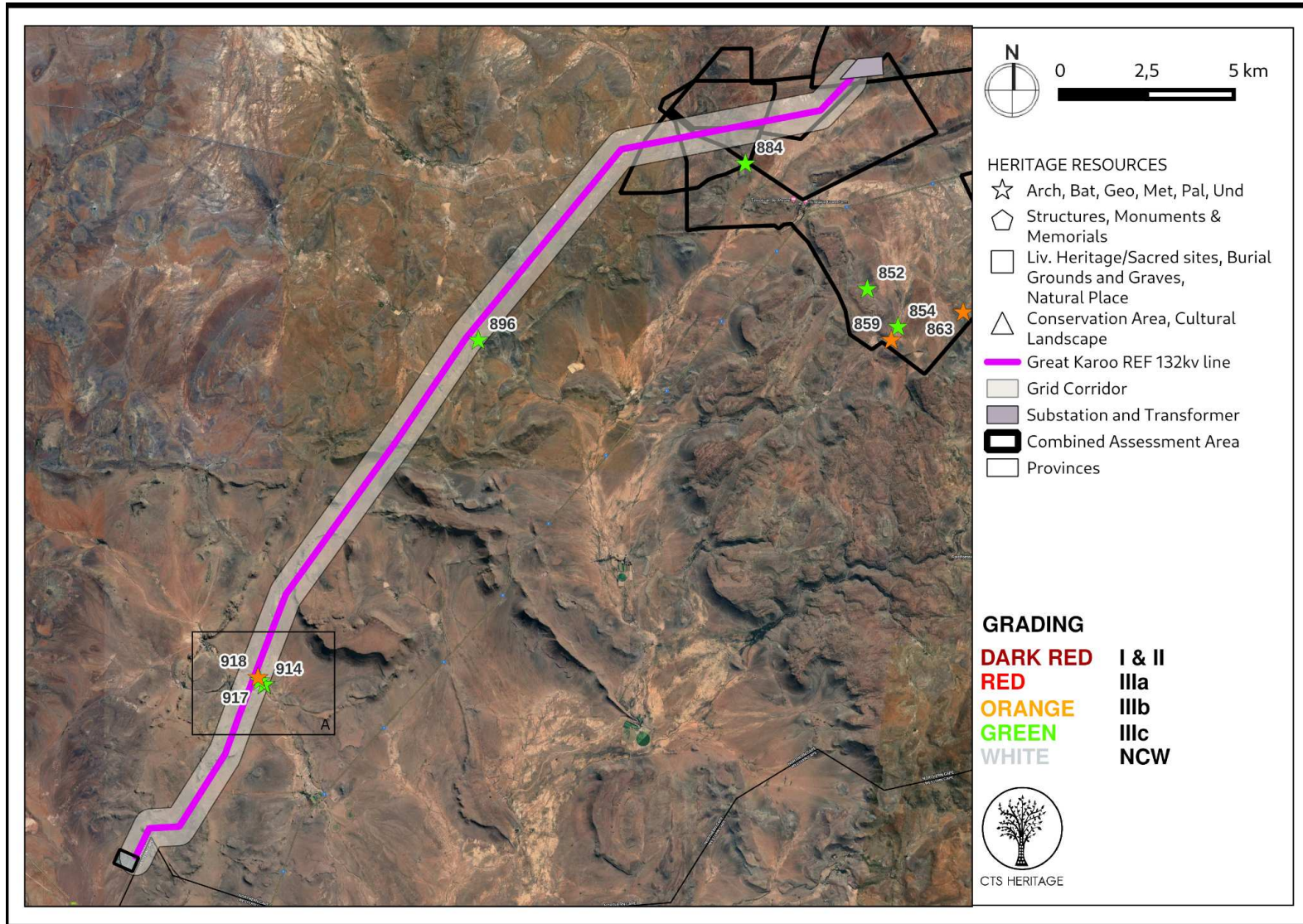
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Map 5c: Map of archaeological observations in proximity to the proposed development area - all considered to be Not Conservation-Worthy



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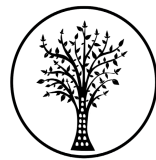


Map 5d: Map of palaeontological heritage resources in proximity to the proposed development area

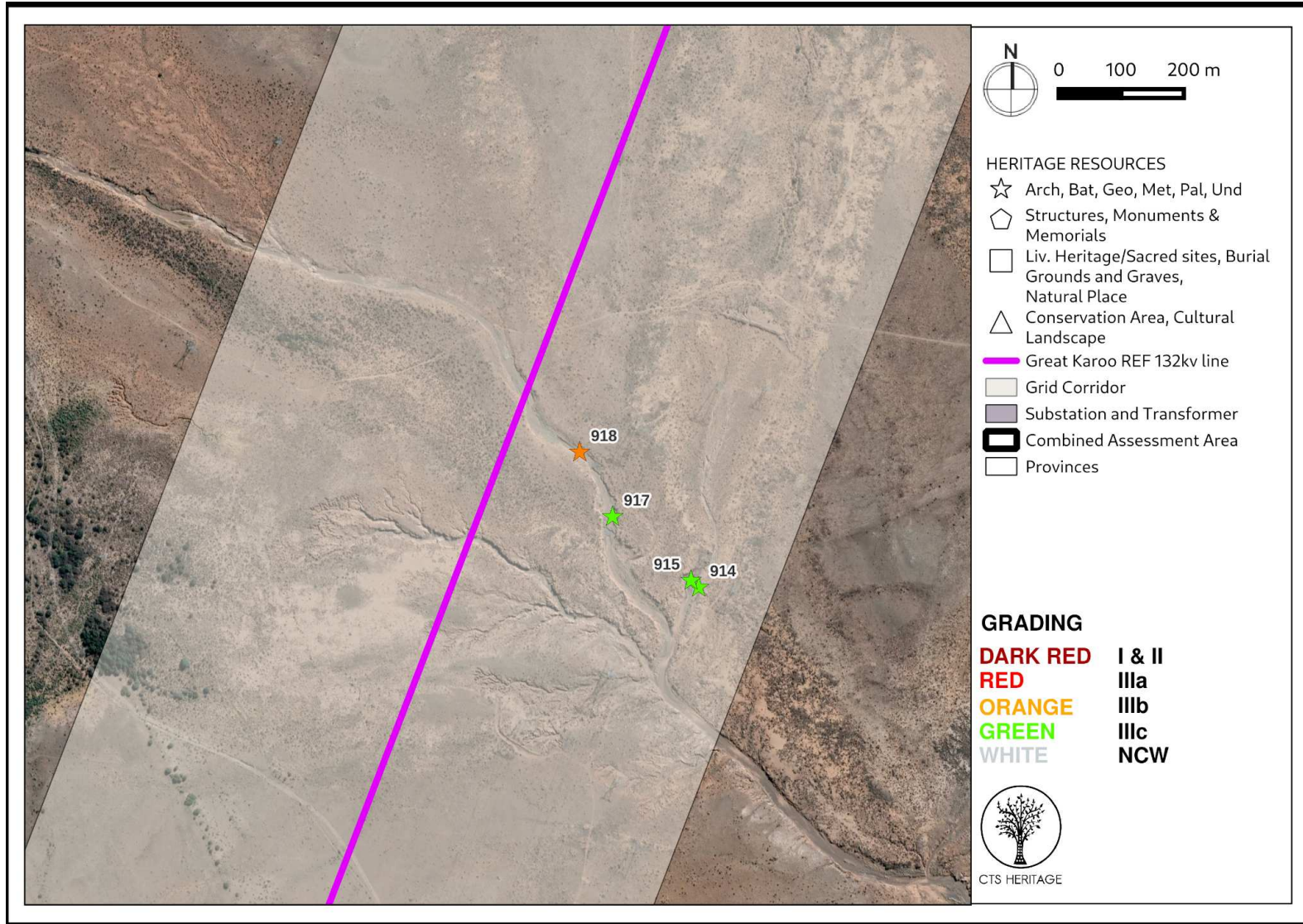
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Map 5e: Inset A

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5. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT

5.1 Assessment of impact to Heritage Resources

Cultural Landscape

The grid connection corridor begins in a developable area and follows a route of existing infrastructure. Therefore the impact to the cultural landscape of the additional infrastructure is acceptable, as it makes little material difference to the already disturbed landscape. The grid connection corridor traverses adjacent to power lines where there is existing visual disturbance and it traverses further from existing dwellings and roads.

The grid connection corridor is located within an area that already contains existing grid connection infrastructure. Furthermore, the majority of the alignment is located on the far side of ridgelines which largely screen the grid connection infrastructure from the N1. In addition, the grid assessment corridor falls well away from the 1km buffer area recommended for the N1.

Table 5: Impact table for Cultural Landscape Heritage Resources

NATURE: The broader context of the area proposed for development has cultural significance that may be impacted by the proposed development			
		Before Mitigation	After Mitigation
MAGNITUDE	L (4)	While the cultural value of the pristine Karoo Landscape is very high, the location of the proposed grid connection infrastructure and its grouping with existing infrastructure means that only slight impact to the cultural landscape will result from the proposed development.	L (4) While the cultural value of the pristine Karoo Landscape is very high, the location of the proposed grid connection infrastructure and its grouping with existing infrastructure means that only slight impact to the cultural landscape will result from the proposed development.
DURATION	H (4)	Where manifest, the impact will be long term - for the duration of the grid infrastructure lifetime	H (4) Where manifest, the impact will be long term - for the duration of the grid infrastructure lifetime
EXTENT	H (5)	Regional	H (5) Regional
PROBABILITY	L (2)	It is extremely unlikely that any significant cultural landscape resources will be impacted	L (2) It is extremely unlikely that any significant cultural landscape resources will be impacted
SIGNIFICANCE	L	$(5+4+4) \times 2 = 26$	L $(5+4+4) \times 2 = 26$
STATUS		Neutral	Neutral
REVERSIBILITY	L	Any impacts to heritage resources that do occur are reversible once the grid connection infrastructure is removed	L Any impacts to heritage resources that do occur are reversible once the grid connection infrastructure is removed
IRREPLACEABLE LOSS OF RESOURCES?	L	Unlikely	L Unlikely
CAN IMPACTS BE MITIGATED		NA	
MITIGATION: Impacts cannot be mitigated			
RESIDUAL RISK: NA			



Archaeology

A total of 24 archaeological observations were identified along the grid alignment. None of the identified archaeological resources were determined to be conservation-worthy. Six modern windmill and water storage structures were identified within the grid alignment options but none of these were determined to be conservation-worthy. Based on the outcomes of this assessment, the proposed grid corridor will not have a negative impact on any significant heritage resources.

Table 6: Impact table for Archaeological Heritage Resources

NATURE: The area proposed for development is known to conserve heritage resources of archaeological significance that may be impacted by the proposed development			
		Before Mitigation	After Mitigation
MAGNITUDE	L (2)	No significant archaeological resources were identified within the development area	L (2) No significant archaeological resources were identified within the development area
DURATION	H (5)	Where manifest, the impact will be permanent.	H (5) Where manifest, the impact will be permanent.
EXTENT	L (1)	Localised within the site boundary	L (1) Localised within the site boundary
PROBABILITY	L (1)	It is extremely unlikely that any significant archaeological resources will be impacted	L (1) It is extremely unlikely that any significant archaeological resources will be impacted
SIGNIFICANCE	L	$(2+5+1) \times 1 = 8$	L $(2+5+1) \times 1 = 8$
STATUS		Neutral	Neutral
REVERSIBILITY	L	Any impacts to heritage resources that do occur are irreversible	L Any impacts to heritage resources that do occur are irreversible
IRREPLACEABLE LOSS OF RESOURCES?	L	Unlikely	L Unlikely
CAN IMPACTS BE MITIGATED		NA	
MITIGATION: Should any significant archaeological resources be uncovered during the course of the construction phase, work must cease in the area of the find and SAHRA must be contacted regarding an appropriate way forward.			
RESIDUAL RISK: Should any significant archaeological resources be impacted (however unlikely) residual impacts may occur, including a negative impact due to the loss of potentially scientific cultural resources			



Palaeontology

No palaeontological Very High Sensitivity / No-Go areas have been identified within the grid connection project areas. With the exception of two fossil sites of low scientific value, none of the recorded fossil sites overlaps directly with, or lies close to (< 20 m), proposed infrastructure and no modification of the layouts through micro-siting is proposed here on palaeontological grounds. While a number of fossil sites are recorded within the grid connection corridor, none is of conservation significance while most of the sites are already protected within standard ecological buffer zones along drainage lines. Mitigation of the known fossil sites within the grid connection project area is therefore not proposed here. The anticipated impact significance of the proposed development in terms of palaeontological heritage resources is likely to be VERY LOW due to (1) the very sparse distribution of fossil remains as well as (2) their almost universally poor preservation. Given the very uniform geological, and hence palaeontological, setting throughout the combined project areas, this assessment applies equally to the grid connection projects as well as to the grid connection corridor under consideration. The proposed grid connection is not fatally flawed from a palaeontological heritage viewpoint and there are no objections to their authorisation.

Table 7: Impact table for Palaeontological Heritage Resources

NATURE: The area proposed for development is known to conserve heritage resources of palaeontological significance that may be impacted by the proposed development			
		Before Mitigation	After Mitigation
MAGNITUDE	H (8)	No highly significant palaeontological resources were identified within the development area, however the geology underlying the development area is very sensitive for impacts to significant fossils	H (8) No highly significant palaeontological resources were identified within the development area, however the geology underlying the development area is very sensitive for impacts to significant fossils
DURATION	H (5)	Where manifest, the impact will be permanent.	H (5) Where manifest, the impact will be permanent.
EXTENT	L (1)	Localised within the site boundary	L (1) Localised within the site boundary
PROBABILITY	H (5)	It is extremely likely that significant palaeontological resources will be negatively impacted	L (1) It is extremely unlikely that any significant paleontological resources will be negatively impacted
SIGNIFICANCE	H	(1+5+8)x5=70	L (1+5+8)x1=14
STATUS		Neutral	Neutral
REVERSIBILITY	L	Any impacts to heritage resources that do occur are irreversible	L Any impacts to heritage resources that do occur are irreversible
IRREPLACEABLE LOSS OF RESOURCES?	H	Likely	L Unlikely
CAN IMPACTS BE MITIGATED		Yes	
MITIGATION: The attached Chance Fossil Finds Procedure must be implemented for the duration of construction activities			
RESIDUAL RISK: Should any significant palaeontological resources be impacted (however unlikely) residual impacts may occur, including a negative impact due to the loss of potentially scientific cultural resources			



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5.2 Sustainable Social and Economic Benefit

The Great Karoo EGI is directly linked to the operation of the Great Karoo Cluster of Renewable Energy Facilities and is essential infrastructure for the operation of these facilities to enable the electricity evacuation to the national grid.

In the absence of the proposed Great Karoo EGI, the renewable energy facilities will not be able to operate. Therefore, considering the dependency of the proposed renewable energy facilities on the Great Karoo EGI, the socio-economic benefits of this grid connection infrastructure is directly linked to the socio-economic benefits of the proposed renewable energy facilities that it will cater for.

As such, the anticipated socio-economic benefits of the proposed development outweigh the anticipated impacts to heritage resources.

5.3 Proposed development alternatives

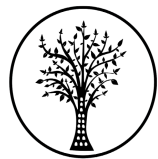
Only one grid alignment is proposed for this grid connection infrastructure as mapped in Map 1a and 1b. Additional alternatives for the grid connection alignment were proposed at an earlier phase of the project, however these have been screened out as part of the Scoping Phase process.

5.4 Cumulative Impacts

At this stage, there is the potential for the cumulative impact of proposed renewable energy facilities to negatively impact the cultural landscape due to a change in the landscape character from natural wilderness to semi-industrial. Although this project falls outside of a REDZ area, it is noted that it is preferable to have renewable energy facility development clustered in an area such as a REDZ.

To address concerns about the cumulative impact of RE facilities within the greater Karoo region, a cautious approach is required in terms of assessing the desirability of such development from a cultural landscape perspective. The proposed site is located adjacent to an existing infrastructural corridor associated with the national grid, which suggests a level of suitability of RE facilities which can link in with the grid. Notwithstanding the existing infrastructure, the placement of RE facilities, both PV and WE turbines, must take cognisance of the very high visual impact on a relatively intact and representative cultural landscape, and the extremely limited ability to visually screen this infrastructural development, particularly in the case of the wind turbines.

However, as this HIA is concerned with the grid connection infrastructure, the placement of the proposed grid corridor adjacent to existing grid connection infrastructure goes some way to mitigate the negative impact of the development on heritage resources.



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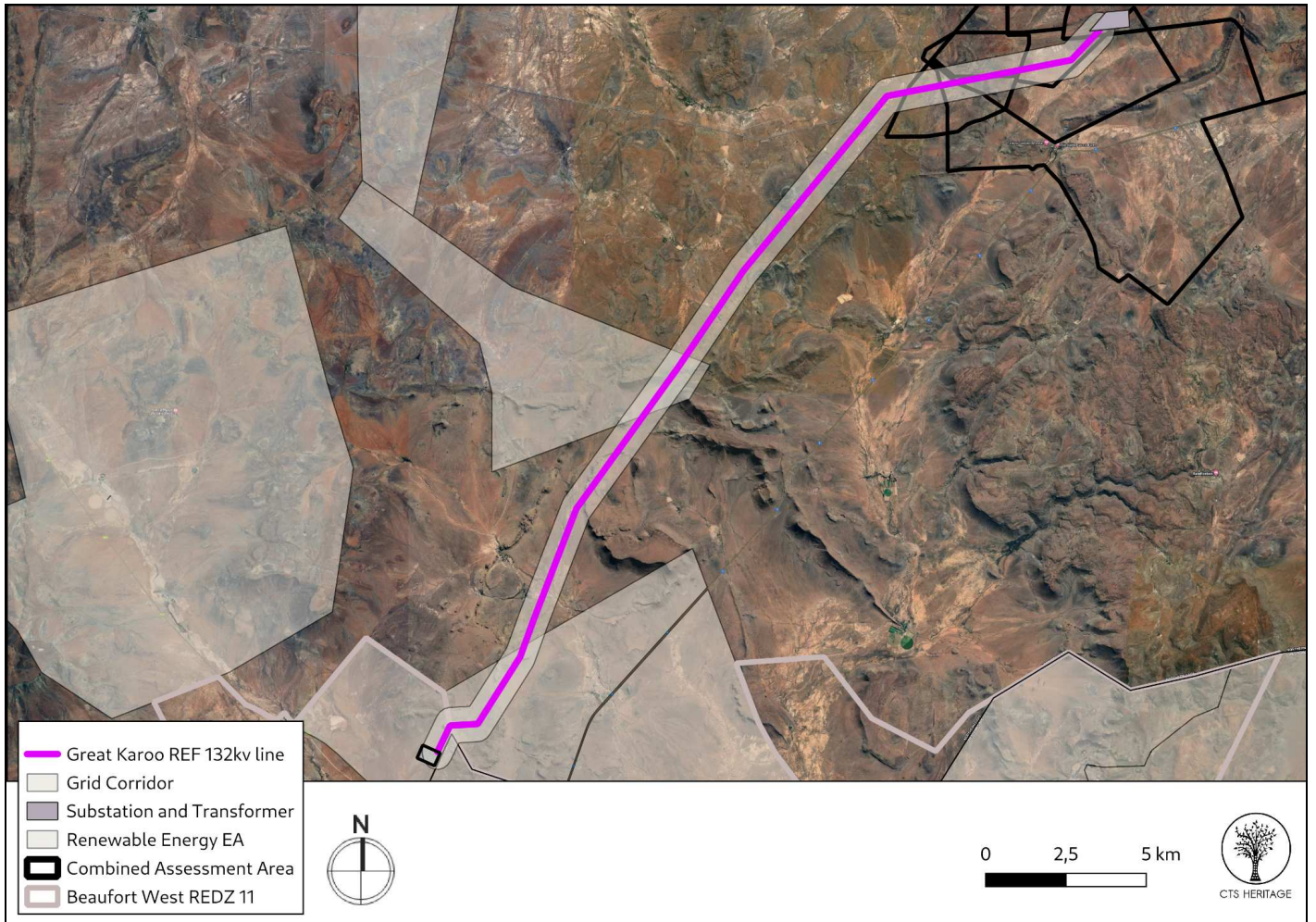


Figure 4: Approved REF projects within 50km of the proposed development area



Table 8: Cumulative Impact Table

NATURE: Cumulative Impact to the sense of place				
		Overall impact of the proposed project considered in isolation		Cumulative impact of the project and other projects in the area
MAGNITUDE	L (4)	Low	L (4)	Low
DURATION	M (3)	Medium-term	H (4)	Long-term
EXTENT	L (1)	Low	L (1)	Low
PROBABILITY	L (2)	Improbable	H (3)	Probable
SIGNIFICANCE	L	$(4+3+1) \times 2 = 16$	L	$(4+4+1) \times 3 = 27$
STATUS		Neutral		Neutral
REVERSIBILITY	H	High	L	Low
IRREPLACEABLE LOSS OF RESOURCES?	L	Unlikely	L	Unlikely
CAN IMPACTS BE MITIGATED		NA		NA
CONFIDENCE IN FINDINGS: High				
MITIGATION: No impacts are anticipated and as such, no mitigation is required				

6. RESULTS OF PUBLIC CONSULTATION

As this application is made in terms of NEMA, the public consultation on the HIA will take place with the broader public consultation process required for the Environmental Impact Assessment process and will be managed by the lead environmental consultants on the project.

7. CONCLUSION

In terms of impacts to archaeological resources, the findings of this assessment largely correlate with the findings of other assessments completed in the vicinity such as the findings of the ACO (2013, SAHRIS NID 503074) who note that “Because of the scarcity of caves and shelters, more than 90% of Karoo archaeological sites are open sites of stone artefacts, ostrich eggshell fragments and occasionally, pottery. Bone remains are rarely preserved. Artefacts of both the Early and Middle Stone Age are widespread and may generally be described as an ancient litter that occurs at a low frequency across the landscape.” This same archaeological signature has been identified within the development footprint.

No archaeological resources of significance were identified within the grid connection corridor and as such, no impact to significant archaeological heritage is anticipated.

In terms of impacts to palaeontological resources, the area proposed for development falls within a geological that is very sensitive for impacts to significant palaeontological heritage. While the site visit conducted did not identify significant fossil material, the likelihood of unv=covering significant palaeontology that is preserved below



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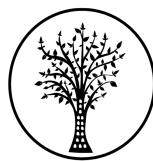
the ground surface remains high. As such, it is recommended that the attached Chance Fossil Finds Procedure be implemented for the duration of construction activities.

In terms of impacts to the Cultural Landscape, the proposed development is broadly located in an area with a culturally significant sense of place. That being said, the grid connection corridor follows a route of existing infrastructure. The impact to the cultural landscape of the additional infrastructure is acceptable, as it makes little material difference to the already disturbed landscape..

8. RECOMMENDATIONS

Based on the outcomes of this report, it is not anticipated that the proposed development of the grid connection infrastructure will negatively impact on significant heritage resources. The following recommendations are made:

- The attached Chance Fossil Finds Procedure must be implemented for the duration of construction activities
- Although all possible care has been taken to identify sites of cultural importance during the investigation of the study area, it is always possible that hidden or subsurface sites could be overlooked during the assessment. If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils, burials or other categories of heritage resources are found during the proposed development, work must cease in the vicinity of the find and SAHRA must be alerted immediately to determine an appropriate way forward.



9. REFERENCES

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
120317	HIA Phase 1	Celeste Booth, Sholeen Shanker	01/12/2012	An archaeological ground-truthing walk-through for the proposed substation and associated overhead power line for the Nobelsfontein Wind Energy Facility situated on a site south of Victoria West on the Farm Nobelsfontein 227, Northern Cape Province
120325	HIA Phase 1	Celeste Booth, Sholeen Shanker	01/12/2012	An archaeological ground-truthing walk-through for the proposed substation and associated overhead power line for the Nobelsfontein Wind Energy Facility situated on a site south of Victoria West on the Farm Nobelsfontein 227, Northern Cape Province
120325	HIA Phase 1	Celeste Booth, Sholeen Shanker	01/12/2012	An archaeological ground-truthing walk-through for the proposed substation and associated overhead power line for the Nobelsfontein Wind Energy Facility situated on a site south of Victoria West on the Farm Nobelsfontein 227, Northern Cape Province
120820	HIA Phase 1	Celeste Booth	01/12/2012	An Archaeological Ground-Truthing Walk-Through For The Nobelsfontein Wind Energy Facility Situated On A Site South Of Victoria West On The Farms Nobelsfontein 227, Annex Nobelsfontein 234, Ezelsfontein 235, And Rietkloofplaaten 239, Northern Cape Province
251290	PIA Desktop	Lloyd Rossouw	01/01/2014	Combined Environmental Environmental Impact Assessment for the proposed Ishwati Emoyeni Wind Energy Facility and Supporting Eskom Transmission and Eskom Distribution Grid Connection Infrastructure near Murraysburg, Western Cape. Chapter 13: Palaeontology Impact Assessment.
251296	AIA Phase 1	Dave Halkett	01/01/2014	Combined Environmental Impact Assessment for the proposed Ishwati Emoyeni Wind Energy Facility and Supporting Eskom Transmission and Eskom Distribution Grid Connection Infrastructure near Murraysburg, Western Cape. Chapter 13: Archaeology Impact Assessment.
356942	AIA Phase 1	Johan Binneman, Celeste Booth, Natasha Higgitt	01/05/2010	A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) FOR THE PROPOSED SKIETKUIL QUARRIES 1 AND 2 ON THE FARM SKIETKUIL No. 3, VICTORIA WEST, CENTRAL KAROO DISTRICT, WESTERN CAPE PROVINCE
356942	AIA Phase 1	Johan Binneman, Celeste Booth, Natasha Higgitt	01/05/2010	A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) FOR THE PROPOSED SKIETKUIL QUARRIES 1 AND 2 ON THE FARM SKIETKUIL No. 3, VICTORIA WEST, CENTRAL KAROO DISTRICT, WESTERN CAPE PROVINCE
357137	Heritage	Timothy Hart	13/10/2015	Heritage Impact Assessment for the proposed Umsinde Emoyeni Wind



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	Impact Assessment Specialist Reports			Energy Facility
360840	Non Impact Assessment Related Reports	Wouter Fourie	05/03/2016	Environmental Impact Assessment of the proposed amendments to the Environmental Authorisation for the Mainstream Renewable Power South Africa Wind Energy Project near Victoria West in the Northern Cape – Specialist Heritage Opinion
360850	HIA Phase 1	Wouter Fourie	04/03/2016	Basic assessment process for Proposed development of supporting infrastructure to the Victoria West Wind Energy Facility, Victoria West
6805	AIA Phase 1	Len van Schalkwyk, Elizabeth Wahl	01/09/2007	Heritage Impact Assessment of Gamma Grassridge Power Line Corridors and Substation, Eastern, Western and Northern Cape Provinces, South Africa
7035	AIA Phase 1	Johan Binneman, Celeste Booth, Natasha Higgitt	05/03/2011	A Phase 1 Archaeological Impact Assessment (AIA) for the proposed Karoo Renewable Energy Facility on a site south of Victoria West, Northern and Western Cape Province on the farms Phaisantkraal 1, Modderfontein 228, Nobelsfontein 227, Annex Nobelsfontein
7036	AIA Desktop	Celeste Booth, Natasha Higgitt	19/11/2010	An Archaeological Desktop Study for the proposed Karoo Renewable Energy Facility on a site south of Victoria West, Northern and Western Cape
8943	PIA Phase 1	Lloyd Rossouw	24/03/2011	Palaeontological desktop assessment of a commercial renewable energy facility site located approximately 34km south of Victoria West in the Western Cape Province (and Northern Cape)

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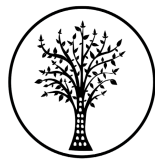
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APPENDICES



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APPENDIX 1: Archaeological Assessment (2021)



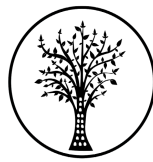
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APPENDIX 2: Palaeontological Assessment (2021)



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APPENDIX 3: Cultural Landscape Assessment (2021)



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APPENDIX 4: Heritage Screening Assessment



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APPENDIX 5: Chance Fossil Finds Procedure