

# HERITAGE IMPACT ASSESSMENT

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

## **Rerouting of the Rietfontein-Rietfontein 33kV powerline near the Rietfontein Settlement in the Northern Cape Province**

Prepared by CTS Heritage



CTS HERITAGE

Jenna Lavin

For

**EnviroWorks**

**July 2023**



CTS HERITAGE

## EXECUTIVE SUMMARY

1. Site Name:

Hakskeenpan and Koopan Powerlines

2. Location:

Between Rietfontein and Askham, Northern Cape

3. Locality Plan:

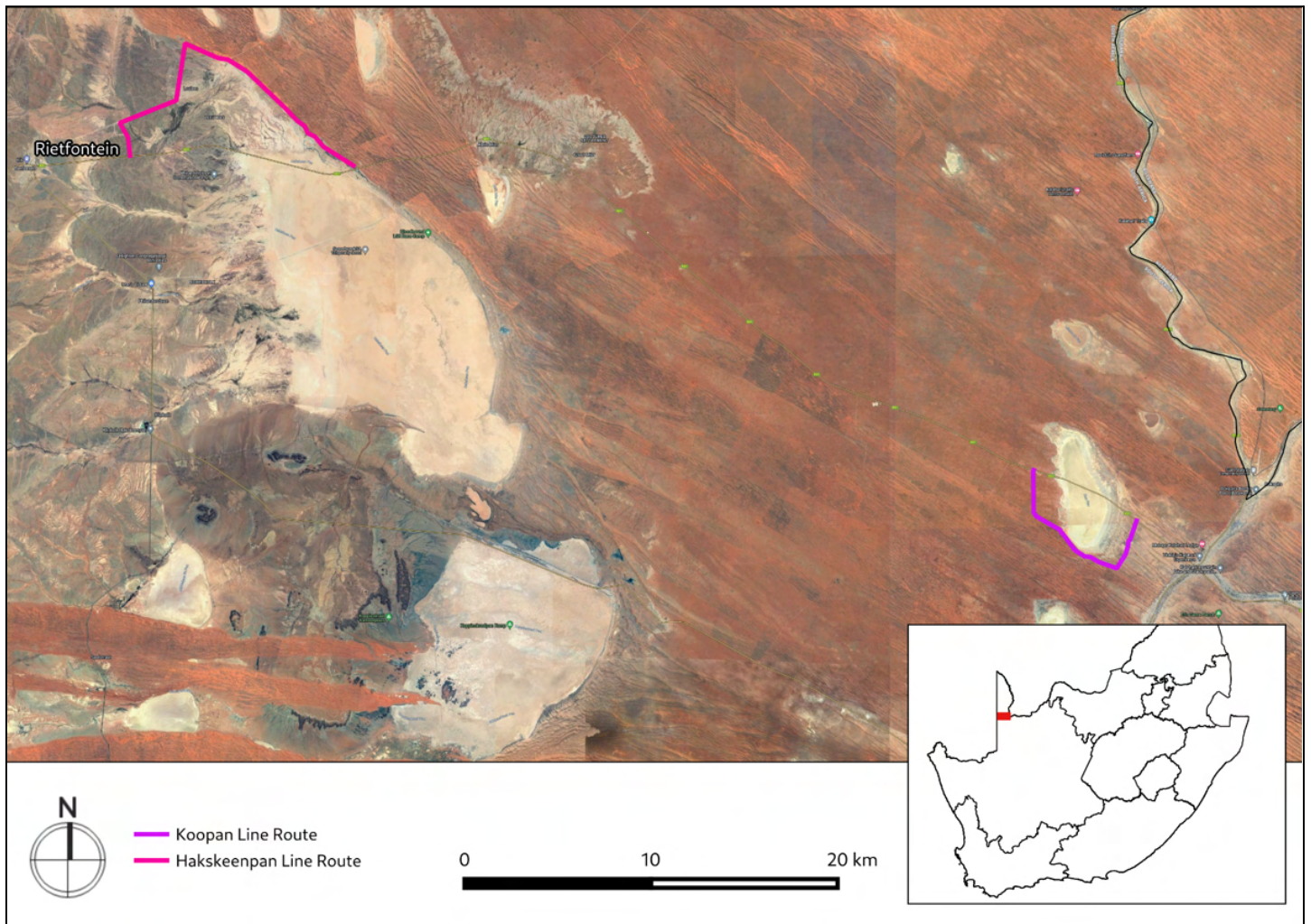


Figure A: Location of the proposed development area



CTS HERITAGE

#### 4. Description of Proposed Development:

Rerouting of the Rietfontein-Rietfontein 33kV powerline near the Rietfontein Settlement in the Northern Cape Province. The purpose of rerouting this powerline is to get it out of 2 pans (Hakskeen Pan and Koopan). Currently the Rietfontein-Rietfontein 33kV powerline runs through both of these pans. When there is water in the pans the powerline towers are prone to falling over because of the wet clay soil. The wet clay soil then makes it very difficult for maintenance vehicles to reach the fallen structures in order to repair the fallen structures. The result of this is Eskom customers in the area being without electricity for extended periods at a time.

The current powerline configuration consists of bird friendly wood pole structure (D-DT-1870). This is the same configuration that will be used on the two sections where the line will be deviated. The length of the wood pole structures will range from 9 to 13 metres. The poles are planted 2 metres deep in holes drilled by a truck mounted drill. The holes are 300mm in diameter and 2 metres deep. The average distance between structures is 100 metres. The Koopan Powerline Deviation will be 10.8km in length and the Hakskeen Pan Powerline Deviation will be 19.8km in length.

#### 5. Anticipated Impacts on Heritage Resources:

The survey proceeded with limited constraints and limitations, and the project area was comprehensively surveyed for heritage resources. Some significant archaeological resources were identified along the apex of the dune field and as such, this area must be considered to be very sensitive. In addition, a number of burials were identified within the proposed grid corridor. Appropriate mitigation measures are presented in Table 1 in this regard.

In terms of palaeontological sensitivity, Kalahari Sands of the Gordonia Formation have LOW sensitivity for impacts to significant palaeontology according to the SAHRIS Fossil Heritage Browser. It is noted that Fossils within this formation are mainly associated with ancient pans, lakes and river systems, and consist of Palynomorphs, root casts (rhizomorphs) and burrows (eg termitaria), rare vertebrate remains (mammals, fish, ostrich egg shell *etc*), diatom-rich limestones, freshwater stromatolites, freshwater and terrestrial shells (gastropods, bivalves), ostracods and charophytes. As such, it is recommended that Chance Fossil Finds Procedure (attached) be implemented for the duration of excavation activities.

#### 7. Recommendations:

Based on the outcomes of this report, it is not anticipated that the proposed development of the grid alignment will negatively impact on significant archaeological heritage on condition that:

- The mitigation measures detailed in Table 1 and mapped in Figures 8.1, 8.2 and 8.3 are implemented;



CTS HERITAGE

- The final pylon placements are subjected to a walkdown by an archaeologist prior to construction to microsite the footings so that significant archaeological resources are not negatively impacted;
- The attached Chance Fossil Finds Procedure must be implemented throughout the construction phase; and
- 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

July 2023



CTS HERITAGE

### **Details of Specialist who prepared the HIA**

**Jenna Lavin**, an archaeologist with an MSc in Archaeology and Palaeoenvironments, 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.

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



CTS HERITAGE

## CONTENTS

<b>1. INTRODUCTION</b>	<b>6</b>
1.1 Background Information on Project	6
1.2 Description of Property and Affected Environment	6
<b>2. METHODOLOGY</b>	<b>13</b>
2.1 Purpose of HIA	13
2.2 Summary of steps followed	13
2.3 Assumptions and uncertainties	13
2.4 Constraints & Limitations	13
<b>3. HISTORY AND EVOLUTION OF THE SITE AND CONTEXT</b>	<b>14</b>
3.1 Desktop Assessment	14
<b>4. IDENTIFICATION OF HERITAGE RESOURCES</b>	<b>20</b>
4.1 Summary of findings of Specialist Reports	20
4.2 Heritage Resources identified	20
4.3 Mapping and spatialisation of heritage resources	22
<b>5. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT</b>	<b>25</b>
5.1 Assessment of impact to Heritage Resources	25
5.2 Sustainable Social and Economic Benefit	29
5.3 Proposed development alternatives	29
5.4 Cumulative Impacts	29
5.5 Site Verification	31
<b>6. RESULTS OF PUBLIC CONSULTATION</b>	<b>31</b>
<b>7. CONCLUSION</b>	<b>31</b>
<b>8. RECOMMENDATIONS</b>	<b>32</b>
<b>APPENDICES</b>	
1	Archaeological Impact Assessment 2023
2	Chance Fossil Finds Procedure
3	Heritage Screening Assessment



## **1. INTRODUCTION**

### **1.1 Background Information on Project**

Rerouting of the Rietfontein-Rietfontein 33kV powerline near the Rietfontein Settlement in the Northern Cape Province. The purpose of rerouting this powerline is to get it out of 2 pans (Hakskeen Pan and Koopan). Currently the Rietfontein-Rietfontein 33kV powerline runs through both of these pans. When there is water in the pans the powerline towers are prone to falling over because of the wet clay soil. The wet clay soil then makes it very difficult for maintenance vehicles to reach the fallen structures in order to repair the fallen structures. The result of this is Eskom customers in the area being without electricity for extended periods at a time.

The current powerline configuration consists of bird friendly wood pole structure (D-DT-1870). This is the same configuration that will be used on the two sections where the line will be deviated. The length of the wood pole structures will range from 9 to 13 metres. The poles are planted 2 metres deep in holes drilled by a truck mounted drill. The holes are 300mm in diameter and 2 metres deep. The average distance between structures is 100 metres. The Koopan Powerline Deviation will be 10.8km in length and the Hakskeen Pan Powerline Deviation will be 19.8km in length.

### **1.2 Description of Property and Affected Environment**

The project is oriented around two sections of powerline that are located approximately 40km apart. The Hakskeenpan alignment to the west is located in an area that is dominated by Kalahari klipveld combined with duneveld and flat sandy pans or pans/plains. Dry riverbeds cross the corridor at several places, especially along the gravel road towards Loubos and towards the northeast from Loubos. The edge of some parts of Hakskeenpan is in quite close proximity to the corridor.

Within the corridor a reef of sedimentary rock is present, consisting of sandstone outcrops and banks. These outcrops are especially present along the northeastern shore of Hakskeenpan and the adjacent duneveld. The area from the R31 main road towards the first farm at Loubos is mostly klipveld consisting of flat plains with some scattered waterways and high grounds at certain areas.

The R31 main road towards Rietfontein is a prominent landmark and the site can also be entered from this road. Loubos settlement is located within the area of interest and the corridor runs through klipveld as well as duneveld. The Hakskeenpan is another landmark and forms a southern boundary of a large part of the corridor. Certain parts are Savanna type field with scattered trees and grass fields. The corridor includes high dunes from northwest to south east along Hakskeenpan and could make construction difficult. Several natural dry riverines crosses the corridor, especially along the gravel road towards Loubos and from Loubos to the duneveld. Hakskeenpan is non-perennial and only fills up with water after heavy rains.



CTS HERITAGE

The Koopan alignment to the east is located in an area dominated by Kalahari klipveld combined with duneveld and flat sandy plains. Koopan-South is located just to the NNW of the corridor footprint. The corridor is located on private owned farmland. Flat sandy plains with alternate dunes crossing the proposed development footprint. The site is located on the Plato SSW of Koopan-South. Certain areas are densely vegetated and scattered trees are present throughout the site. Typical Kalahari/Savannah type field and vegetation.





CTS HERITAGE

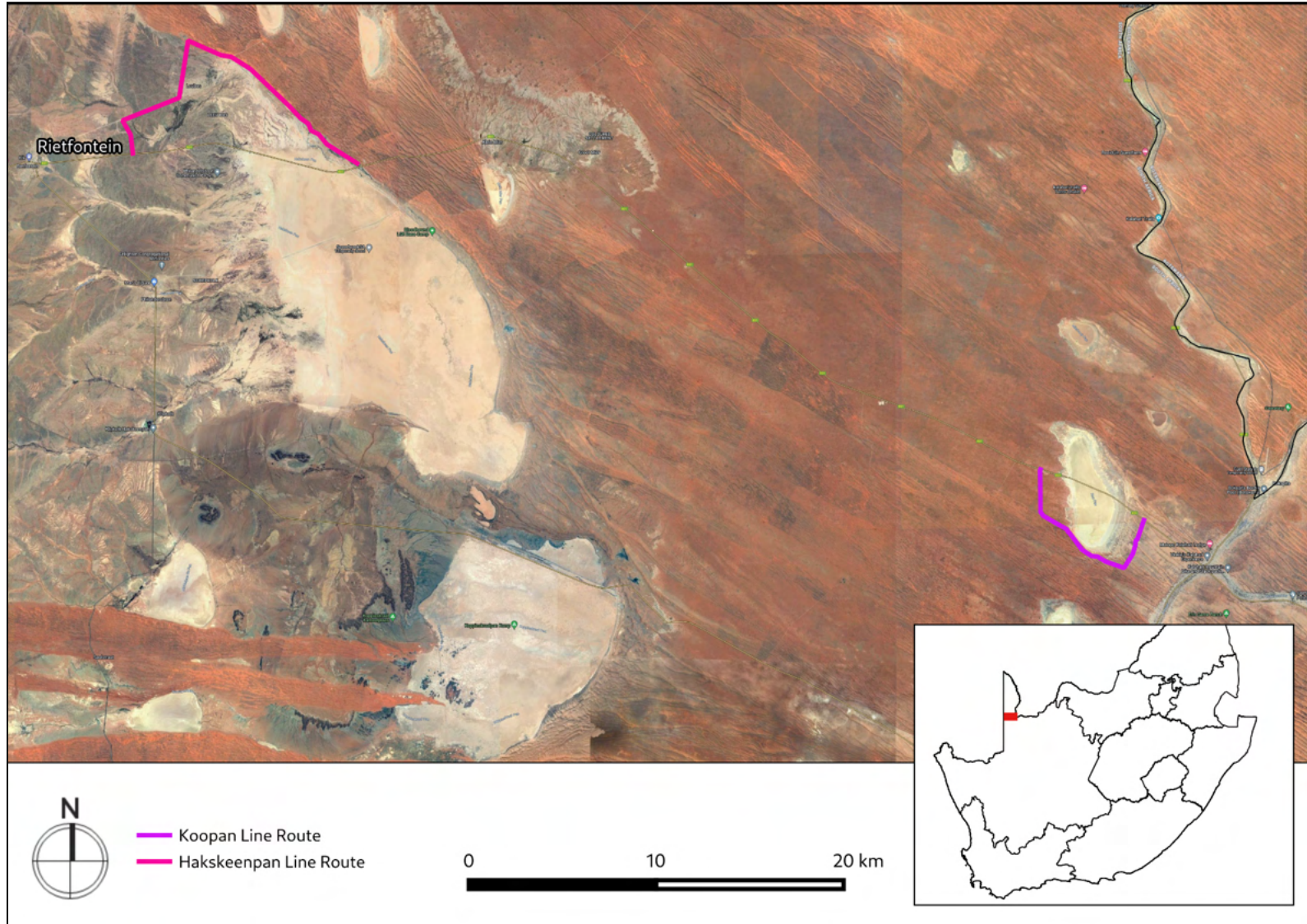


Figure 1.1: Proposed development area



CTS HERITAGE

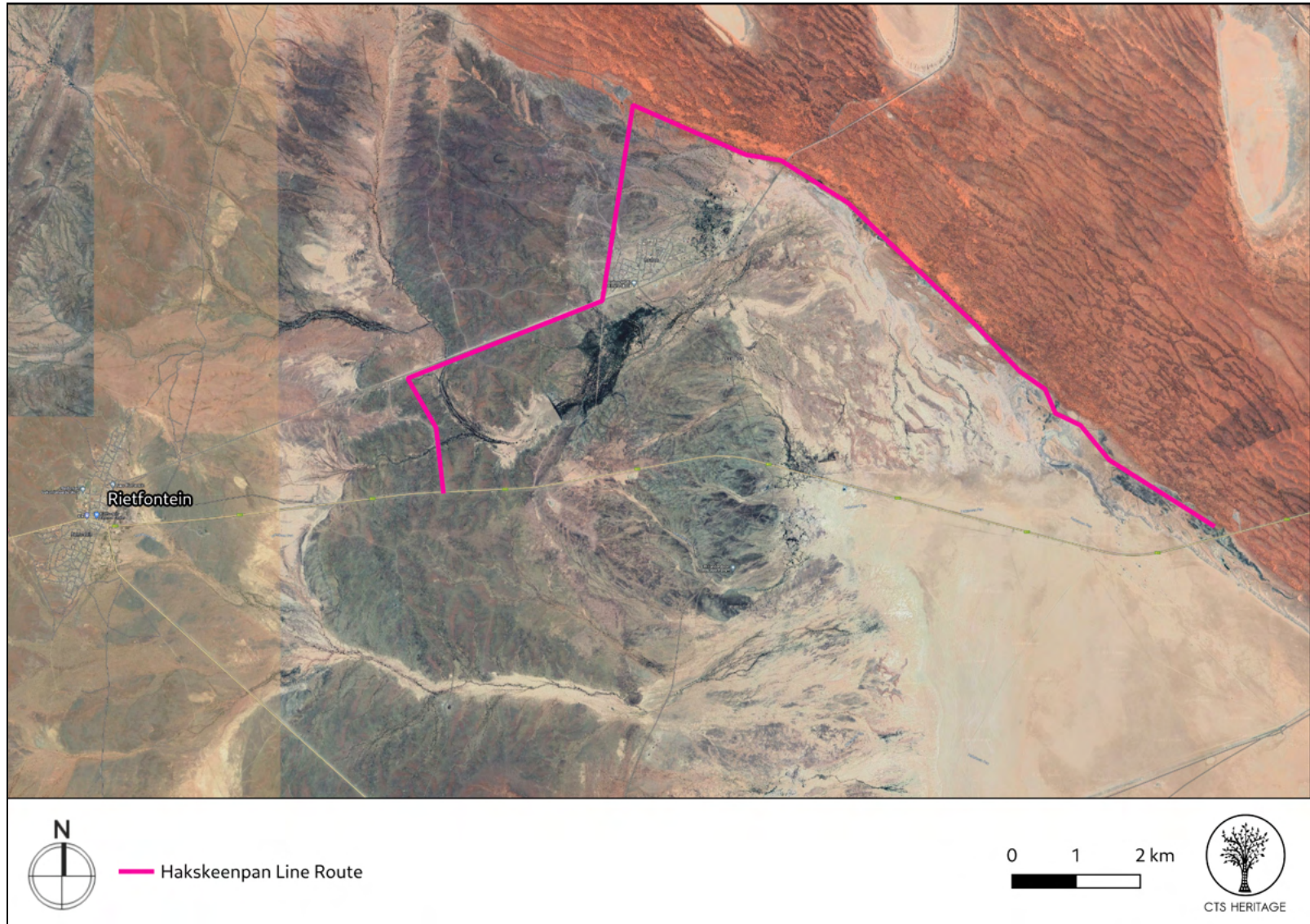


Figure 1.2. Overview Map. Satellite image (2023) indicating the proposed development area at Hakskeenpan



CTS HERITAGE



Figure 1.3. Overview Map. Satellite image (2023) indicating the proposed Koopan Line



CTS HERITAGE

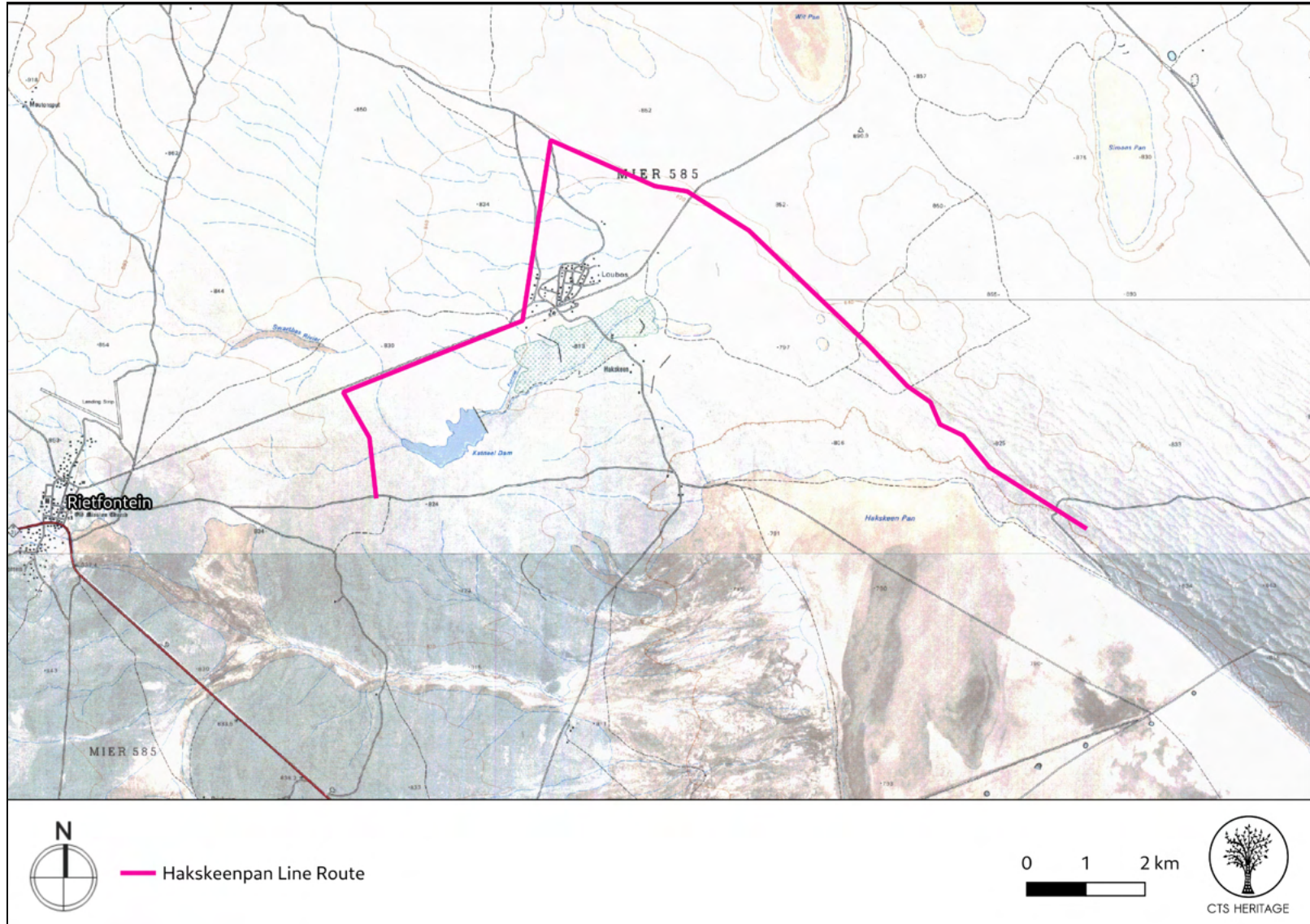


Figure 1.4: The proposed development layout on an extract of the 1:50 000 Topo Map at Hakskeenpan



CTS HERITAGE

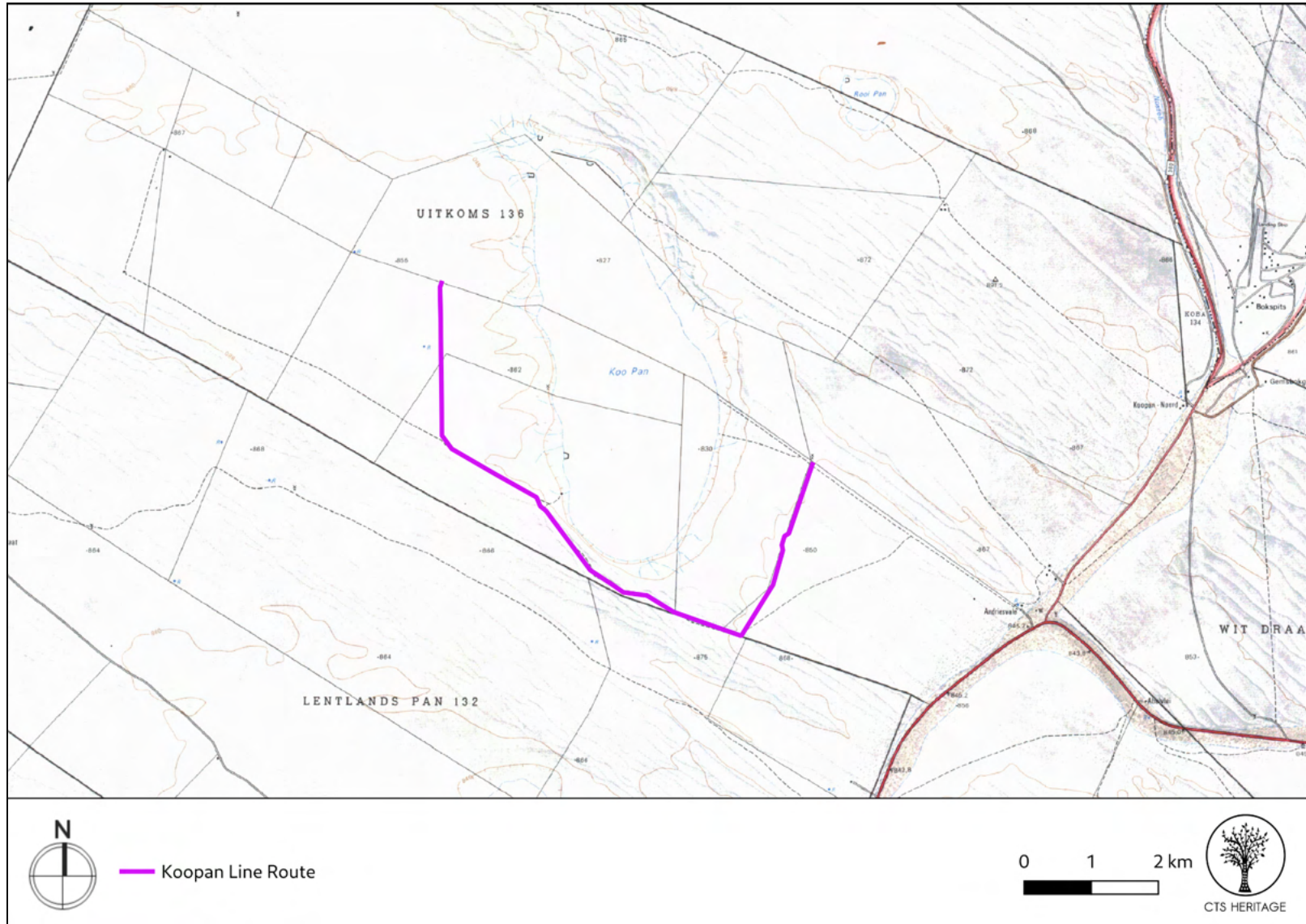


Figure 1.5: The proposed development layout on an extract of the 1:50 000 Topo Map at Koopan



CTS HERITAGE

## 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 No. 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 her site visit on 13, 14 and 15 June 2023
- 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.

### 2.4 Constraints & Limitations

The corridor footprint for Haksteenpan is quite densely infested by vegetation at certain areas. The terrain was quite difficult in the duneveld and foot surveys were done at the accessible areas. Visibility was very good at most parts of the corridor footprint. The corridor footprint for Koopan is quite densely infested by vegetation at certain areas. The terrain was quite difficult in the duneveld and foot surveys were done at the accessible areas. Visibility was very good at most parts of the corridor footprint.



CTS HERITAGE

### **3. HISTORY AND EVOLUTION OF THE SITE AND CONTEXT**

#### **3.1 Desktop Assessment**

##### **Background**

This application is for the proposed development of powerline deviations along the R31 between the border with Namibia at Rietfontein and Askham in the Northern Cape. Hakskeen Pan, Uitsak Pan, Oxford Pan and Koppieskraal Pan form part of the area. Rietfontein is the capital of Mier and the home of infrastructure, such as the Municipal Office, Police Station, Day Hospital and High School. Rietfontein is also the place where the exploring scouts of Dirk Vilander found the bushman, Khys and his family at a fountain surrounded by reed-bushes, from there the name Rietfontein.

A history of the broader area is detailed online<sup>1</sup>, with the key points summarised below:

- The broader area is said to be named Mier after early settlers noticed ants bringing wet mud to the surface in this otherwise arid area;
- The area was settled in 1865 and was annexed as British Bechuanaland in 1893, which became part of the Cape Colony in 1895; and
- In 1930, under the Coloured People Settlement Areas Act of the Cape, the Mier Coloured Settlement Area was established
- Although Rietfontein and Schepkolk did not form part of the proclaimed area, in practice, inhabitants of these areas continued to make use of the Kalahari dunes for seasonal grazing and hunting as they were used to.

##### **Cultural Landscape and the Built Environment**

The area proposed for the powerline infrastructure falls within the area described as the Kalahari Desert and is sparsely populated. Throughout the past, people in this area have settled close to water sources and pans. The proposed powerlines are aligned along the existing R31 and in terms of impacts to the cultural landscape, it is preferred that such infrastructure is clustered rather than spread across an otherwise pristine and desolate landscape.

##### **Archaeology**

The area proposed for the powerlines is located along an existing road between two established towns. An HIA was completed by Kaplan (2014) for a bulk water supply scheme project also located in this area. Other HIA's completed in the area include Beaumont (2006) who found only two stone flakes during a HIA for the construction of several chalets on a game farm a few kilometres north east of Askham, while in Askham no

---

<sup>1</sup> <https://www.namahariplaasmark.com/2021/07/rietfontein-and-mier-history.html>



CTS HERITAGE

archaeological heritage was encountered by van Pletzen-Vos and Rust (2013a) during a HIA for a proposed low cost housing project, although several informal graves were encountered. At Rietfontein, ephemeral surface scatters of Later Stone Age (LSA) implements and pottery have been encountered on deflated dune surfaces, and around small dry pans in the surrounding area (Smith 1995). Low density scatters of ESA, MSA and LSA tools were also recorded by Engelbrecht (2013) during a HIA for a low cost housing development in the town, while Engelbrecht (2013) also notes the presence of LSA sites with pottery and stone tools on several farms in the surrounding area. Van Pletzen-Vos and Rust (2013b) documented diffuse scatters of LSA tools and ostrich eggshell near Rooipan and Witpan north east of Rietfontein.

Kaplan (2014) notes that “The receiving environment... comprises endless sections of road reserve that are covered in tall, dry winter grass (R31 & R360), and thick scrub, grass and trees (Namibia Road), resulting in low archaeological visibility.” Regarding the area around Hakskeenpan, Kaplan (2014) goes on to note that “The receiving environment comprises shrub and grass on a substrate of red windblown (aeolian) sands. There is no surface stone on the proposed dam site and there are no natural sources of water such as streams, springs or drainage channels.” Kaplan (2014) goes on to conclude that “The very small numbers, isolated and disturbed context in which they were found means that the archaeological remains recorded during the study are rated as having low (3C) local significance. MSA implements encountered during the study are the same as the tools described and illustrated in several HIA’s for social housing projects in Askham and small towns in the region.”





CTS HERITAGE

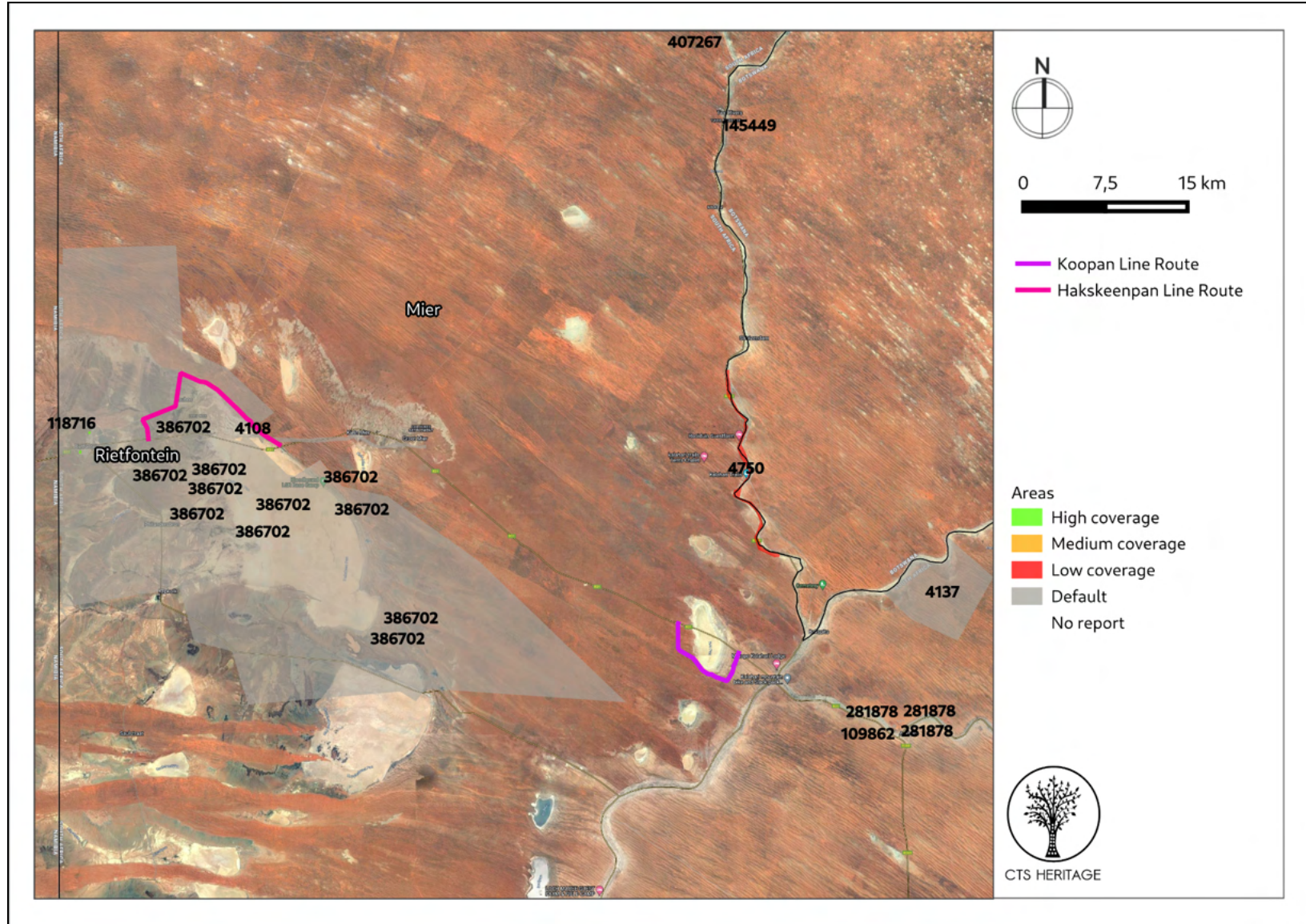


Figure 2: Spatialisation of heritage assessments conducted in proximity to the proposed development



CTS HERITAGE

## **Palaeontology**

According to the SAHRIS Palaeosensitivity Map published on SAHRIS, the area proposed for prospecting is underlain by sediments of moderate and high palaeontological sensitivity (Figure 3.1). However, according to the actual geology underlying the project area, the geology has low and zero sensitivity for impacts to significant palaeontology. The formations underlying the development area include the Mokalanen Formation, Dwyka Group Sediments, Karoo Dolerite, the Eden Formation, the Prince Albert Formation and the Gordonia Formation

In terms of palaeontological sensitivity, Kalahari Sands of the Gordonia Formation have LOW sensitivity for impacts to significant palaeontology according to the SAHRIS Fossil Heritage Browser. It is noted that Fossils within this formation are mainly associated with ancient pans, lakes and river systems, and consist of Palynomorphs, root casts (rhizomorphs) and burrows (eg termitaria), rare vertebrate remains (mammals, fish, ostrich egg shell *etc*), diatom-rich limestones, freshwater stromatolites, freshwater and terrestrial shells (gastropods, bivalves), ostracods and charophytes. As such, it is recommended that Chance Fossil Finds Procedure (attached) be implemented for the duration of excavation activities.



CTS HERITAGE

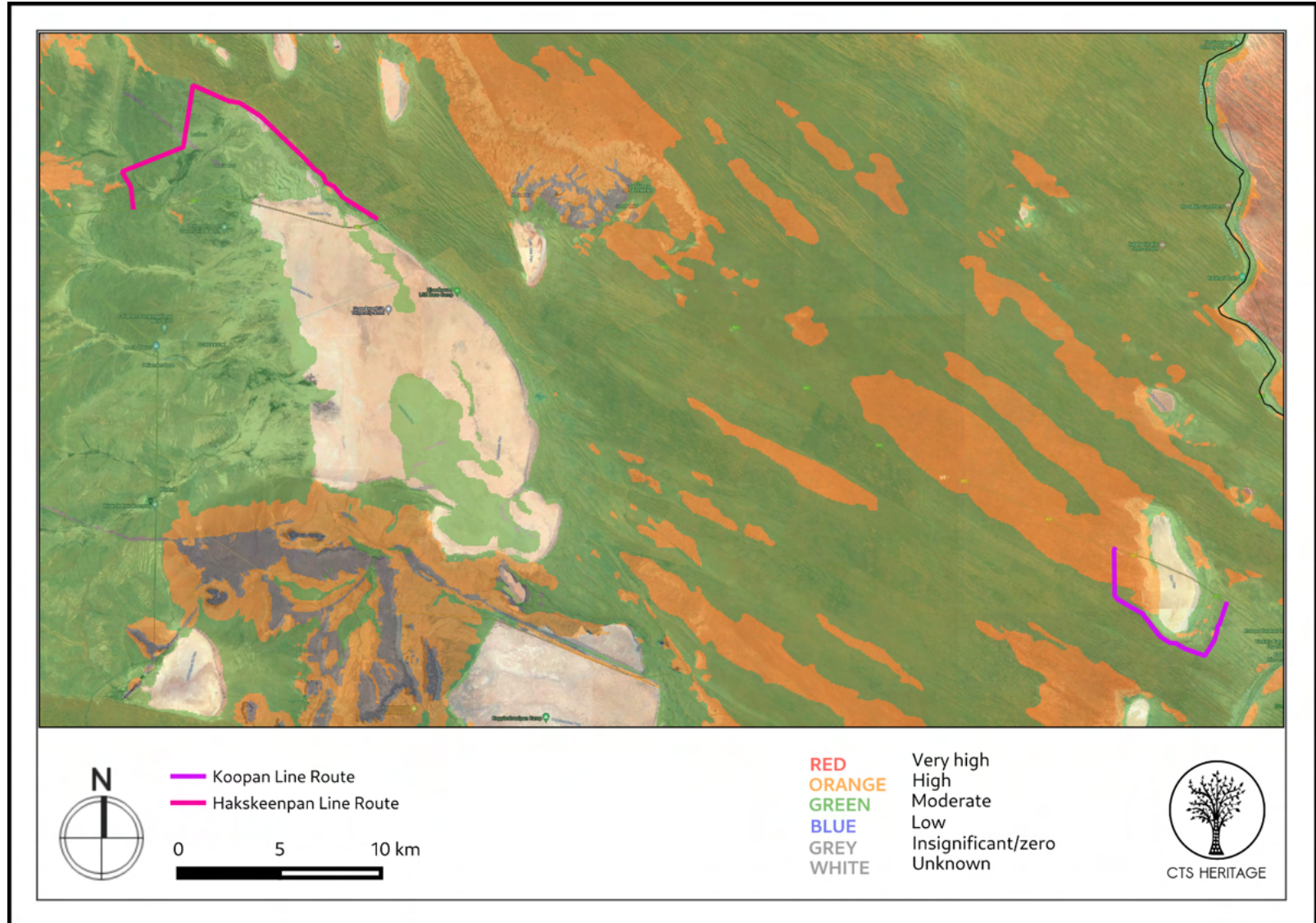


Figure 3.1: Palaeontological sensitivity of the proposed development area



CTS HERITAGE

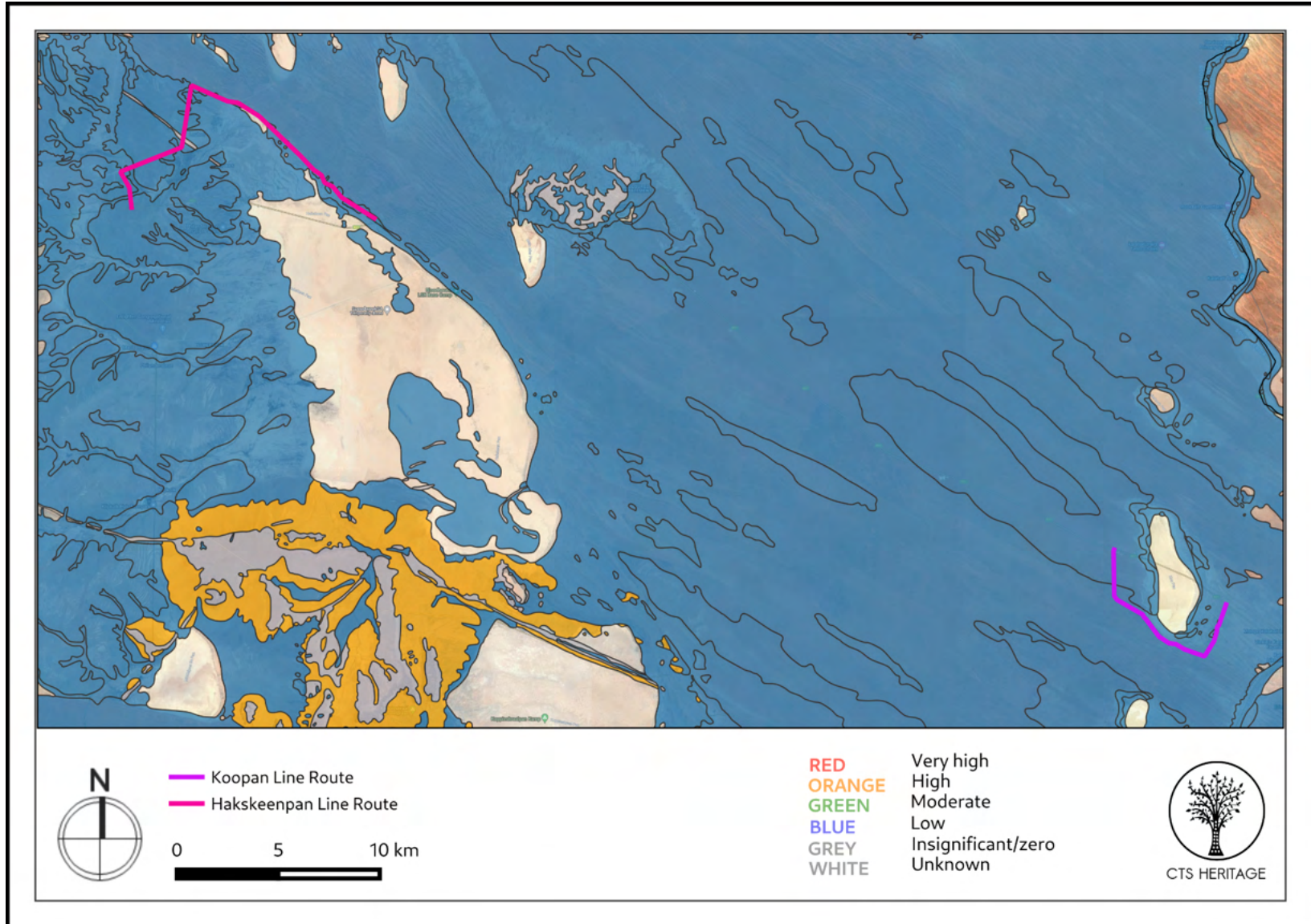


Figure 3.2. Corrected Palaeosensitivity Map. Indicating fossil sensitivity underlying the study area. Please See Appendix 3 for a full guide to the legend.



CTS HERITAGE

## **4. IDENTIFICATION OF HERITAGE RESOURCES**

### **4.1 Summary of findings of Specialist Reports**

#### ***Archaeology (Appendix 1)***

A number of heritage resources were identified within the Hakskeenpan portion of the amended alignment. The LSA sites recorded are mostly on the apex of a dune range. It is highly possible that the identified Stone Age sites are probably related and linked into a network of sites. These sites were probably used multiple times through the ages, depending on the season and availability of resources such as water. The Hakskeenpan still is a major source of water during the raining seasons. A total of 2 graves were identified. A total of 3 suspect graves were identified within the corridor site footprint.

No significant resources were identified within the Koopan alignment other than the location of a single grave. Two cavities in the calcrete rock along the edges of Koopan were investigated for possible remnants of archaeological artefacts. These cavities resemble rock shelters. No archaeological material was identified inside the shelters. If archaeological material was present in the shelters, people have by this time removed it. These shelters are not located within the development footprint.

The field assessment also identified some beautifully preserved Quaternary geological sediments including some trace fossils. These have been marked on the maps below as Observation 024. No specific palaeontological significance was identified when the images and location were shared with a palaeontologist, however the requirement for a Chance Finds Protocol was reiterated (Butler, pers comm. June 2023).



## 4.2 Heritage Resources identified

Table: Heritage Resources identified

Obs#	Description	Type	Period	Density	Latitude	Longitude	Grade	Mitigation
2	Farm settlement with houses and livestock kraals	Structure		NA	26° 41' 14" S	20° 06' 36" E	NCW	NA
3	Marked graves "Gilbert family graves. Approximately 1,2m x 2m graves. A total of 2 graves were identified at this point. Dated 1940 to 2011, thus a recent grave. Graves located within the fenced off yard of the farm house.	Burial	Modern	NA	26° 41' 47" S	20° 08' 10" E	IIIA	100m Buffer
4	Gilbert farmhouse	Structure		NA	26° 41' 47" S	20° 08' 11" E	NCW	NA
7	Unmarked suspect grave	Burial	Modern	NA	26° 42' 19" S	20° 08' 57" E	IIIA	100m Buffer
8	Unmarked suspect grave	Burial	Modern	NA	26° 42' 19" S	20° 08' 56" E	IIIA	100m Buffer
9	Unmarked suspect grave	Burial	Modern	NA	26° 42' 20" S	20° 08' 57" E	IIIA	100m Buffer
10	Workers house	Structure		NA	26° 41' 55" S	20° 08' 28" E	NCW	NA
11	Kraal	Structure		NA	26° 41' 54" S	20° 08' 24" E	NCW	NA
19	Flakes,grinders, scrapers, chips, points, cores, hammer and chunks. Sandstone, CCS, Quartz, Dolerite, Quartzite. Located on a clear dune, almost on the dune apex. Approximately 2ha. Scattered LSA debris all over site.	Artefacts	LSA	5-10/m <sup>2</sup>	26° 42' 52" S	20° 09' 47" E	IIIB	50m Buffer
20	Flakes, grinders, chunks, points and chips. Sandstone, CCS, Quartz, Dolerite, Quartzite. Located on a clear dune, almost on the dune apex. Approximately 1ha. Scattered LSA debris all over site. Probably and extension of the site at Waypoint 019.	Artefacts	LSA	5-10/m <sup>2</sup>	26° 42' 50" S	20° 09' 44" E	IIIB	50m Buffer
21	Flakes OES, grinders, local ceramics/pottery chunks, points and chips. Sandstone, CCS, Quartz, Dolerite, Quartzite. Located on a clear dune, almost on the dune apex. Approximately 3ha. Scattered LSA debris all over site. Probably and extension of the site at Waypoint 020.	Artefacts	LSA	5-10/m <sup>2</sup>	26° 42' 41" S	20° 09' 36" E	IIIB	50m Buffer
22	Flakes, grinders, chunks, cores points and chips. Sandstone, CCS, Quartz, Dolerite, Quartzite. Located on a clear dune, almost on the dune apex. Approximately 1ha. Scattered LSA debris all over site. Probably and	Artefacts	LSA	5-10/m <sup>2</sup>	26° 42' 41" S	20° 09' 36" E	IIIB	50m Buffer



CTS HERITAGE

	extension of the site at Waypoint 021.							
24	Interesting sedimentary geology features	Geology	Quaternary	NA	26° 42' 22" S	20° 09' 01" E	NCW	NA
25	Lower grinder and scattered LSA debris. Sandstone, CCS, Quartz, Dolerite, Quartzite. Grinding/Food preparation site. Small LSA site located on the foot of a dune, almost in the field underneath a large Camelthorn tree. Approximately 50m <sup>3</sup> . Scattered LSA debris all over site.	Artefacts	LSA	1/10m <sup>2</sup>	26° 42' 34" S	20° 09' 15" E	IIIB	50m Buffer
7B	Marked grave with headstone. Hendrik Vaalbooi. 1946- 2008. Recent grave. Only one grave identified. Grave within the corridor footprint. Grave of the Vaalbooi family who lives in close proximity of the grave on the site.	Burial	Modern	NA	26° 53' 53.7" S	20°34' 11.5" E	IIIA	100m Buffer



CTS HERITAGE

### 4.3 Mapping and spatialisation of heritage resources

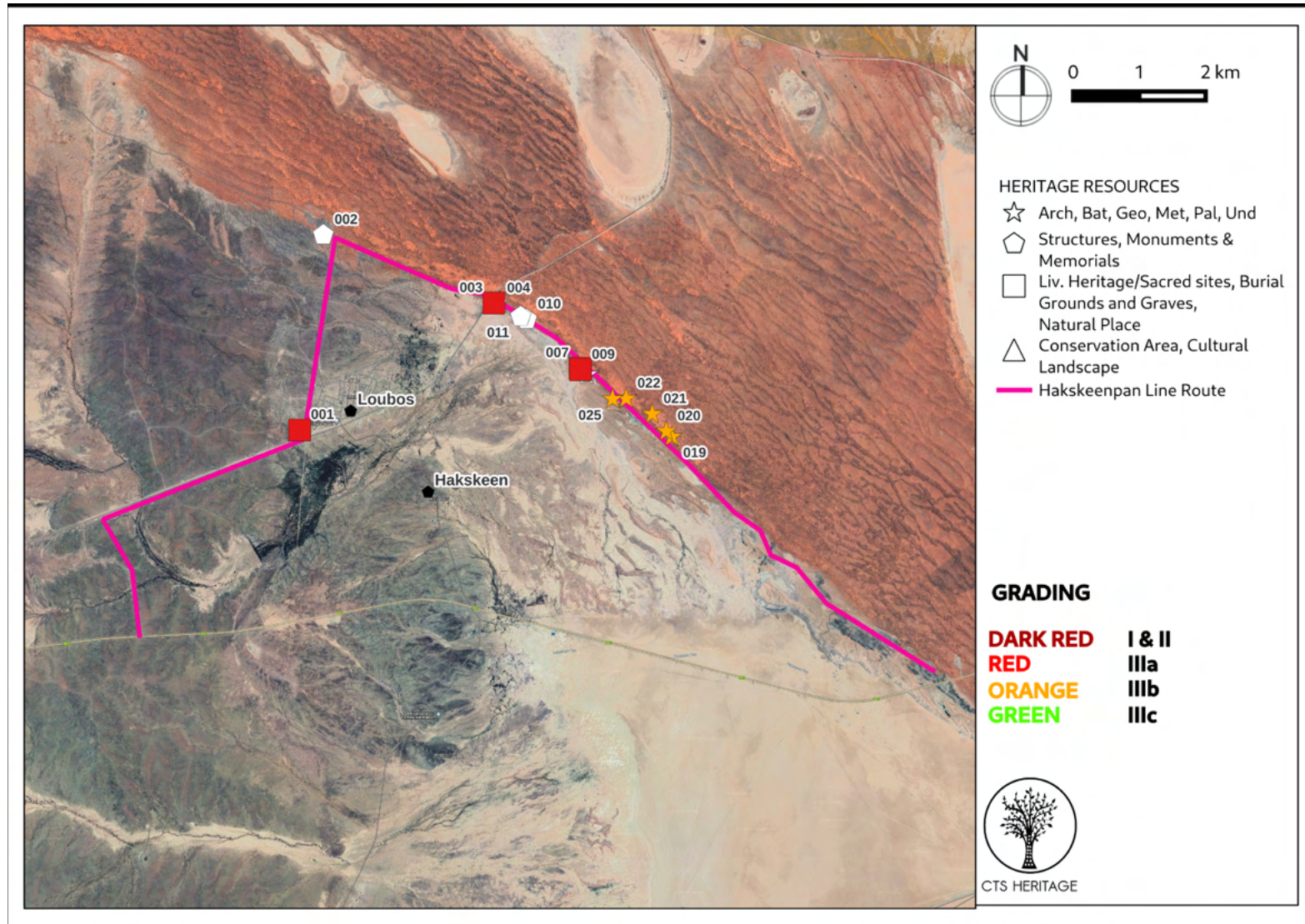


Figure 6.1: Map of known heritage resources relative to the proposed development area at Hakskeenpan





CTS HERITAGE

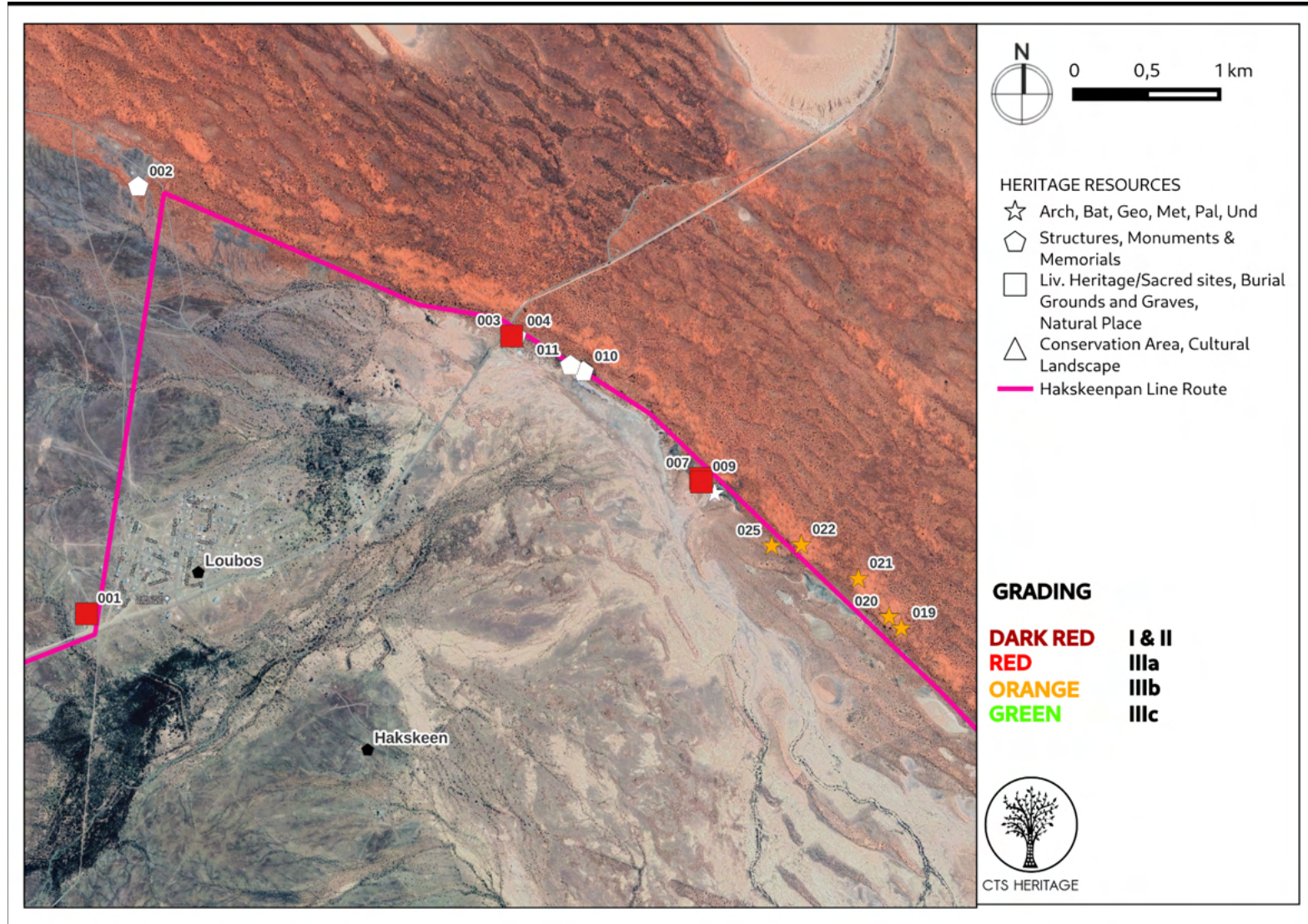


Figure 6.1: Map of known heritage resources relative to the proposed development area at Hakskeenpan



CTS HERITAGE

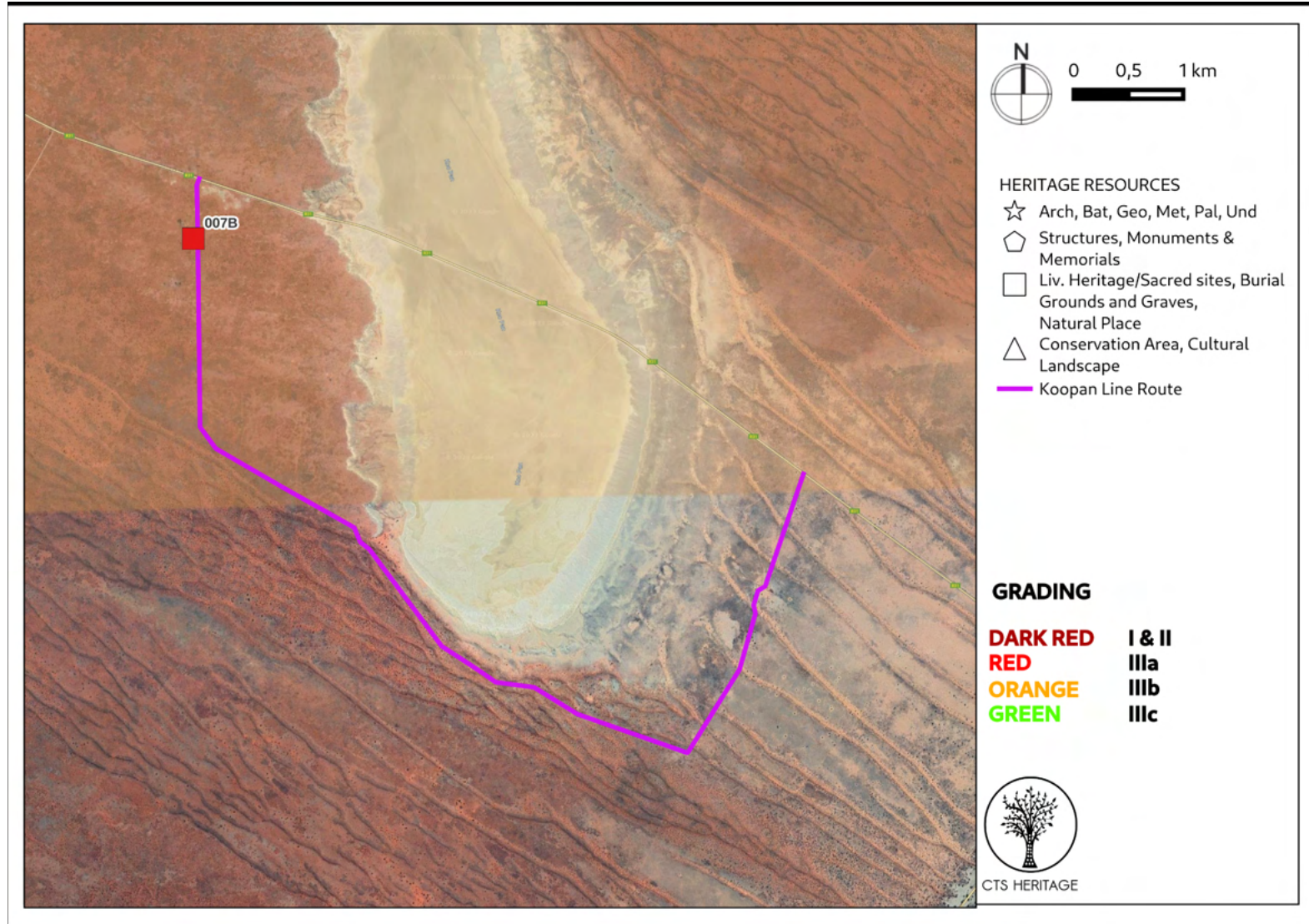


Figure 6.1: Map of known heritage resources relative to the proposed development area at Koopan



CTS HERITAGE

## **5. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT**

### **5.1 Assessment of impact to Heritage Resources**

Due to the nature of heritage resources, impacts to archaeological and palaeontological heritage resources are unlikely to occur during the PLANNING and OPERATIONAL phases of the project. Potential impacts to the heritage resources are anticipated during the CONSTRUCTION and DECOMMISSIONING phase.

The proposed grid alignments run through the identified heritage resources of significance. However, the pylon footings are located approximately 100m apart and as such, impacts to significant archaeology can be avoided. It is recommended that a no development buffer of 50m is implemented around the identified LSA sites (Sites 019, 020, 021, 022 and 025). It must be noted that the identified sites reflect a fraction of the sites that are likely to be present here. As such, the proposed alignment can proceed on condition that an archaeological walkdown of the final alignment is completed before construction takes place to allow for micro-siting of pylon placements to ensure that no impact takes place or, if impact cannot be avoided, then to proceed with archaeological mitigation work.

The field assessment also revealed a number of burials located within the grid corridor, or in close proximity thereto. In order to retain the sense of place associated with the final resting place of these burials, it is recommended that a no development buffer of 100m is implemented around these sites. The overhead lines can traverse these buffers, but no pylon footings may be constructed within this buffer area.

As noted above, in terms of palaeontological sensitivity, Kalahari Sands of the Gordonia Formation have LOW sensitivity for impacts to significant palaeontology according to the SAHRIS Fossil Heritage Browser. It is noted that Fossils within this formation are mainly associated with ancient pans, lakes and river systems, and consist of Palynomorphs, root casts (rhizomorphs) and burrows (eg termitaria), rare vertebrate remains (mammals, fish, ostrich egg shell *etc*), diatom-rich limestones, freshwater stromatolites, freshwater and terrestrial shells (gastropods, bivalves), ostracods and charophytes. As such, it is recommended that Chance Fossil Finds Procedure (attached) be implemented for the duration of excavation activities.



CTS HERITAGE

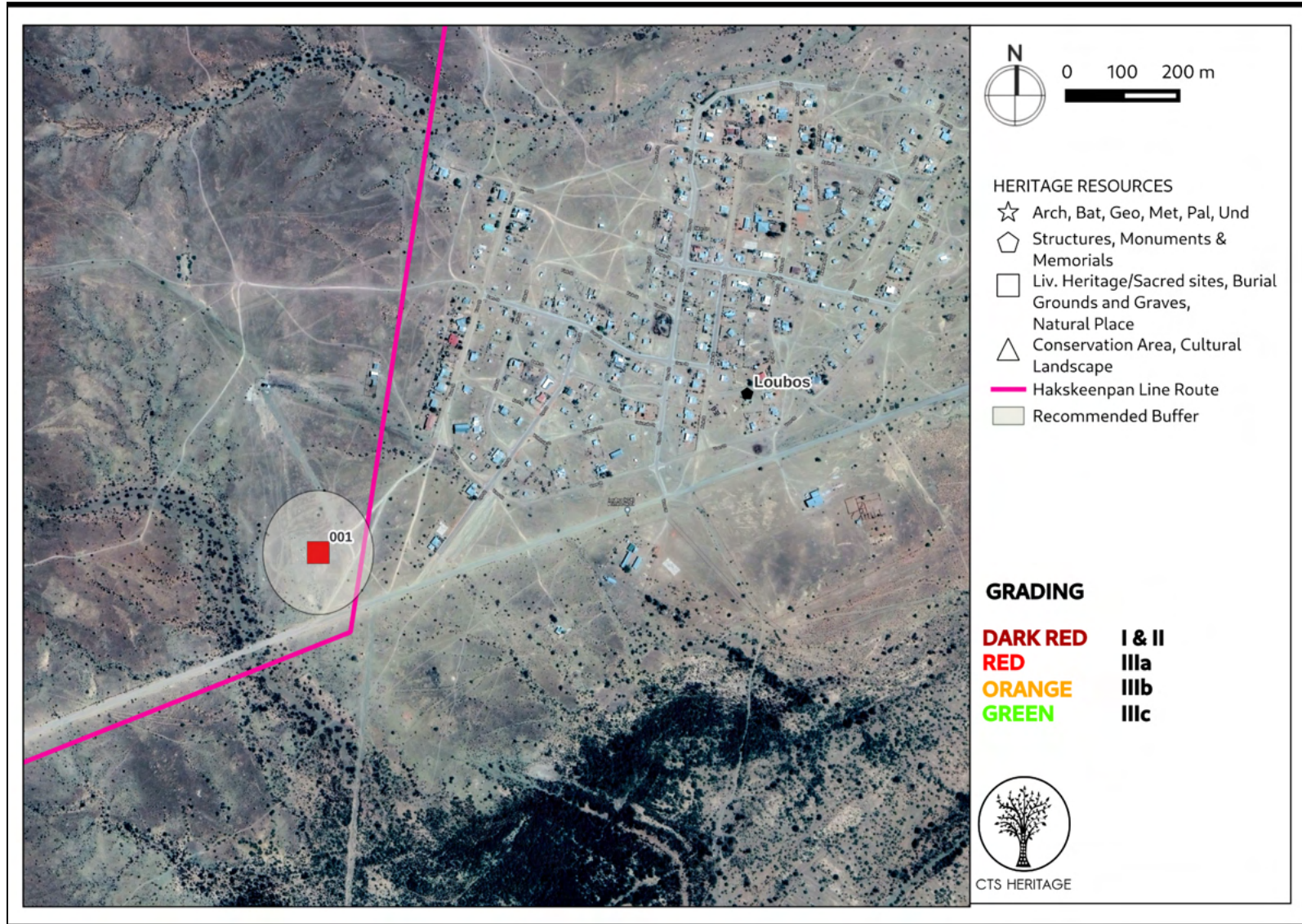


Figure 7.1: Map of sites and observations noted within the development area with recommended mitigation measures at Loubos



CTS HERITAGE

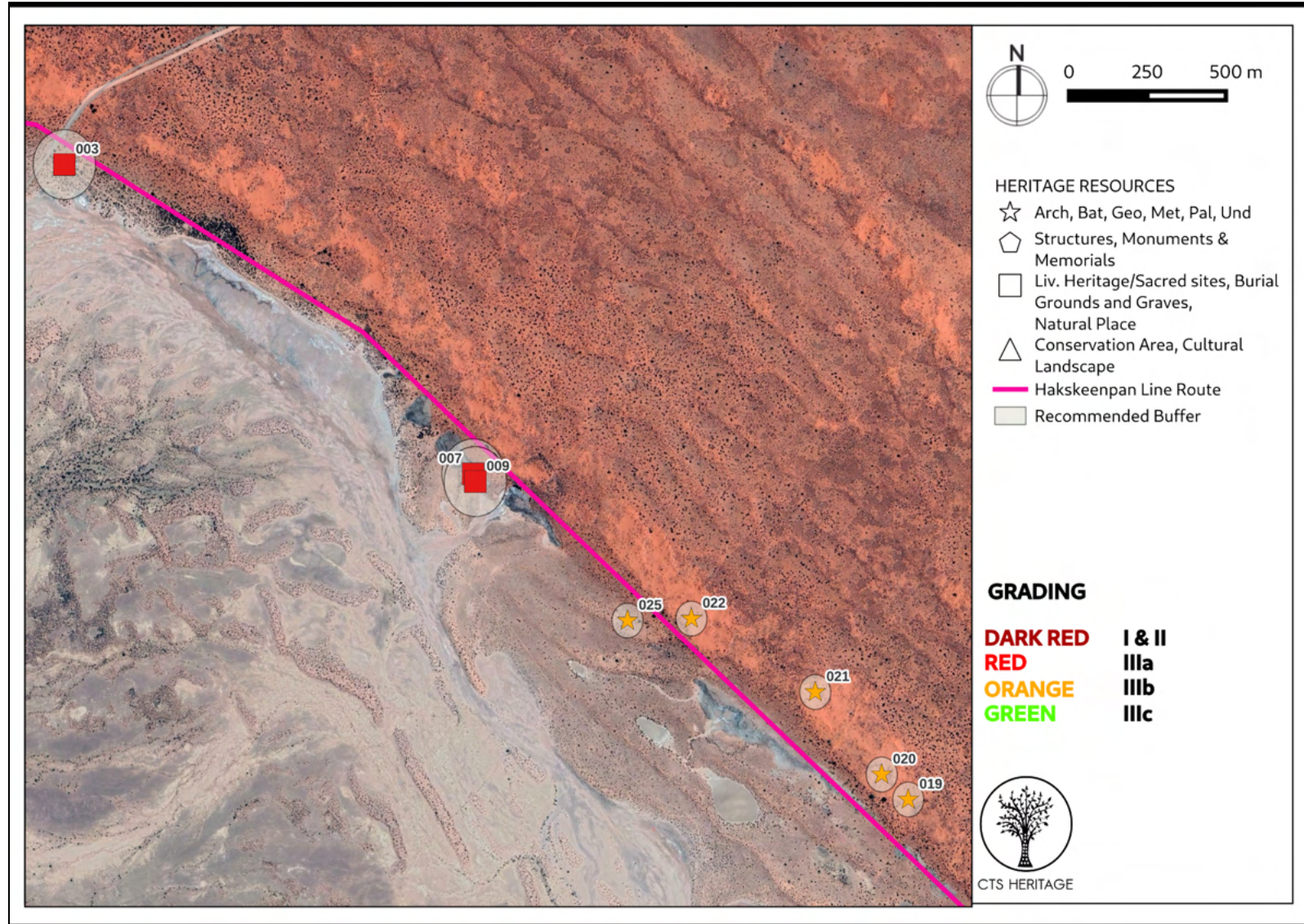


Figure 7.2: Map of sites and observations noted within the development area with recommended mitigation measures at Hakskeenpan



CTS HERITAGE

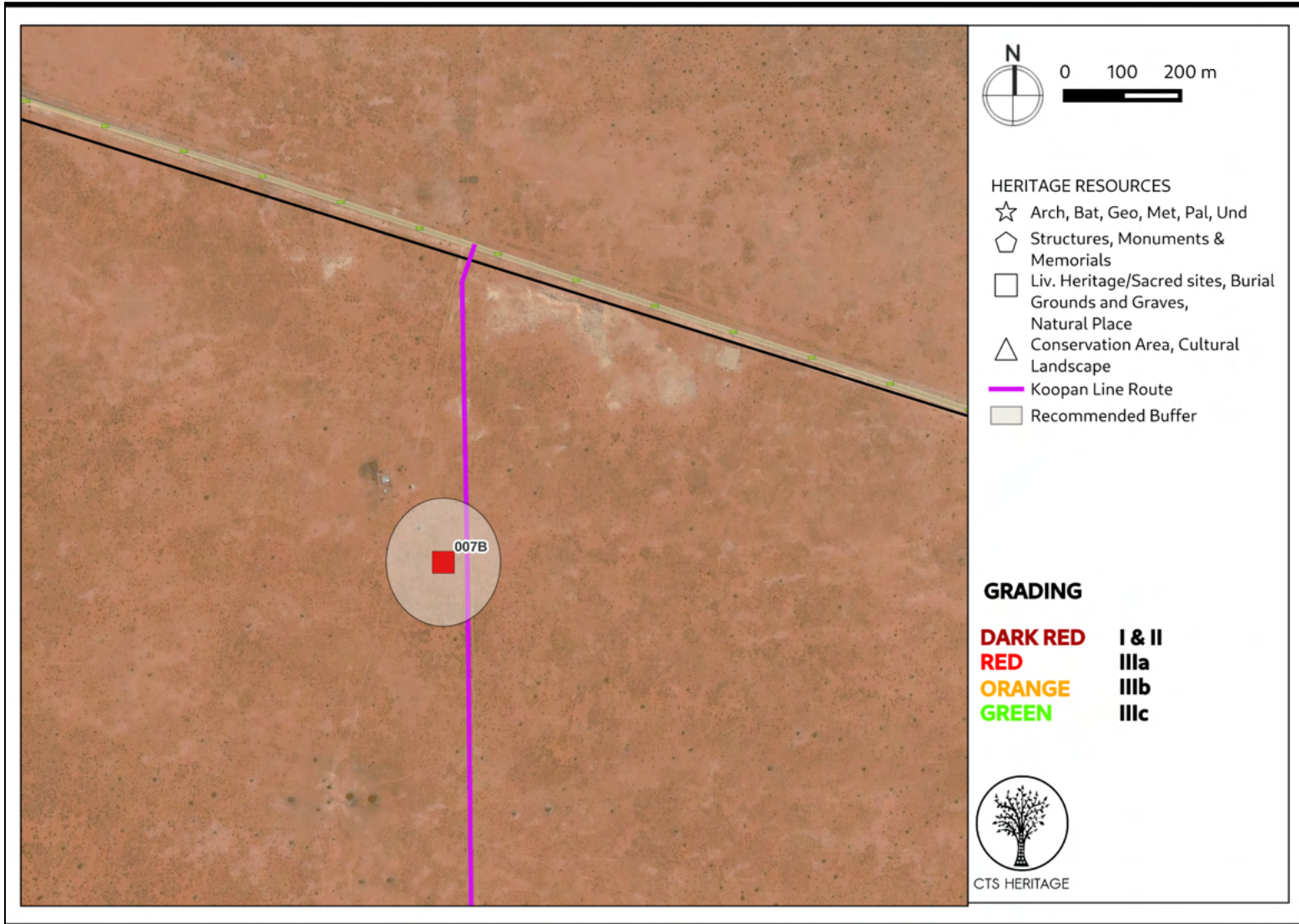


Figure 7.3: Map of all sites and observations noted within the development area with recommended mitigation measures at Koopan



CTS HERITAGE

## **5.2 Sustainable Social and Economic Benefit**

According to the information provided, the anticipated socio-economic benefits during the construction phase will be employment creation. During the operational phase, maintenance of the powerline and associated infrastructure will also create employment opportunities. Overall, the proposed activities will contribute to service infrastructure for the local area.

The powerline will also facilitate the provision of electricity to the small towns in the area which in turn will secure electricity provision and, in so doing, will generate economic opportunities.

## **5.3 Proposed development alternatives**

Based on information received from the client, location alternatives were considered for Hakskeen pan, however, due to the location of the existing powerline, the chosen new route is the optimal route. An alternative route at the Hakskeen pan will be more than double the length of the chosen route which will increase the cost of the project immensely.

## **5.4 Cumulative Impacts**

The cumulative impact of a development is the impact that development will have when its impact is added to the incremental impacts of other past, present or reasonably foreseeable future activities that will affect the same environment. It is important to note that the cumulative impact assessment for a particular project, like what is being done here, is not the same as an assessment of the impact of all surrounding projects. The cumulative assessment for this project is an assessment only of the impacts associated with this project, but seen in the context of all surrounding impacts. It is concerned with this project's contribution to the overall impact, within the context of the overall impact. But it is not simply the overall impact itself.

The most important concept related to a cumulative impact is that of an acceptable level of change to an environment. A cumulative impact only becomes relevant when the impact of the proposed development will lead directly to the sum of impacts of all developments causing an acceptable level of change to be exceeded in the surrounding area. If the impact of the development being assessed does not cause that level to be exceeded, then the cumulative impact associated with that development is not significant.

The Department of Forestry, Fisheries and the Environment (DFFE) requires compliance with a specified methodology for the assessment of cumulative impacts. The DFFE compliance for this project requires considering all renewable energy project applications within a 30 km radius.



CTS HERITAGE

In REDZ areas, there is a reasonable expectation that the cultural landscape of an area will be changed to be dominated, or at least heavily altered, by renewable energy development. In fact, this is the intention of the REDZ areas.

In terms of cumulative impacts to heritage resources, impacts to archaeological and palaeontological resources are sufficiently dealt with on a case by case basis. The primary concern from a cumulative impact perspective would be to the cultural landscape. The cultural landscape is defined as the interaction between people and the places that they have occupied and impacted. In some places in South Africa, the cultural landscape can be more than 1 million years old where we find evidence of Early Stone Age archaeology (up to 2 million years old), Middle Stone Age archaeology (up to 200 000 years old), Later Stone Age archaeology (up to 20 000 years old), evidence of indigenous herder populations (up to 2000 years old) as well as evidence of colonial frontier settlement (up to 300 years old) and more recent agricultural layers.

Modern interventions into such landscapes, such as grid connection infrastructure, constitute an additional layer onto the cultural landscape which must be acceptable in REDZ areas. The primary risk in terms of negative impact to the cultural landscape resulting from new infrastructure development lies in the eradication of older layers that make up the cultural landscape. There are various ways that such impact can be mitigated.

The proposed development is therefore unlikely to result in unacceptable risk or loss, nor will the proposed development result in a complete change to the sense of place of the area or result in an unacceptable increase in impact due to the nature of the development as a realignment of an existing grid connection. The landscape within which the proposed project areas are located, is not worthy of formal protection as a heritage resource and has the capacity to accommodate such development from a heritage perspective.





## 5.5 Site Verification

According to the DFFE Screening Tool analysis completed for both grid lines, the development area has High levels of sensitivity for impacts to palaeontological heritage and Low levels of sensitivity for impacts to archaeological and cultural heritage resources. The results of this assessment in terms of site sensitivity are summarised below:

- The cultural value of the broader area is LOW with no significant heritage resources identified (LOW)
- Some significant archaeological resources were identified within the broader area (HIGH)
- No highly significant palaeontological resources were identified within the development area, and the geology underlying the development area is not sensitive for impacts to significant fossils (LOW)

As per the findings of this assessment, and its supporting documentation, the outcome of the sensitivity verification disputes the results of the DFFE Screening Tool for Palaeontology - this should be LOW - and disputes the results of the screening tool for archaeology and cultural heritage - this should be considered to be MODERATE. This evidence is provided in the body of this report and in the appendices (Appendix 1, 2 and 3).

## 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

The survey proceeded with limited constraints and limitations, and the project area was comprehensively surveyed for heritage resources. Some significant archaeological resources were identified along the apex of the dune field and as such, this area must be considered to be very sensitive. In addition, a number of burials were identified within the proposed grid corridor. Appropriate mitigation measures are presented in Table 1 above in this regard.

In terms of palaeontological sensitivity, Kalahari Sands of the Gordonina Formation have LOW sensitivity for impacts to significant palaeontology according to the SAHRIS Fossil Heritage Browser. It is noted that Fossils within this formation are mainly associated with ancient pans, lakes and river systems, and consist of Palynomorphs, root casts (rhizomorphs) and burrows (eg termitaria), rare vertebrate remains (mammals, fish, ostrich egg shell *etc*), diatom-rich limestones, freshwater stromatolites, freshwater and terrestrial shells (gastropods, bivalves), ostracods and charophytes. As such, it is recommended that Chance Fossil Finds Procedure (attached) be implemented for the duration of excavation activities.



## 8. RECOMMENDATIONS

Based on the outcomes of this report, it is not anticipated that the proposed development of the grid alignment will negatively impact on significant archaeological heritage on condition that:

- The mitigation measures detailed in Table 1 and mapped in Figures 7.1, 7.2 and 7.3 are implemented
- The final pylon placements are subjected to a walkdown by an archaeologist prior to construction to microsite the footings so that significant archaeological resources are not negatively impacted
- The attached Chance Fossil Finds Procedure must be implemented throughout the construction phase
- 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.



CTS HERITAGE

## 9. REFERENCES

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
109862	HIA Phase 1	Renee Rust, Liezl van Pletzen-Vos	01/01/2013	Heritage Impact Assessment Report Proposed residential development of 100 erven and associated infrastructure on Portion 1 of Farm No 139, Gordonia Road, Mier Municipality, Northern Cape Province.
110518	HIA Phase 1	Jan Engelbrecht	15/02/2013	Phase 1 Heritage Impact Assessment Report: Proposed Development for Low Cost Housing Mier Local Municipality, Siyanda District Municipality, Northern Cape Province, South Africa
110893	Heritage Scoping	Liezl van Pletzen-Vos, Renee Rust	01/01/2013	Preliminary Heritage Impact Assessment Report Proposed Low Income Housing Project Rietfontein, Remainder Farm No. 585, Gordonia Road, Groot Mier Municipality, Northern Cape
110893	Heritage Scoping	Liezl van Pletzen-Vos, Renee Rust	01/01/2013	Preliminary Heritage Impact Assessment Report Proposed Low Income Housing Project Rietfontein, Remainder Farm No. 585, Gordonia Road, Groot Mier Municipality, Northern Cape
118716	HIA Phase 1	Liezl van Pletzen-Vos, Renee Rust	22/04/2013	Heritage Impact Assessment Report: Proposed Low Income Housing Project Rietfontein, Remainder Farm No. 585, Gordonia Road, Groot Mier Municipality, Northern Cape.
185632	AIA Phase 1	Jan Engelbrecht	12/11/2014	Archaeological Impact Assessment for the proposed upgrading of the Rietfontein Oxidation Ponds near Rietfontein in the Northern Cape Province
281878	AIA Phase 1	Jan Engelbrecht	06/04/2015	Archaeological Impact Assessment for the proposed Construction of Oxidation Ponds near Askham in the Northern Cape Province
386702				
4108	AIA Phase 1	Cobus Dreyer	12/09/2007	First Phase Archaeological and Cultural Heritage Assessment of Borrow Pit R Along the Proposed R87 Road Between Rietfontein & Groot Mier, Gordonia District, Northern Cape
4137	AIA Phase 1	Peter Beaumont	25/08/2006	Phase 1 Heritage Impact Assessment Report on a Planned Kalahari Tourism Facility on the Farm Dreghorn 145 near Askam, Siyanda District Municipality, Northern Cape
4750	AIA Phase 1	Cobus Dreyer	12/12/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Borrow Pits Sites on the Kgalagadi Access Road Between Askham & Twee Rivieren, Northern Cape



CTS HERITAGE

## APPENDICES



CTS HERITAGE

## APPENDIX 1: Archaeological Assessment (2023)

# ARCHAEOLOGICAL SPECIALIST STUDY

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

## **Rerouting of the Rietfontein-Rietfontein 33kV powerline near the Rietfontein Settlement in the Northern Cape Province**

Prepared by



CTS HERITAGE

Jenna Lavin  
And Nicholas Wiltshire

In Association with

**EnviroWorks**

June 2023



CTS HERITAGE

## EXECUTIVE SUMMARY

Rerouting of the Rietfontein-Rietfontein 33kV powerline near the Rietfontein Settlement in the Northern Cape Province. The purpose of rerouting this powerline is to get it out of 2 pans (Hakskeen Pan and Koopan). Currently the Rietfontein-Rietfontein 33kV powerline runs through both of these pans. When there is water in the pans the powerline towers are prone to falling over because of the wet clay soil. The wet clay soil then makes it very difficult for maintenance vehicles to reach the fallen structures in order to repair the fallen structures. The result of this is Eskom customers in the area being without electricity for extended periods at a time. The current powerline configuration consists of bird friendly wood pole structure (D-DT-1870). This is the same configuration that will be used on the two sections where the line will be deviated. The length of the wood pole structures will range from 9 to 13 meters. The poles are planted 2 meters deep in holes drilled by a truck mounted drill. The holes are 300mm in diameter and 2 meters deep. The average distance between structures are 100 meters. The Koopan Powerline Deviation will be 10.8km in length and the Hakskeen Pan Powerline Deviation will be 19.8km in length.

The survey proceeded with limited constraints and limitations, and the project area was comprehensively surveyed for heritage resources. Some significant archaeological resources were identified along the apex of the dune field and as such, this area must be considered to be very sensitive. In addition, a number of burials were identified within the proposed grid corridor. Appropriate mitigation measures are presented in Table 1 in this regard.

On condition that the mitigation measures outlined below are implemented, there is no objection to the proposed development from an archaeological perspective.

### ***Recommendations***

Based on the outcomes of this report, it is not anticipated that the proposed development of the grid alignment will negatively impact on significant archaeological heritage on condition that:

- The mitigation measures detailed in Table 1 and mapped in Figures 8.1, 8.2 and 8.3 are implemented
- The final pylon placements are subjected to a walkdown by an archaeologist prior to construction to microsite the footings so that significant archaeological resources are not negatively impacted
- 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.



CTS HERITAGE

## CONTENTS

<b>1. INTRODUCTION</b>	<b>2</b>
1.1 Background Information on Project	2
1.2 Description of Property and Affected Environment	3
<b>2. METHODOLOGY</b>	<b>3</b>
2.1 Purpose of Archaeological Study	3
2.2 Summary of steps followed	4
2.3 Constraints & Limitations	9
<b>3. HISTORY AND EVOLUTION OF THE SITE AND CONTEXT</b>	<b>9</b>
<b>4. IDENTIFICATION OF HERITAGE RESOURCES</b>	<b>12</b>
4.1 Field Assessment	12
4.2 Archaeological Resources identified	19
4.3 Selected photographic record	26
<b>5. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT</b>	<b>30</b>
5.1 Assessment of impact to Archaeological Resources	30
<b>6. CONCLUSION AND RECOMMENDATIONS</b>	<b>35</b>
<b>7. REFERENCES</b>	<b>39</b>





CTS HERITAGE

## **1. INTRODUCTION**

### **1.1 Background Information on Project**

Rerouting of the Rietfontein-Rietfontein 33kV powerline near the Rietfontein Settlement in the Northern Cape Province. The purpose of rerouting this powerline is to get it out of 2 pans (Hakskeen Pan and Koopan). Currently the Rietfontein-Rietfontein 33kV powerline runs through both of these pans. When there is water in the pans the powerline towers are prone to falling over because of the wet clay soil. The wet clay soil then makes it very difficult for maintenance vehicles to reach the fallen structures in order to repair the fallen structures. The result of this is Eskom customers in the area being without electricity for extended periods at a time. The current powerline configuration consists of bird friendly wood pole structure (D-DT-1870). This is the same configuration that will be used on the two sections where the line will be deviated. The length of the wood pole structures will range from 9 to 13 metres. The poles are planted 2 metres deep in holes drilled by a truck mounted drill. The holes are 300mm in diameter and 2 metres deep. The average distance between structures are 100 metres. The Koopan Powerline Deviation will be 10.8km in length and the Hakskeen Pan Powerline Deviation will be 19.8km in length.

### **1.2 Description of Property and Affected Environment**

The project is oriented around two sections of line that are located approximately 40km apart. The Hakskeenpan alignment to the west is located in an area that is dominated by Kalahari klipveld combined with duneveld and flat sandy pans or pans/plains. Dry riverbeds cross the corridor at several places, especially along the gravel road towards Loubos and towards the northeast from Loubos. The edge of some parts of Hakskeenpan is in quite close proximity to the corridor.

Within the corridor a reef of sedimentary rock is present, consisting of sandstone outcrops and banks. These outcrops are especially present along the northeastern shore of Hakskeenpan and the adjacent duneveld. The area from the R31 main road towards the first farm at Loubos is mostly klipveld consisting of flat plains with some scattered waterways and high grounds at certain areas.

The R31 main road towards Rietfontein is a prominent landmark and the site can also be entered from this road. Loubos settlement is located within the area of interest and the corridor runs through klipveld as well as duneveld. The Hakskeenpan is another landmark and forms a southern boundary of a large part of the corridor. Certain parts are Savanna type field with scattered trees and grass fields. The corridor includes high dunes from north west to south east along Hakskeenpan and could make construction difficult. Several natural dry riverines crosses the corridor, especially along the gravel road towards Loubos and from Loubos to the duneveld. Hakskeenpan is non-perennial and only fills up with water after heavy rains.

The Koopan alignment to the east is located in an area dominated by Kalahari klipveld combined with duneveld and flat sandy plains. Koopan-South is located just to the NNW of the corridor footprint. The corridor is located on private owned farmland. Flat sandy plains with alternate dunes crossing the proposed development footprint. The site is located on the Plato SSW of Koopan-South. Certain areas are densely vegetated and scattered trees are present throughout the site. Typical Kalahari/Savannah type field and vegetation.



CTS HERITAGE

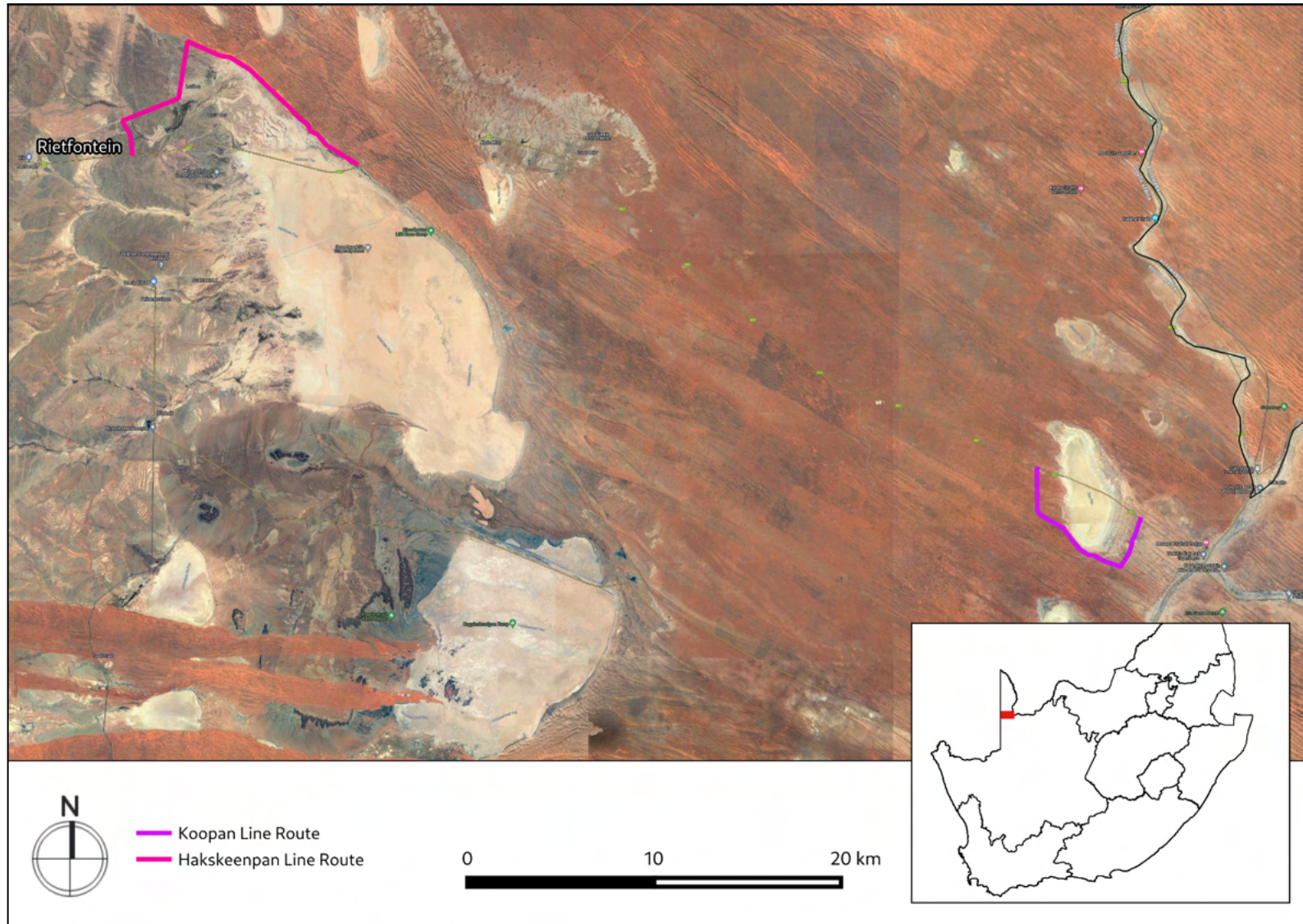


Figure 1.1: Satellite image indicating proposed location of development





CTS HERITAGE



Figure 1.3: Proposed project boundary at Koopan



CTS HERITAGE

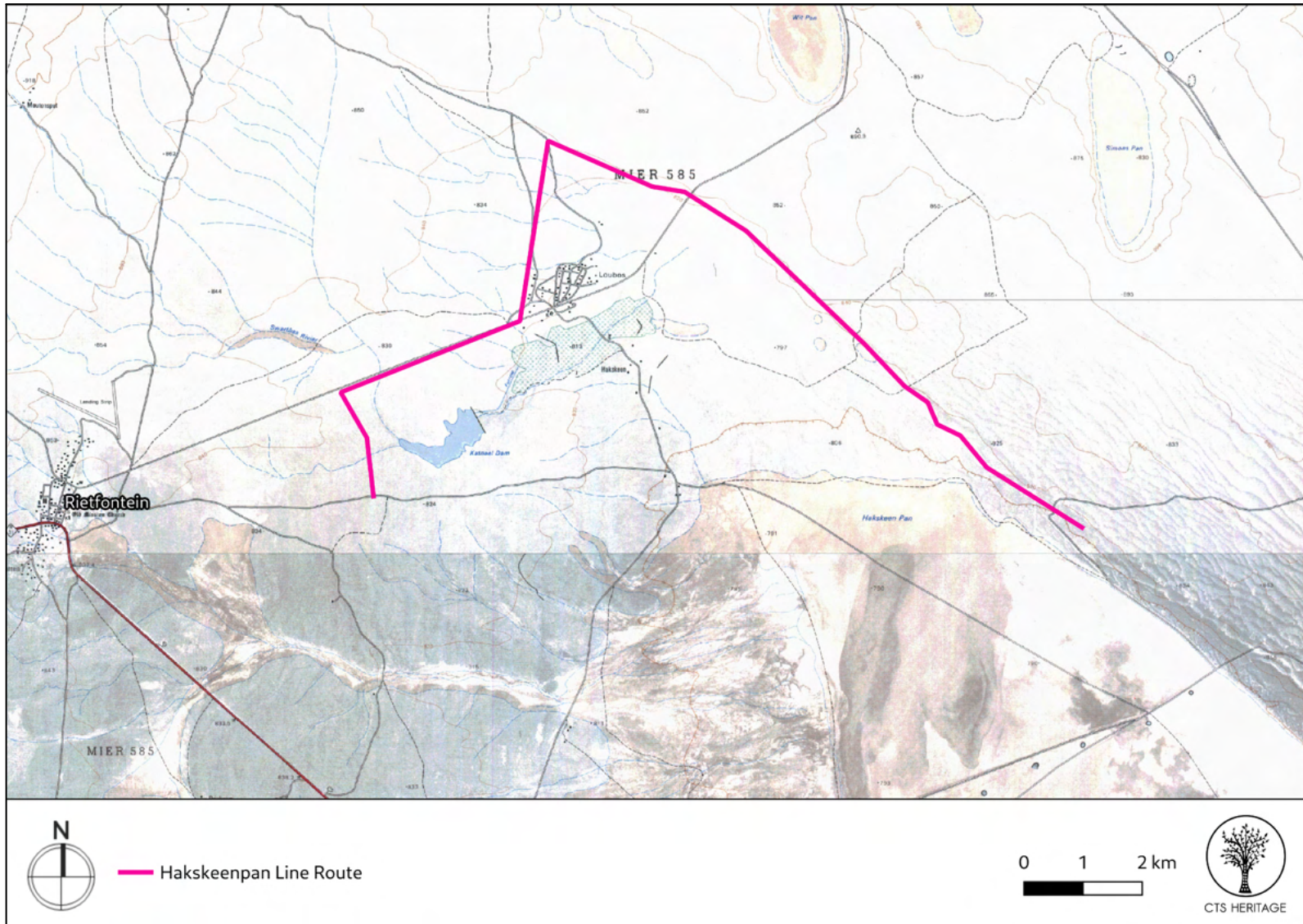


Figure 1.4. Overview Map. Extract from the 1:50 000 Topo Map for this area at Hakskeenpan



CTS HERITAGE

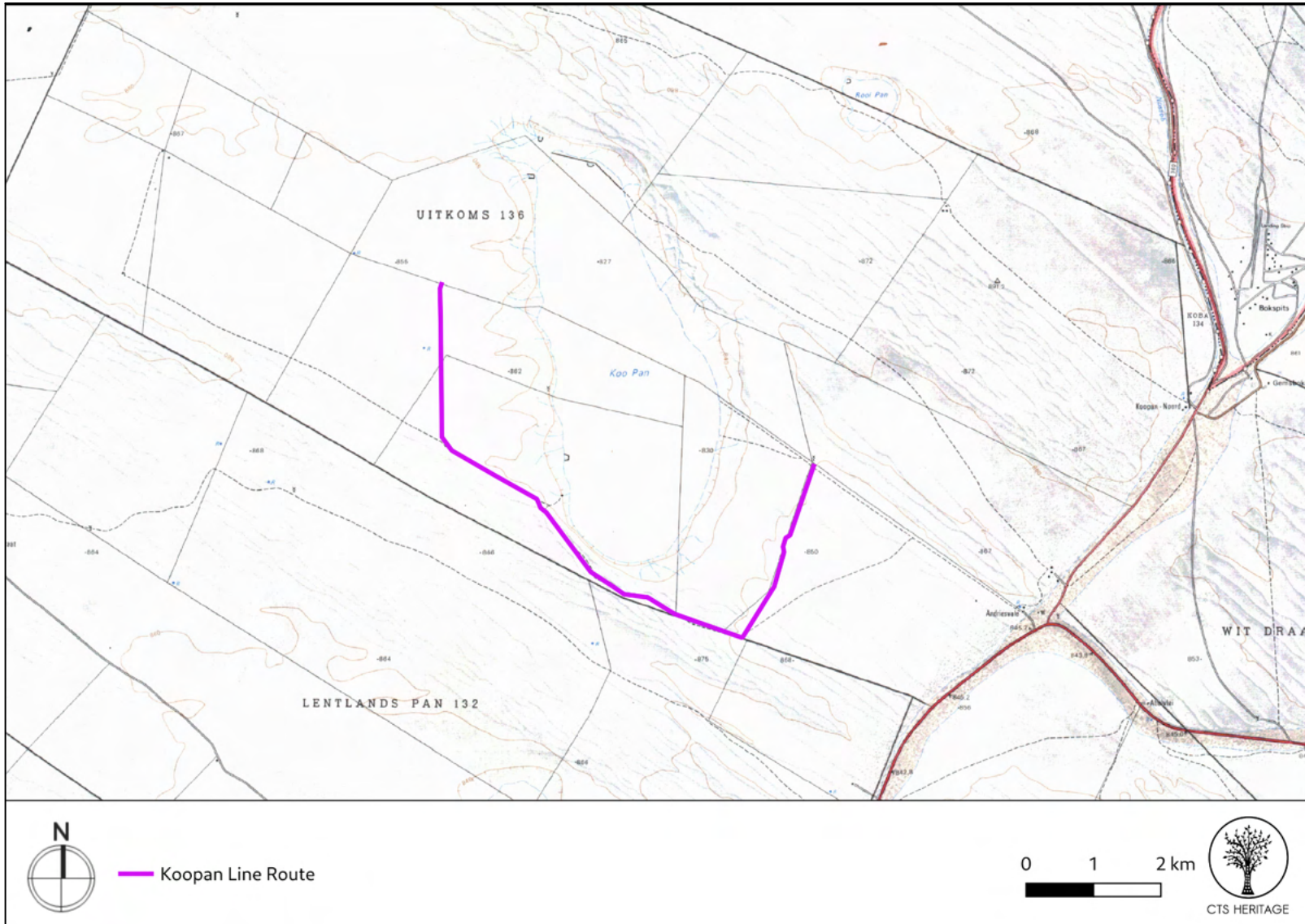


Figure 1.5. Overview Map. Extract from the 1:50 000 Topo Map for this area at Koopan



CTS HERITAGE

## **2. METHODOLOGY**

### **2.1 Purpose of Archaeological Study**

The purpose of this archaeological study is to satisfy the requirements of section 38(8), and therefore section 38(3) of the National Heritage Resources Act (Act No. 25 of 1999) in terms of impacts to archaeological resources.

### **2.2 Summary of steps followed**

- An archaeologist conducted a survey of the site and its environs on 13 to 15 June 2023 to determine what archaeological resources are likely to be impacted by the proposed development.
- The area proposed for development was assessed on foot, photographs of the context and finds were taken, and tracks were recorded using a GPS.
- The identified resources were assessed to evaluate their heritage significance in terms of the grading system outlined in section 3 of the NHRA (Act 25 of 1999).
- Alternatives and mitigation options were discussed with the Environmental Assessment Practitioner.

### **2.3 Constraints & Limitations**

The corridor footprint for Hakskeenpan is quite densely infested by vegetation at certain areas. The terrain was quite difficult in the duneveld and foot surveys were done at the accessible areas. Visibility was very good at most parts of the corridor footprint. The corridor footprint for Koopan is quite densely infested by vegetation at certain areas. The terrain was quite difficult in the duneveld and foot surveys were done at the accessible areas. Visibility was very good at most parts of the corridor footprint.



CTS HERITAGE

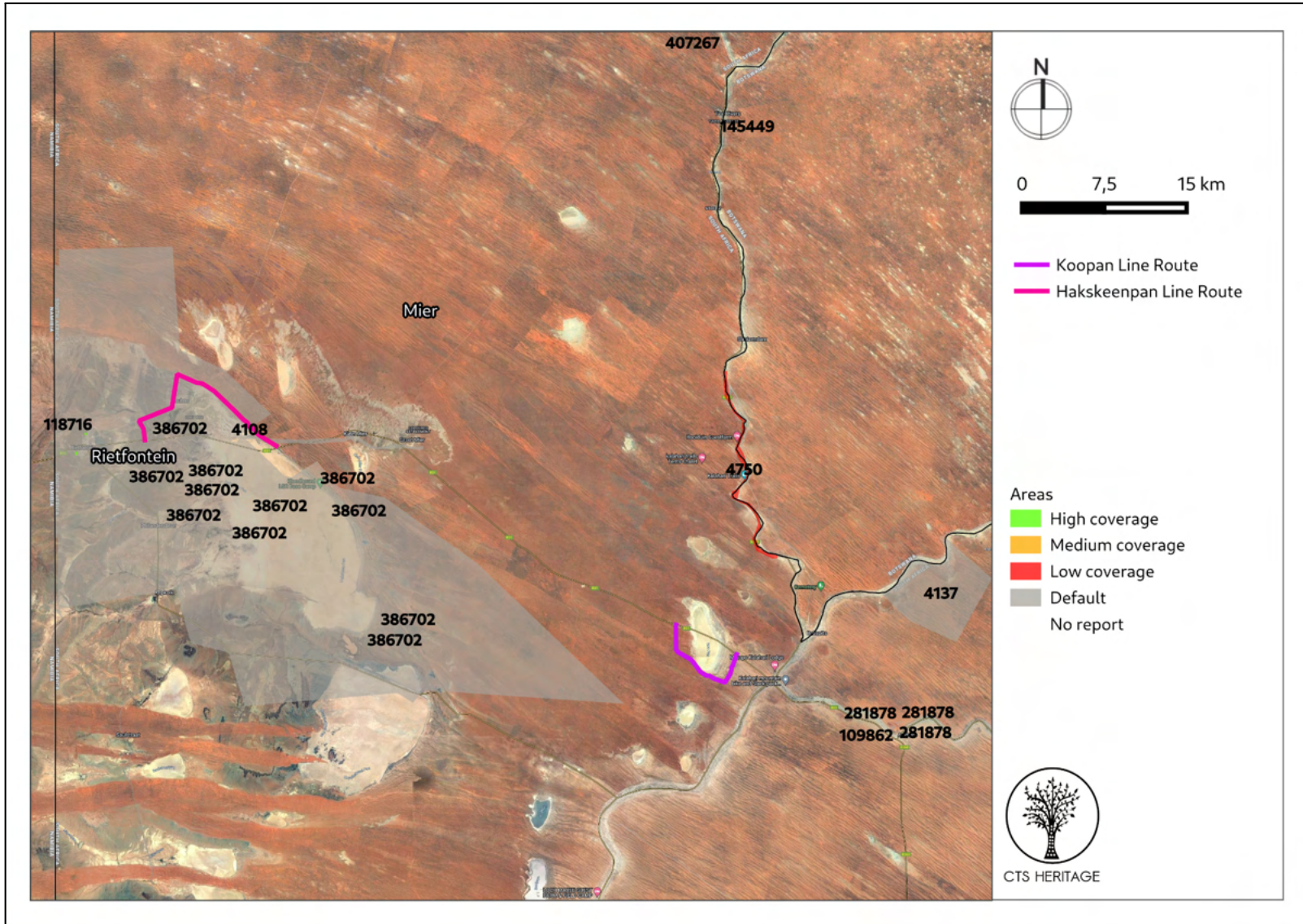


Figure 2: Close up satellite image indicating proposed location of development in relation to heritage studies previously conducted





CTS HERITAGE

### 3. HISTORY AND EVOLUTION OF THE SITE AND CONTEXT

#### Background

This application is for the proposed development of powerline deviations along the R31 between the border with Namibia at Rietfontein and Askham in the Northern Cape. Hakskeen Pan, Uitsak Pan, Oxford Pan and Koppieskraal Pan form part of the area. Rietfontein is the capital of Mier and the home of infrastructure, such as the Municipal Office, Police Station, Day Hospital and High School. Rietfontein is also the place where the exploring scouts of Dirk Vilander found the bushman, Khys and his family at a fountain surrounded by reed-bushes, from there the name Rietfontein.

A history of the broader area is detailed online<sup>1</sup>, with the key points summarised below:

- The broader area is said to be named Mier after early settlers noticed ants bringing wet mud to the surface in this otherwise arid area
- The area was settled in 1865 and was annexed as British Bechuanaland in 1893, which became part of the Cape Colony in 1895
- In 1930, under the Coloured People Settlement Areas Act of the Cape, the Mier Coloured Settlement Area was established
- Although Rietfontein and Schepkolk did not form part of the proclaimed area, in practice, inhabitants of these areas continued to make use of the Kalahari dunes for seasonal grazing and hunting as they were used to.

#### Cultural Landscape and Built Environment Heritage

The area proposed for the powerline infrastructure falls within the area described as the Kalahari Desert and is sparsely populated. Throughout the past, people in this area have settled close to water sources and pans. The proposed powerlines are aligned along the existing R31 and in terms of impacts to the cultural landscape, it is preferred that such infrastructure is clustered rather than spread across an otherwise pristine and desolate landscape.

#### Archaeology

The area proposed for the powerlines is located along an existing road between two established towns. An HIA was completed by Kaplan (2014) for a bulk water supply scheme project also located in this area. Other HIA's completed in the area include Beaumont (2006) who found only two stone flakes during a HIA for the construction of several chalets on a game farm a few kilometres north east of Askham, while in Askham no archaeological heritage was encountered by van Pletzen-Vos and Rust (2013a) during a HIA for a proposed low cost housing project, although several informal graves were encountered. At Rietfontein, ephemeral surface scatters of Later Stone Age (LSA) implements and pottery have been encountered on deflated dune surfaces, and around small dry pans in the surrounding area (Smith 1995). Low density scatters of ESA, MSA and LSA tools were also recorded by Engelbrecht (2013) during a HIA for a low cost housing development in the town, while Engelbrecht (2013) also notes the presence of LSA sites with pottery and stone tools on several farms in the surrounding area. Van Pletzen-Vos and Rust (2013b) documented diffuse scatters of LSA tools and ostrich eggshell near Rooipan and Witpan north east of Rietfontein.

<sup>1</sup> <https://www.namahariplaasmark.com/2021/07/rietfontein-and-mier-history.html>



CTS HERITAGE

Kaplan (2014) notes that “The receiving environment... comprises endless sections of road reserve that are covered in tall, dry winter grass (R31 & R360), and thick scrub, grass and trees (Namibia Road), resulting in low archaeological visibility.” Regarding the area around Hakskeenpan, Kaplan (2014) goes on to note that “The receiving environment comprises shrub and grass on a substrate of red windblown (aeolian) sands. There is no surface stone on the proposed dam site and there are no natural sources of water such as streams, springs or drainage channels.” Kaplan (2014) goes on to conclude that “The very small numbers, isolated and disturbed context in which they were found means that the archaeological remains recorded during the study are rated as having low (3C) local significance. MSA implements encountered during the study are the same as the tools described and illustrated in several HIA’s for social housing projects in Askham and small towns in the region.”



CTS HERITAGE

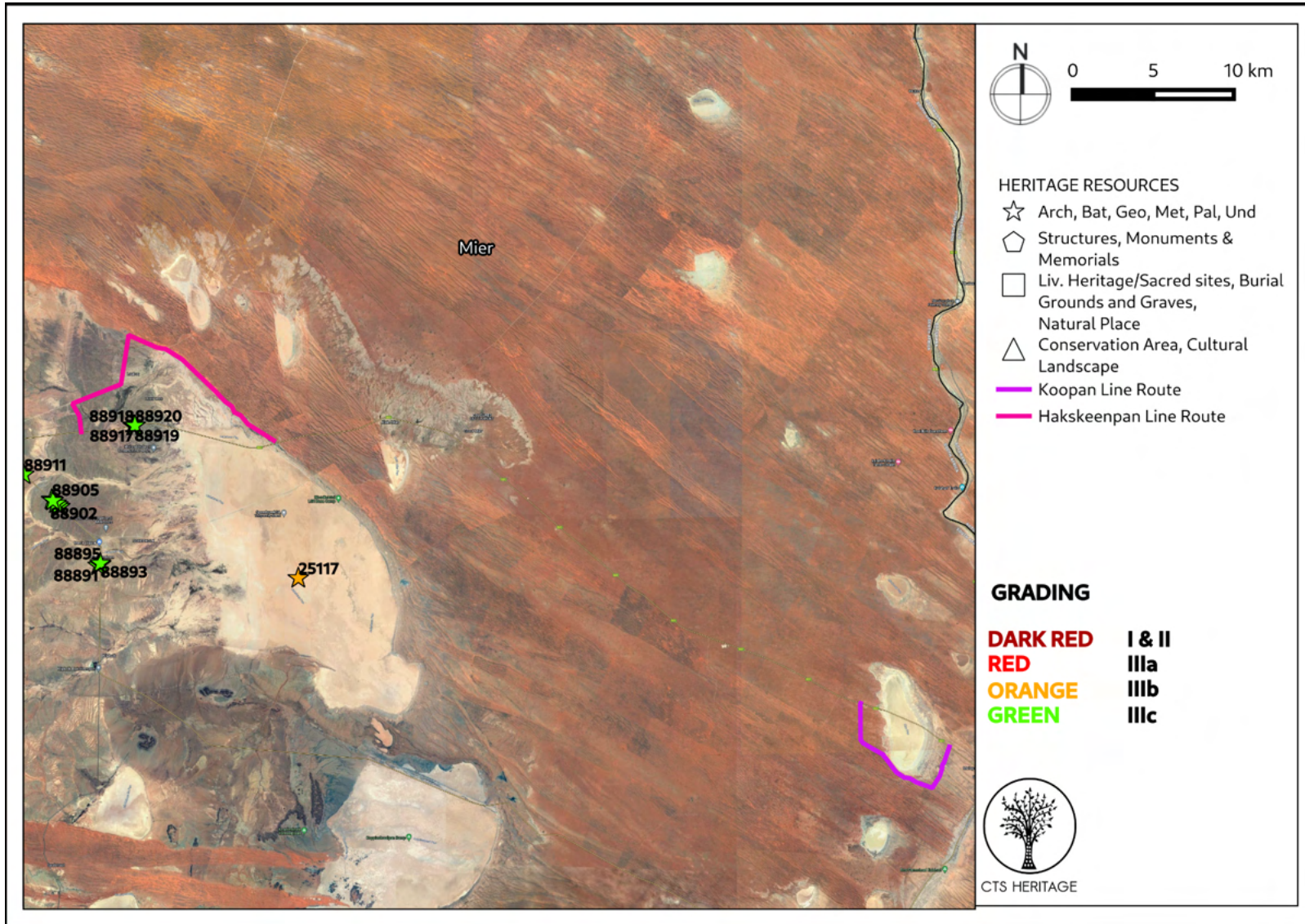


Figure 3.1 Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated



CTS HERITAGE

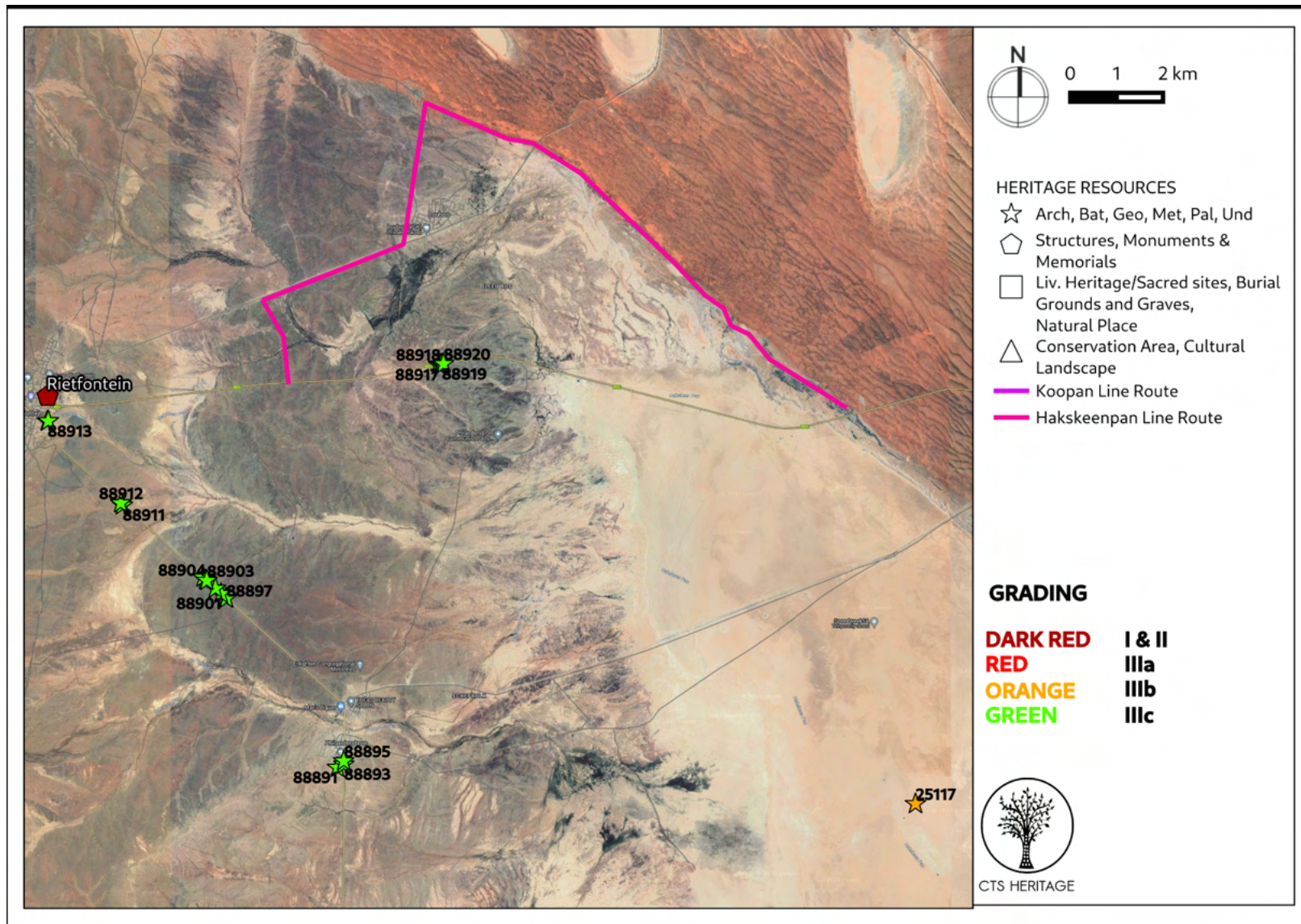


Figure 3.2. Heritage Resources Map. Heritage Resources Inset A

## 4. IDENTIFICATION OF HERITAGE RESOURCES

### 4.1 Field Assessment

A number of heritage resources were identified within the Hakskeenpan portion of the amended alignment. The LSA sites recorded are mostly on the apex of a dune range. It is highly possible that the identified Stone Age sites are probably related and linked into a network of sites. The apex of the dunes must be considered as being very sensitive for impacts to significant archaeology. These sites were probably used multiple times through the ages, depending on the season and availability of resources such as water. The Hakskeenpan still is a major source of water during the rainy seasons. A total of 2 graves were identified. A total of 3 suspect graves were identified within the corridor site footprint.

No significant resources were identified within the Koopan alignment other than the location of a single grave. Two cavities in the calcrete rock along the edges of Koopan were investigated for possible remnants of archaeological artefacts. These cavities resemble rock shelters. No archaeological material was identified inside the shelters. If archaeological material was present in the shelters, people have by this time removed it. These shelters are not located within the development footprint.

The field assessment also identified some beautifully preserved Quaternary geological sediments including some trace fossils. These have been marked on the maps below as Observation 024. No specific palaeontological significance was identified when the images and location were shared with a palaeontologist, however the requirement for a Chance Finds Protocol was reiterated (Butler, pers comm. June 2023).



Figure 4.1: Contextual images from the Hakskeenpan Alignment



CTS HERITAGE



Figure 4.2: Contextual images from the Hakskeenpan Alignment



Figure 4.3: Contextual images from the Hakskeenpan Alignment



CTS HERITAGE



Figure 4.4: Contextual images from the Hakskeenpan Alignment



Figure 4.5: Contextual images from the Hakskeenpan Alignment



CTS HERITAGE



Figure 4.6: Contextual images from the Hakskeenpan Alignment



Figure 4.7: Contextual images from the Hakskeenpan Alignment





CTS HERITAGE



Figure 4.8: Contextual images from the Hakskeenpan Alignment



Figure 4.9: Contextual images from the Koopan Alignment



CTS HERITAGE



Figure 4.10: Contextual images from the Koopan Alignment



Figure 4.11: Contextual images from the Koopan Alignment



CTS HERITAGE



Figure 4.12: Contextual images from the Koopan Alignment



Figure 4.13: Contextual images from the Koopan Alignment



CTS HERITAGE



Figure 4.14: Contextual images from the Koopan Alignment



Figure 4.15: Contextual images from the Koopan Alignment

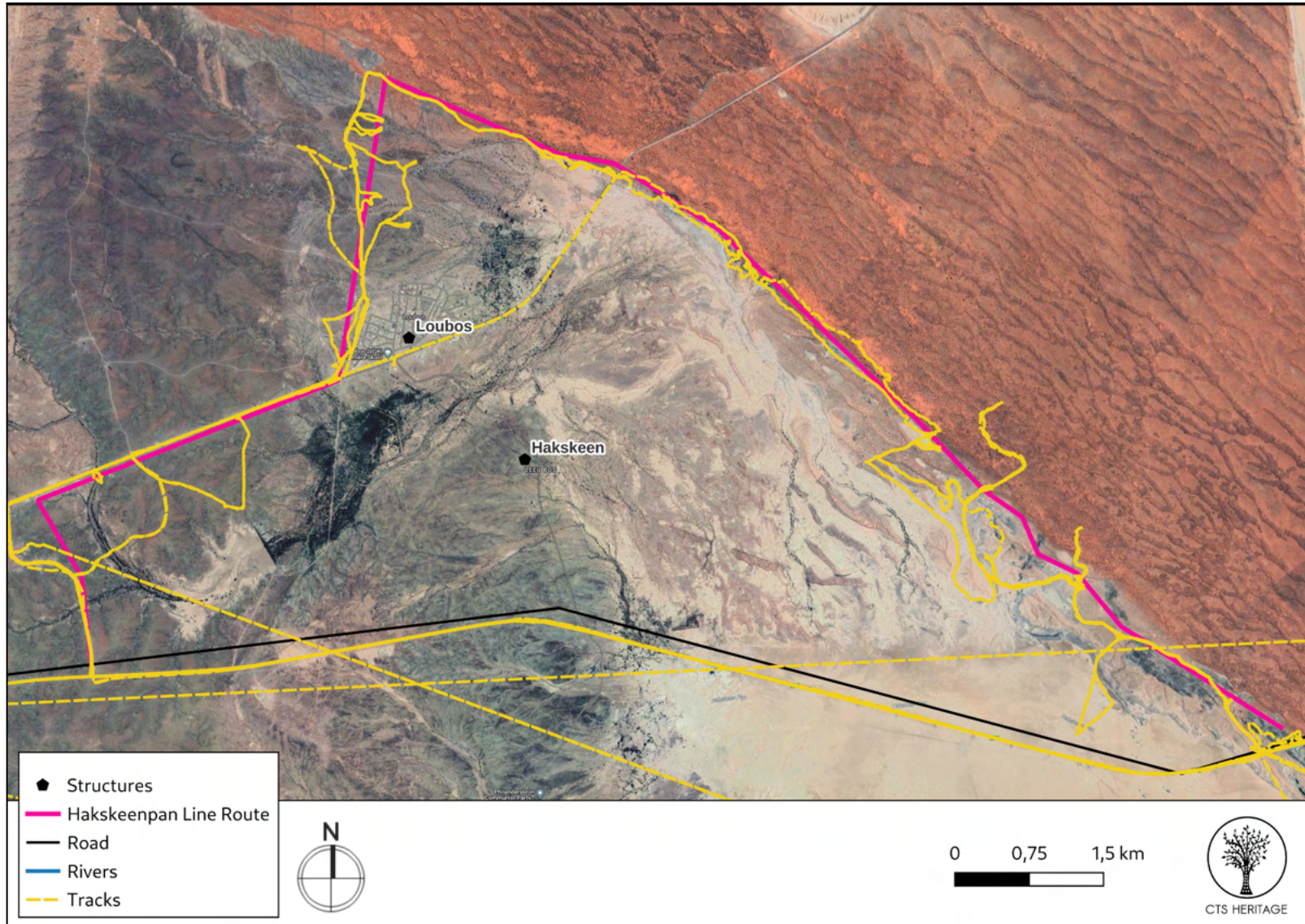


Figure 5.1: Overall track paths of foot survey for development of the Hakskeenpan Route



CTS HERITAGE

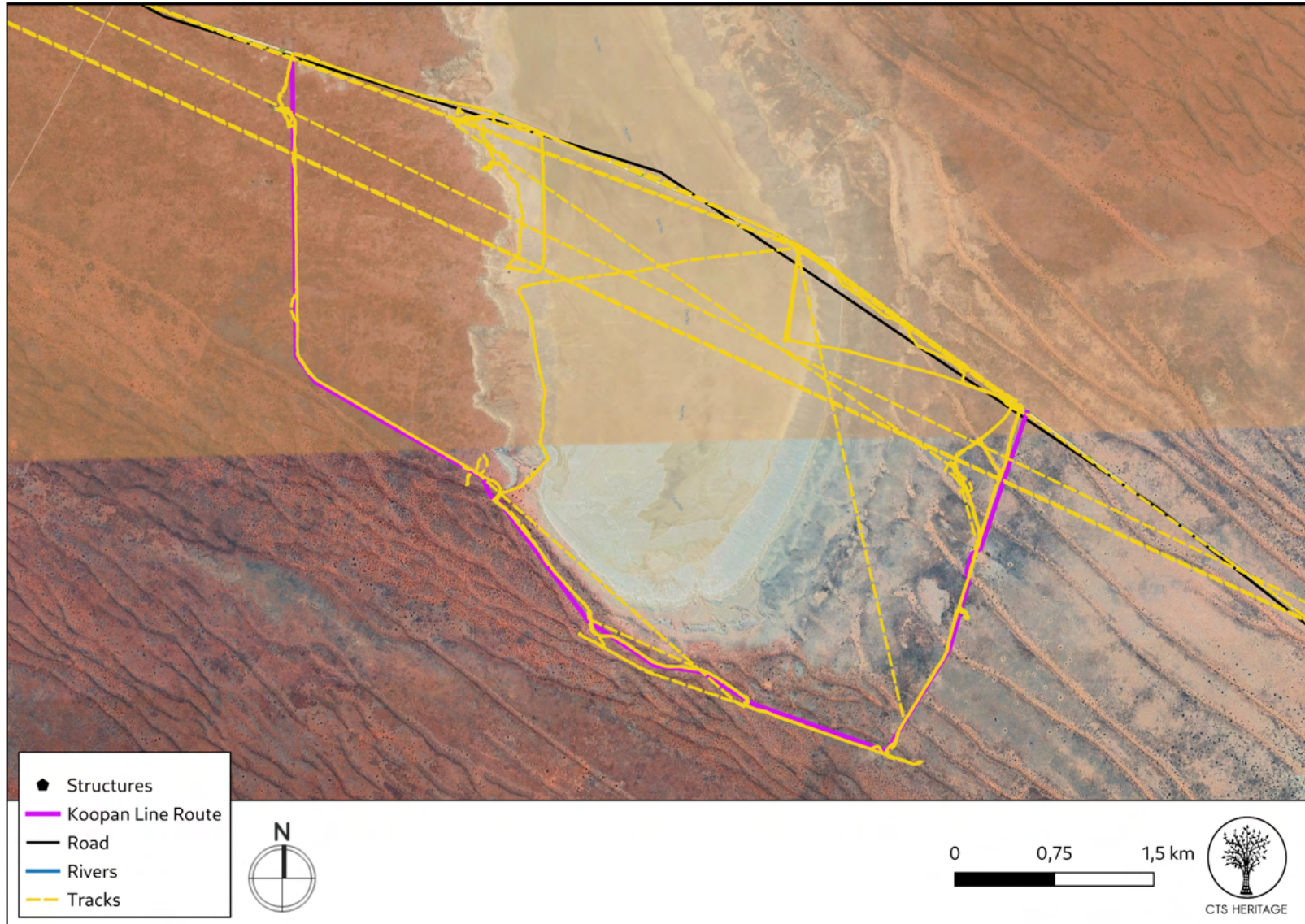


Figure 5.2: Overall track paths of foot survey for development of the Koopan Route



## 4.2 Archaeological Resources identified

Table 1: Heritage Resources identified

Obs#	Description	Type	Period	Density	Latitude	Longitude	Grade	Mitigation
2	Farm settlement with houses and livestock kraals	Structure		NA	26° 41' 14" S	20° 06' 36" E	NCW	NA
3	Marked graves "Gilbert family graves. Approximately 1,2m x 2m graves. A total of 2 graves were identified at this point. Dated 1940 to 2011, thus a recent grave. Graves located within the fenced off yard of the farm house.	Burial	Modern	NA	26° 41' 47" S	20° 08' 10" E	IIIA	100m Buffer
4	Gilbert farmhouse	Structure		NA	26° 41' 47" S	20° 08' 11" E	NCW	NA
7	Unmarked suspect grave	Burial	Modern	NA	26° 42' 19" S	20° 08' 57" E	IIIA	100m Buffer
8	Unmarked suspect grave	Burial	Modern	NA	26° 42' 19" S	20° 08' 56" E	IIIA	100m Buffer
9	Unmarked suspect grave	Burial	Modern	NA	26° 42' 20" S	20° 08' 57" E	IIIA	100m Buffer
10	Workers house	Structure		NA	26° 41' 55" S	20° 08' 28" E	NCW	NA
11	Kraal	Structure		NA	26° 41' 54" S	20° 08' 24" E	NCW	NA
19	Flakes,grinders, scrapers, chips, points, cores, hammer and chunks. Sandstone, CCS, Quartz, Dolerite, Quartzite. Located on a clear dune, almost on the dune apex. Approximately 2ha. Scattered LSA debris all over site.	Artefacts	LSA	5-10/m <sup>2</sup>	26° 42' 52" S	20° 09' 47" E	IIIB	50m Buffer
20	Flakes, grinders, chunks, points and chips. Sandstone, CCS, Quartz, Dolerite, Quartzite. Located on a clear dune, almost on the dune apex. Approximately 1ha. Scattered LSA debris all over site. Probably an extension of the site at Waypoint 019.	Artefacts	LSA	5-10/m <sup>2</sup>	26° 42' 50" S	20° 09' 44" E	IIIB	50m Buffer
21	Flakes OES, grinders, local ceramics/pottery chunks, points and chips. Sandstone, CCS, Quartz, Dolerite, Quartzite. Located on a clear dune, almost on the dune apex. Approximately 3ha. Scattered LSA debris all over site. Probably and extension of the site at Waypoint 020.	Artefacts	LSA	5-10/m <sup>2</sup>	26° 42' 41" S	20° 09' 36" E	IIIB	50m Buffer
22	Flakes, grinders, chunks, cores points and chips. Sandstone, CCS, Quartz, Dolerite, Quartzite. Located on a clear dune, almost on the dune apex. Approximately 1ha. Scattered LSA debris all over site. Probably and extension of the site at Waypoint 021.	Artefacts	LSA	5-10/m <sup>2</sup>	26° 42' 41" S	20° 09' 36" E	IIIB	50m Buffer
24	Interesting sedimentary geology features	Geology	Quaternary	NA	26° 42' 22" S	20° 09' 01" E	NCW	NA
25	Lower grinder and scattered LSA debris. Sandstone, CCS, Quartz, Dolerite, Quartzite.	Artefacts	LSA	1/10m <sup>2</sup>	26° 42' 34" S	20° 09' 15" E	IIIB	50m Buffer



CTS HERITAGE

	Grinding/Food preparation site. Small LSA site located on the foot of a dune, almost in the field underneath a large Camelthorn tree. Approximately 50m <sup>3</sup> . Scattered LSA debris all over site.							
7B	Marked grave with headstone. Hendrik Vaalbooi. 1946- 2008. Recent grave. Only one grave identified. Grave within the corridor footprint. Grave of the Vaalbooi family who lives in close proximity of the grave on the site.	Burial	Modern	NA	26° 53' 53.7" S	20°34' 11.5" E	IIIA	100m Buffer



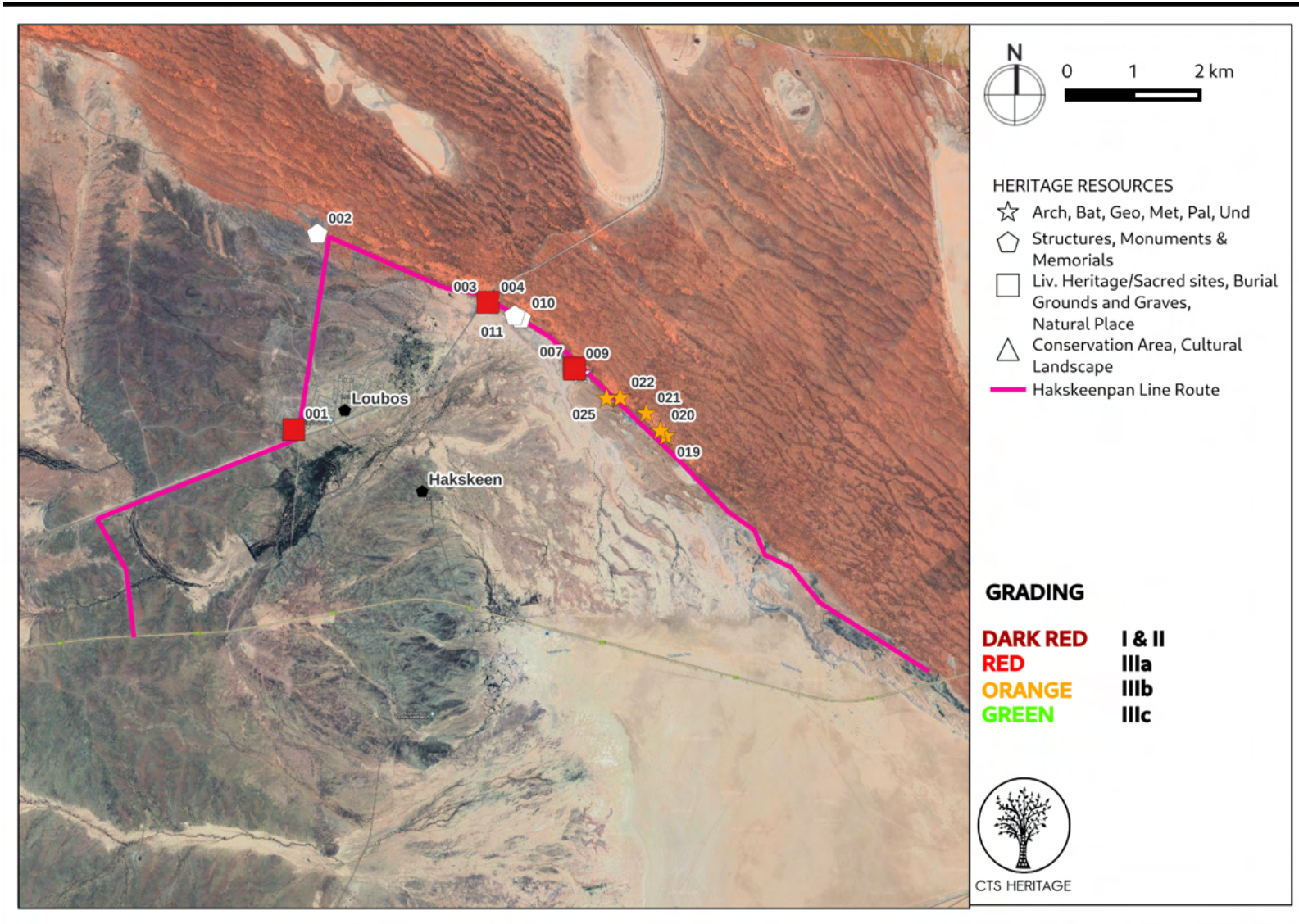


Figure 6.1: Map of all sites and observations noted within the development area for Hakskeenpan

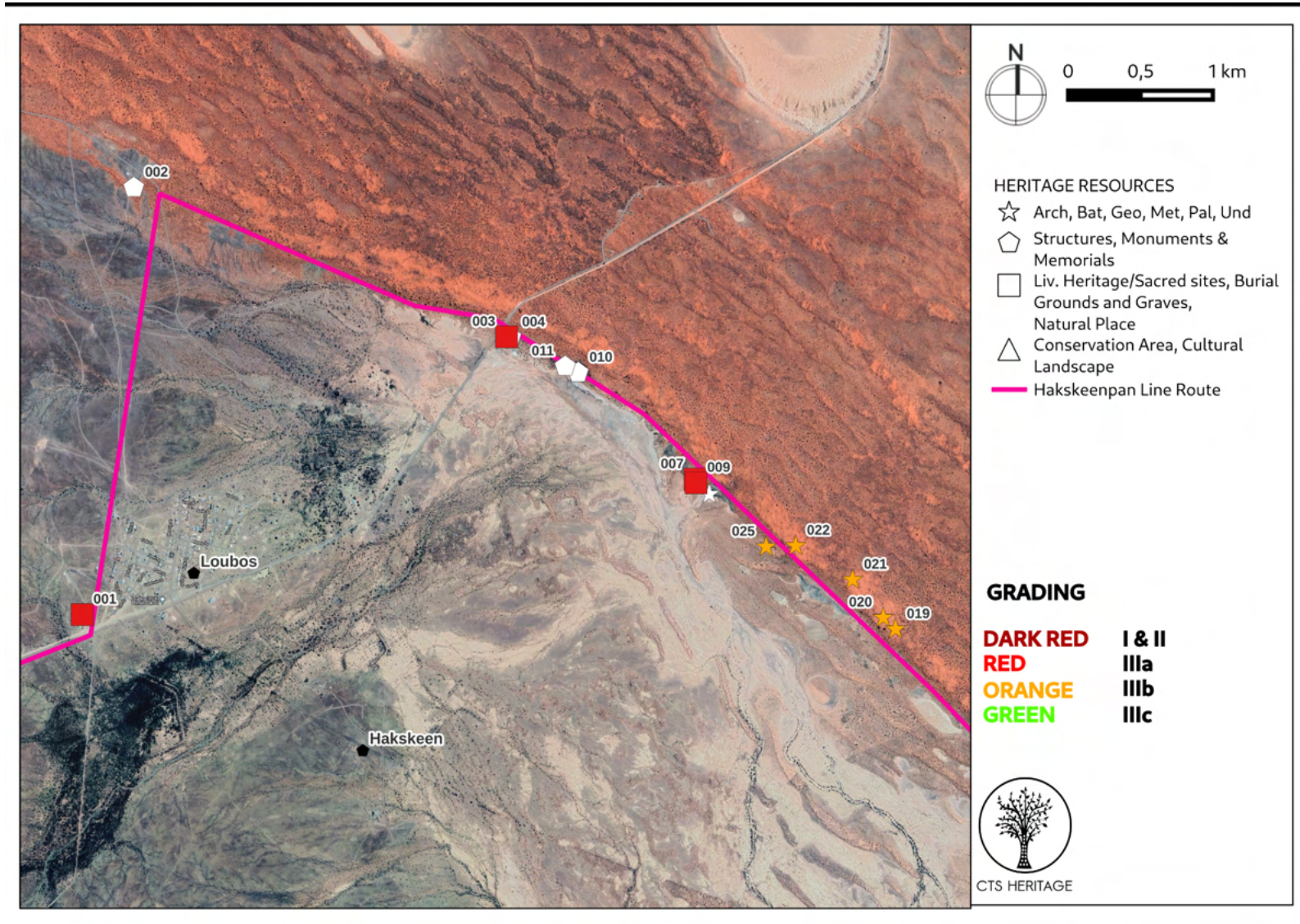


Figure 6.2: Map of all sites and observations noted within the development area for Hakskeenpan



CTS HERITAGE

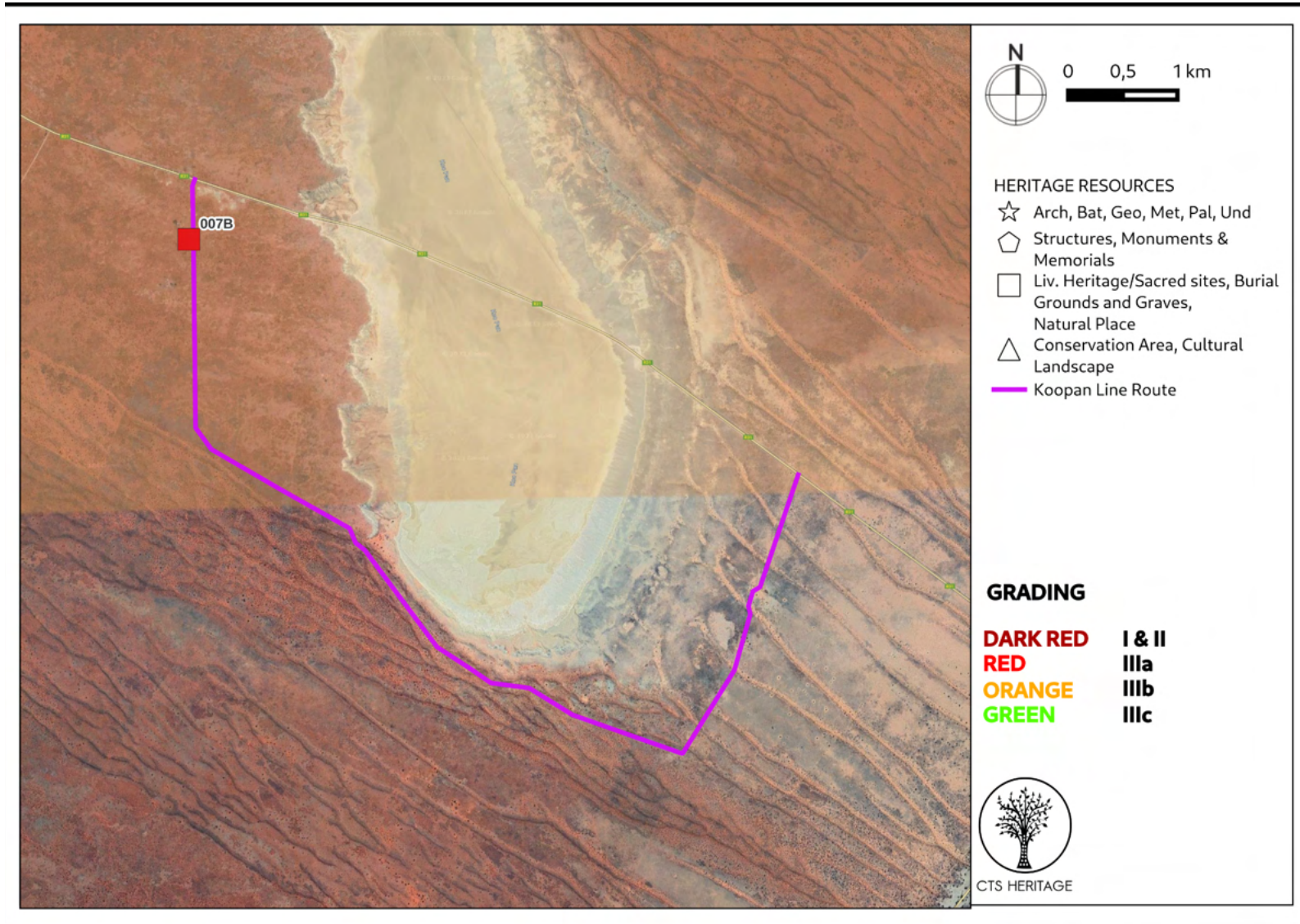


Figure 6.3: Map of all sites and observations noted within the development area for Koopan



CTS HERITAGE

### 4.3 Selected photographic record

(a full photographic record is available upon request)



Figure 7.1: Observation 002



Figure 7.2: Observation 003



Figure 7.3: Observation 004



Figure 7.4: Observation 007



Figure 7.5: Observation 008



Figure 7.6: Observation 009



CTS HERITAGE



Figure 7.7: Observation 010



Figure 7.8: Observation 011



Figure 7.9: Observation 019



Figure 7.10: Observation 020



Figure 7.11: Observation 021



Figure 7.12: Observation 022



CTS HERITAGE



Figure 7.13: Observation 024

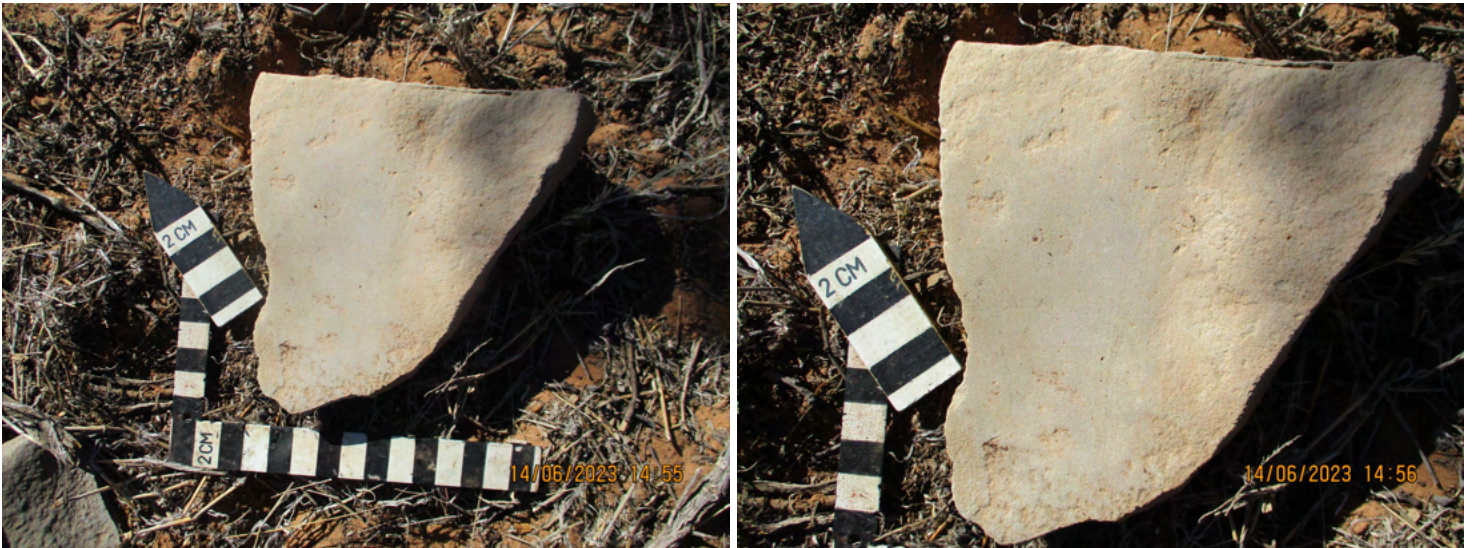


Figure 7.14: Observation 025



Figure 7.15: Observation 007B





CTS HERITAGE

## **5. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT**

### **5.1 Assessment of impact to Archaeological Resources**

The proposed grid alignments run through the identified heritage resources of significance. However, the pylon footings are located approximately 100m apart and as such, impacts to significant archaeology can be avoided. It is recommended that a no development buffer of 50m is implemented around the identified LSA sites (Sites 019, 020, 021, 022 and 025). It must be noted that the identified sites reflect a fraction of the sites that are likely to be present here. As such, the proposed alignment can proceed on condition that an archaeological walkdown of the final alignment is completed before construction takes place to allow for micro-siting of pylon placements to ensure that no impact takes place or, if impact cannot be avoided, then to proceed with archaeological mitigation work.

The field assessment also revealed a number of burials located within the grid corridor, or in close proximity thereto. In order to retain the sense of place associated with the final resting place of these burials, it is recommended that a no development buffer of 100m is implemented around these sites. The overhead lines can traverse these buffers but no pylon footings may be constructed within this buffer area.



CTS HERITAGE

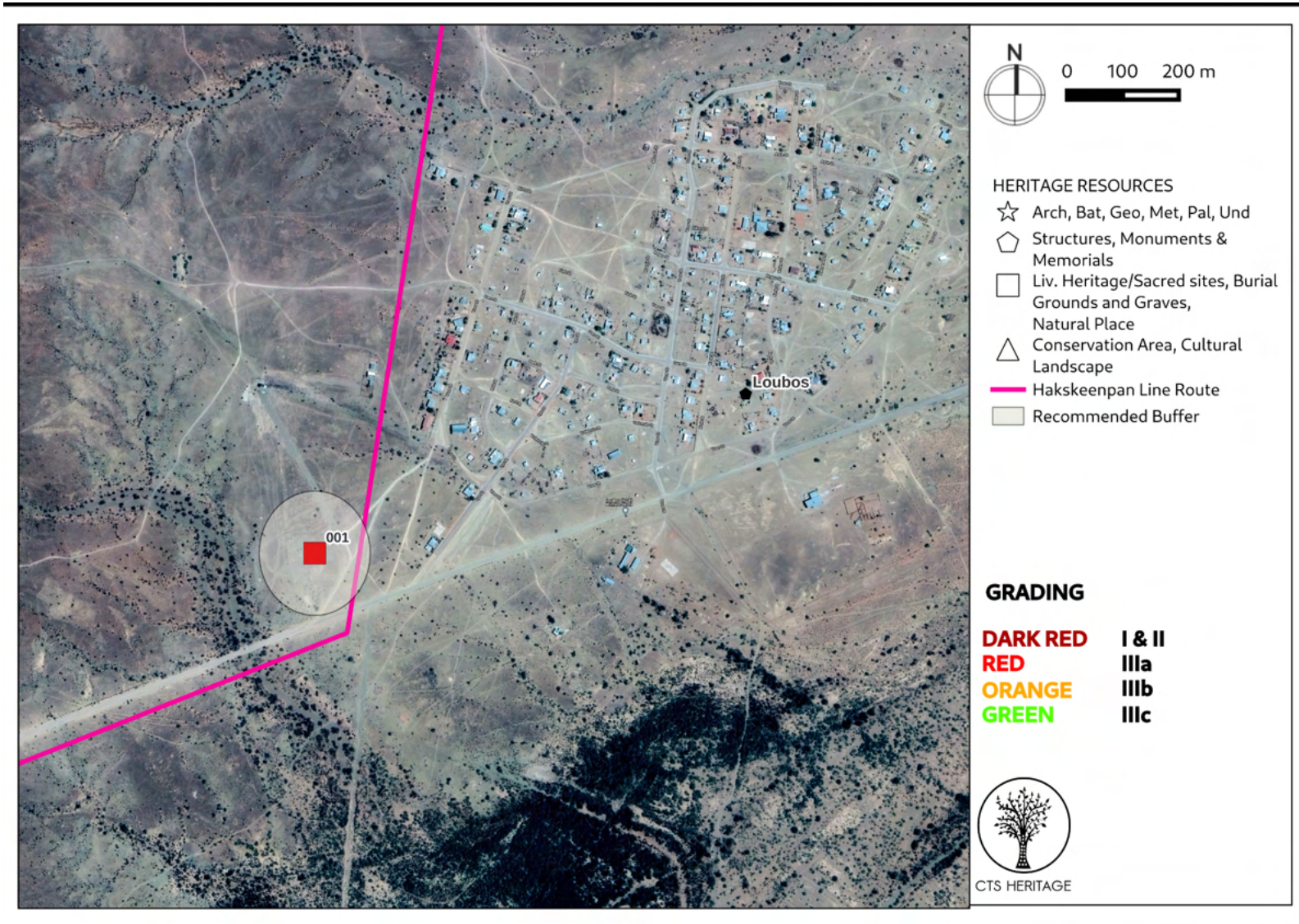


Figure 8.1: Map of sites and observations noted within the development area with recommended mitigation measures at Loubos



CTS HERITAGE

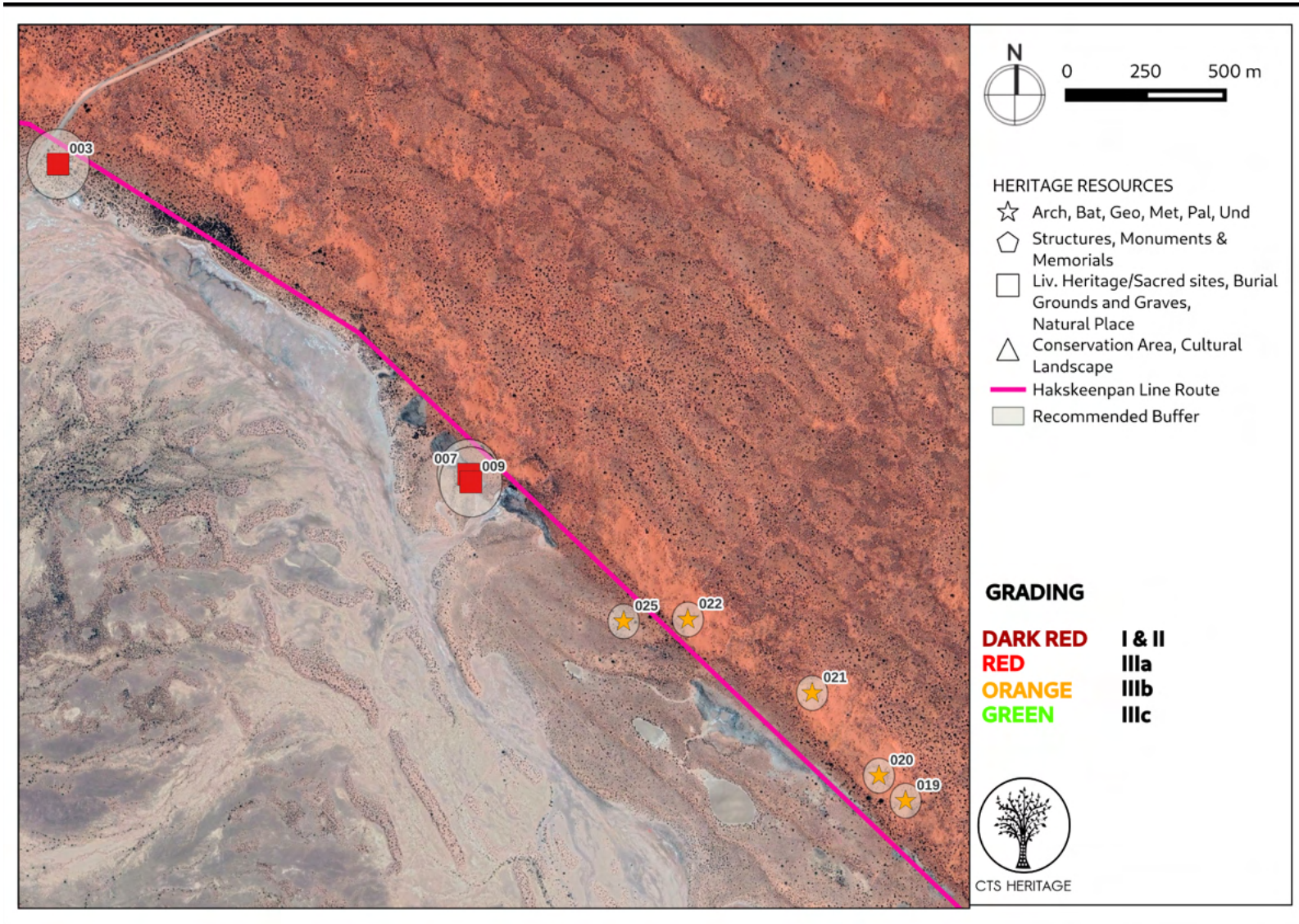


Figure 8.2: Map of sites and observations noted within the development area with recommended mitigation measures at Hakskeenpan



CTS HERITAGE

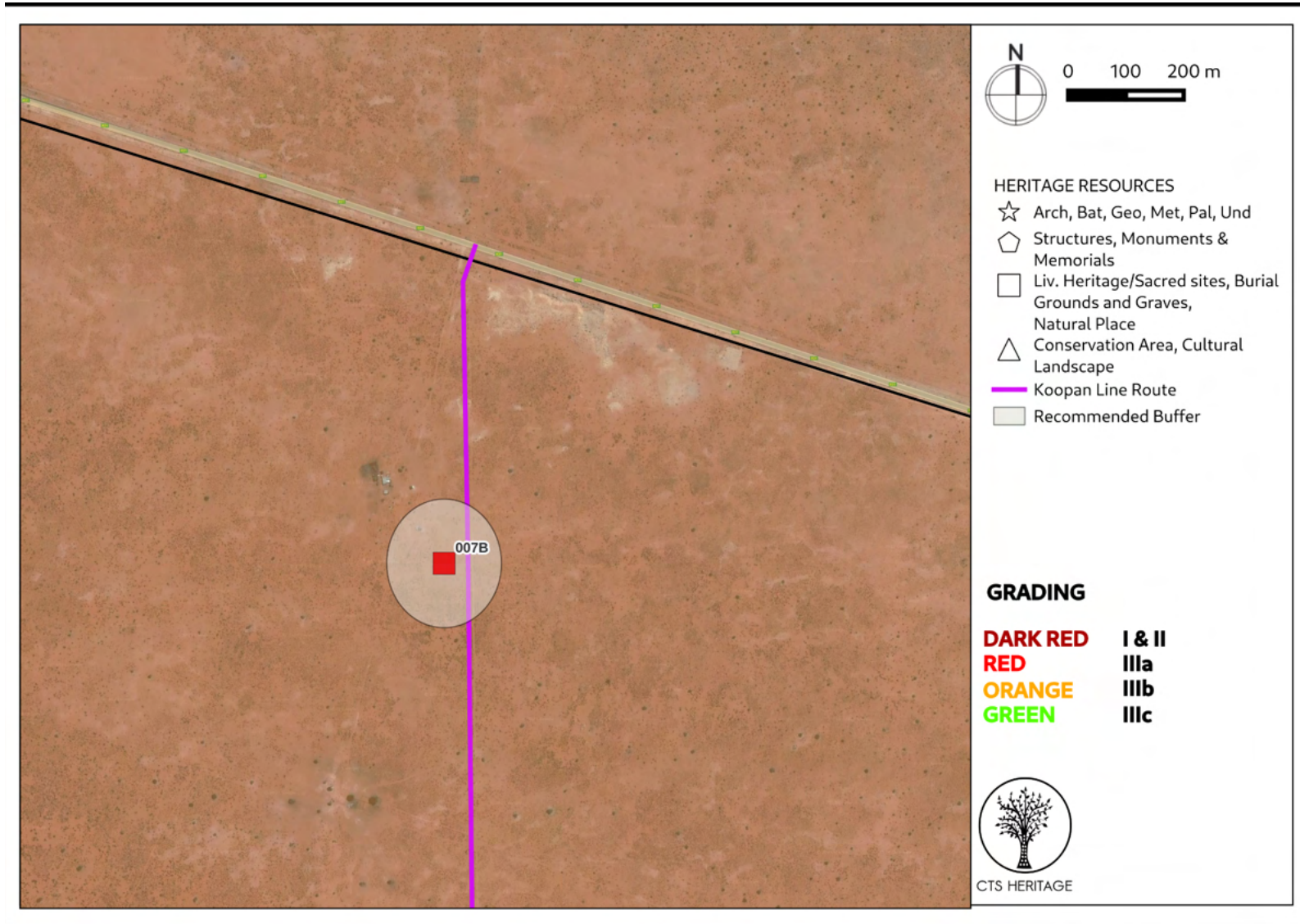


Figure 8.3: Map of all sites and observations noted within the development area with recommended mitigation measures at Koopan



CTS HERITAGE

## 6. CONCLUSION AND RECOMMENDATIONS

The survey proceeded with limited constraints and limitations, and the project area was comprehensively surveyed for heritage resources. Some significant archaeological resources were identified along the apex of the dune field and as such, this area must be considered to be very sensitive. In addition, a number of burials were identified within the proposed grid corridor. Appropriate mitigation measures are presented in Table 1 above in this regard.

On condition that the mitigation measures outlined below are implemented, there is no objection to the proposed development from an archaeological perspective.

### ***Recommendations***

Based on the outcomes of this report, it is not anticipated that the proposed development of the grid alignment will negatively impact on significant archaeological heritage on condition that:

- The mitigation measures detailed in Table 1 and mapped in Figures 8.1, 8.2 and 8.3 are implemented
- The final pylon placements are subjected to a walkdown by an archaeologist prior to construction to microsite the footings so that significant archaeological resources are not negatively impacted
- 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.



CTS HERITAGE

## 7. REFERENCES

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
109862	HIA Phase 1	Renee Rust, Liezl van Pletzen-Vos	01/01/2013	Heritage Impact Assessment Report Proposed residential development of 100 erven and associated infrastructure on Portion 1 of Farm No 139, Gordonia Road, Mier Municipality, Northern Cape Province.
110518	HIA Phase 1	Jan Engelbrecht	15/02/2013	Phase 1 Heritage Impact Assessment Report: Proposed Development for Low Cost Housing Mier Local Municipality, Siyanda District Municipality, Northern Cape Province, South Africa
110893	Heritage Scoping	Liezl van Pletzen-Vos, Renee Rust	01/01/2013	Preliminary Heritage Impact Assessment Report Proposed Low Income Housing Project Rietfontein, Remainder Farm No. 585, Gordonia Road, Groot Mier Municipality, Northern Cape
110893	Heritage Scoping	Liezl van Pletzen-Vos, Renee Rust	01/01/2013	Preliminary Heritage Impact Assessment Report Proposed Low Income Housing Project Rietfontein, Remainder Farm No. 585, Gordonia Road, Groot Mier Municipality, Northern Cape
118716	HIA Phase 1	Liezl van Pletzen-Vos, Renee Rust	22/04/2013	Heritage Impact Assessment Report: Proposed Low Income Housing Project Rietfontein, Remainder Farm No. 585, Gordonia Road, Groot Mier Municipality, Northern Cape.
185632	AIA Phase 1	Jan Engelbrecht	12/11/2014	Archaeological Impact Assessment for the proposed upgrading of the Rietfontein Oxidation Ponds near Rietfontein in the Northern Cape Province
281878	AIA Phase 1	Jan Engelbrecht	06/04/2015	Archaeological Impact Assessment for the proposed Construction of Oxidation Ponds near Askham in the Northern Cape Province
386702				
4108	AIA Phase 1	Cobus Dreyer	12/09/2007	First Phase Archaeological and Cultural Heritage Assessment of Borrow Pit R Along the Proposed R87 Road Between Rietfontein & Groot Mier, Gordonia District, Northern Cape
4137	AIA Phase 1	Peter Beaumont	25/08/2006	Phase 1 Heritage Impact Assessment Report on a Planned Kalahari Tourism Facility on the Farm Dreghorn 145 near Askam, Siyanda District Municipality, Northern Cape
4750	AIA Phase 1	Cobus Dreyer	12/12/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Borrow Pits Sites on the Kgalagadi Access Road Between Askham & Twee Rivieren, Northern Cape

# FIELD NOTES

## Phase 1 Archaeological Impact Assessment

### Site ID: Proposed Eskom powerline diversion near Rietfontein, Haakskeenpan and Loubos in the Northern Cape Province.

Phase 1 survey conducted			
CRM Archaeologist	Jan Engelbrecht	Date/s	2023-06-13 – 2023-06-14
Additional surveyors	None		
Type of survey	Pedestrian and Vehicular	Transects	Where accessible
Technical equipment	GPS Garmin Etrex 10 and Locus Maps	Camera	Canon Ixus

### PROJECT PARTICULARS

#### Technical information

Project description	
Project name	Proposed Rietfontein Eskom Powerline Diversion at Loubos/Hakskeenpan area in the Northern Cape Province
Description	Eskom Powerline Diversion within a corridor.
Developer	
Eskom Holdings SOC Ltd	
Contact information	Mobile: 082 482 7579 Email: <a href="mailto:vGenseAL@eskom.co.za">vGenseAL@eskom.co.za</a>
Development type	Power Line
Landowner	
Dawid Kruiper Local Municipality and Private owned land	
Contact information	Dawid Kruiper Local Municipality: 054-338 7000 Mr D Smith: 083 328 2111 Mr C Gilbert: 071 866 3648 Mr E Du Plessis: 071 884 3223 Email: <a href="mailto:eliasduplessis@gmail.com">eliasduplessis@gmail.com</a> Mr E Gilbert: 063 203 3147 Email: <a href="mailto:awiegilbert22@gmail.com">awiegilbert22@gmail.com</a>
Consultants	
Environmental	Enviroworks
Heritage and archaeological	UBIQUE Heritage Consultants and CTS Heritage
Paleontological	CTS Heritage
Property details	
Province	Northern Cape
District municipality	Z.F. MgCawu
Local municipality	Dawid Kruiper
Topo-cadastral map	1:50 000

Farm name	Remaining Extent of Mier Farm No. 585 Portion 100 of Mier Farm No. 585 Portion 103 of Mier Farm No. 585 Portion 105 of Mier Farm No. 585 Portion 106 of Mier Farm No. 585
Closest town	Rietfontein
GPS Co-ordinates	26° 44' 28" S 20° 04' 57" E
Property size	Remaining Extent of Mier Farm No. 585: 47434ha Portion 100 of Mier Farm No. 585: 2412ha Portion 103 of Mier Farm No. 585: 1706ha Portion 105 of Mier Farm No. 585: 1189ha Portion 106 of Mier Farm No. 585 : 1518ha
Development footprint size	Approximately 400ha
<b>Land use</b>	
Previous	Agriculture
Current	Agricultural
Rezoning required	No
Sub-division of land	No
<b>Development criteria in terms of Section 38(1) NHRA</b>	
	Yes/No
Construction of a road, wall, power line, pipeline, canal or other linear forms of development or barrier exceeding 300m in length.	Yes
Construction of bridge or similar structure exceeding 50m in length.	No
Construction exceeding 5000m <sup>2</sup> .	Yes
Development involving three or more existing erven or subdivisions.	No
Development involving three or more erven or divisions that have been consolidated within the past five years.	No
Rezoning of site exceeding 10 000m <sup>2</sup> .	No
Any other development category, public open space, squares, parks, recreation grounds.	No

## GENERAL ENVIRONMENT, INFRASTRUCTURE AND LANDSCAPE

### Site description

<b>Description of the general area affected by development</b>	
<b>Type of environment</b>	
Kalahari klipveld combined with duneveld and flat sandy pans or pans/plains. Dry riverbeds are crossing the corridor at several places, especially along the gravel road towards Loubos and towards the northeast from Loubos. The edge of some parts of Hakskeenpan is in quite close proximity of the corridor. Within the corridor a reef of sedimentary rock is present, consisting of sandstone outcrops and banks. These outcrops are especially present along the northeastern shore of Hakskeenpan and the adjacent duneveld. The area from the R31 main road towards the first farm at Loubos is mostly klipveld consisting of flat plains with some scattered waterways and high grounds at certain areas.	
<b>Terrain description</b>	
The R31 main road towards Rietfontein is a prominent landmark and the site can also be entered from this road. Loubos settlement is located within the area of interest and the corridor runs through klipveld as well as duneveld. The Hakskeenpan is another landmark and it forms a southern boundary of a large part of the corridor. Certain parts are Savanna type field with scattered trees and grass fields. The corridor includes high dunes from north west to south east along Hakskeenpan and could make construction difficult.	



Geology	
The geology observed on the ground surface throughout the survey was as follows:	
<ul style="list-style-type: none"> <li>• Calcrete/Limestone</li> <li>• A few Dolomite outcrops</li> <li>• Crypto-crystalline silicates (CCS)</li> <li>• Quartz (minimal)</li> <li>• Sedimentary sandstone</li> <li>• Shale</li> <li>• Dolerite (minimal)</li> <li>• Quartzite</li> <li>• Granite</li> </ul>	
Vegetation	
Dominant (Prime) vegetation:	
<ul style="list-style-type: none"> <li>• Black Thorn Acacia/Swarthaak (<i>Acacia mellifera</i>)</li> <li>• Camelthorn Tree/Kameeldoringboom (<i>Acacia erioloba</i>)</li> <li>• Grey Camelthorn Tree/Vaalkameeldoringboom (<i>Acacia haematoxylon</i>)</li> <li>• Campher Bush (<i>Tarchonanthus camphorates</i>)</li> <li>• Tall Bushmangrass/Lanbeen Boesmangras (<i>Stipagrostis ciliate</i>)</li> <li>• Silky Bushmangrass/Blinkblaar Boesmangras (<i>Stipagrostis uniplumis</i>)</li> <li>• Branched needlegrass/Berggras (<i>Triraphis ramosissima</i>)</li> <li>• Krulblaargras (<i>Eragrostis biflora</i>)</li> <li>• Driedoring/Three thorn bush (<i>Rhigozum trichotomum</i>)</li> <li>• Aloe (<i>Aloe argenteicauda</i>)</li> <li>• Witgat/Sheperds Tree (<i>Boscia albitrunca</i>)</li> <li>• Stinkbush (<i>Boscia foetida</i>)</li> <li>• Horn Shrub (<i>Cryptolepis deciduas</i>)</li> <li>• Ridge grass (<i>Stipagrostis amabilis</i>)</li> </ul>	
Waterways/sources	
Several natural dry riverines crosses the corridor, especially along the gravel road towards Loubos and from Loubos to the duneveld. Hakskeenpan is non-perennial and only fills up with water after heavy rains.	
Site boundaries	
<b>North:</b> Neighbouring farmland/agricultural land duneveld and klipveld combined.. <b>South:</b> Neighbouring farmland/agricultural land, Hakskeenpan and the R31 main road.. <b>East:</b> Neighbouring farmland/agricultural land. Duneveld. <b>West:</b> Neighbouring farmland/agricultural land and parts of Hakskeenpan.	
Site Access	GPS Co-ordinates
From the R31 Main road (West)	26° 44' 28" S 20° 04' 57" E
From the R31 Main road (East)	26° 44' 53" S 20° 12' 11" E
From the Simonspan gravel road	26° 41' 44" S 20° 08' 09" E
Disturbances	
Natural erosion	<ul style="list-style-type: none"> <li>• Trenches caused by heavy previous heavy rains at several places.</li> <li>• Water erosion on the edge of salty pans such as Hakskeenpan.</li> <li>• Dry riverbeds flowing through the corridor footprint.</li> <li>• Wind erosion at some dunes.</li> </ul>
Human-made	<ul style="list-style-type: none"> <li>• Two-track roads within the corridor footprint.</li> <li>• Water erosion due to overgrazing at certain places.</li> </ul>

Notes
The corridor footprint is quite densely infested by vegetation at certain areas. The terrain was quite difficult in the duneveld and foot surveys were done at the accessible areas. Visibility was very good at most parts of the corridor footprint.

Environmental recording

Way point	Photo number	Description	Location
Site-specific points of interest/ natural significance			
Waypoint 002	009-018	Farm settlement with houses and livestock kraals	26° 41' 14" S 20° 06' 36" E
Waypoint 004	025-027	Gilbert farm house	26° 41' 47" S 20° 08' 11" E
Waypoint 005	028-039	Photo/Image point 1. Contextual images taken towards various directions. Random panorama view.	26° 42' 06" S 20° 08' 42" E
Waypoint 006	040-054	Photo/Image point 2. Contextual images taken towards various directions. Random panorama view.	26° 41' 14" S 20° 06' 36" E
Waypoint 010	066-067	Workers house.	26° 41' 55" S 20° 08' 28" E
Waypoint 011	068-071	Livestock kraal	26° 41' 54" S 20° 08' 24" E
Waypoint 012	072-084	Photo/Image point 3. Contextual images taken towards various directions. Random panorama view.	26° 41' 48" S 20° 08' 18" E
Waypoint 013	085-107	Photo/Image point 4. Contextual images taken towards various directions. Random panorama view.	26° 43' 29" S 20° 10' 20" E
Waypoint 014	108-121	Photo/Image point 5. Contextual images taken towards various directions. Random panorama view.	26° 43' 12" S 20° 10' 01" E
Waypoint 015	122-136	Photo/Image point 6. Contextual images taken towards various directions. Random panorama view.	26° 44' 51" S 20° 12' 15" E
Waypoint 016	137-146	Photo/Image point 7. Contextual images taken towards various directions. Random panorama view.	26° 44' 52" S 20° 12' 10" E
Waypoint 017	147-161	Photo/Image point 8. Contextual images taken towards various directions. Random panorama view.	26° 44' 54" S 20° 11' 59" E
Waypoint 018	162-175	Photo/Image point 9. Contextual images taken towards various directions. Random panorama view.	26° 43' 10" S 20° 10' 05" E

Waypoint 023	240-254	Photo/Image point 10. Contextual images taken towards various directions. Random panorama view.	<b>26° 42' 24" S 20° 09' 10" E</b>
Waypoint 024	Cellphone images	Various geological formations within, or in close proximity of the development footprint	<b>26° 42' 22" S 20° 09' 01" E</b>
Waypoint 026	258-268	Photo/Image point 11. Contextual images taken towards various directions. Random panorama view.	<b>26° 43' 08" S 20° 09' 54" E</b>
Waypoint 027	269-277	Photo/Image point 12. Contextual images taken towards various directions. Random panorama view.	<b>26° 41' 40" S 20° 06' 37" E</b>
Waypoint 028	278-287	Photo/Image point 13. Contextual images taken towards various directions. Random panorama view.	<b>26° 42' 38" S 20° 06' 23" E</b>
Waypoint 029	289-298	Photo/Image point 14. Contextual images taken towards various directions. Random panorama view.	<b>26° 43' 06" S 20° 05' 50" E</b>
Waypoint 030	299-309	Photo/Image point 15. Contextual images taken towards various directions. Random panorama view.	<b>26° 43' 47" S 20° 04' 38" E</b>

## HERITAGE RESOURCES RECORDING

### Stone Age Resources Identified

Point ID & Site #	Photo #	Description	Period	Location	Field rating/ Significance/ Recommended Mitigation	
Waypoint 019	176-193	Type lithic/s	LSA	<b>26° 42' 52" S 20° 09' 47" E</b>	Field Rating III B  Medium significance  Resources must be protected where possible. It must be fully researched, documented and mitigated if not possible.	
		Raw material				Flakes,grinders, scrapers, chips, points, cores, hammer and chunks.
		N in m <sup>2</sup> .				Sandstone, CCS, Quartz, Dolorite, Quartzite.
		Context				5-10/m <sup>2</sup>
		Additional				Knapping site
		Located on a clear dune, almost on the dune apex. Approximately 2ha. Scatterd LSA debris all over site.				
Waypoint 020	194-208	Type lithic/s	LSA	<b>26° 42' 50" S 20° 09' 44" E</b>	Field Rating III B  Medium to high significance  Resources must be protected where possible. It must be fully researched, documented and mitigated if not possible.	
		Raw material				Flakes, grinders, chunks, points and chips.
		N in m <sup>2</sup> .				Sandstone, CCS, Quartz, Dolorite, Quartzite.
		Context				5-10/m <sup>2</sup>
		Additional				Knapping site
		Located on a clear dune, almost on the dune apex. Approximately 1ha. Scatterd LSA debris all over site. Probably and extension of the site at Waypoint 019.				

Waypoint 021	209-218	Type lithic/s	Flakes OES, grinders, local ceramics/pottery chunks, points and chips.	LSA	<b>26° 42' 41" S 20° 09' 36" E</b>	Field Rating III B  Medium to high significance  Resources must be protected where possible. It must be fully researched, documented and mitigated if not possible.
		Raw material	Sandstone, CCS, Quartz, Dolorite, Quartzite.			
		N in m <sup>2</sup> .	5-10/m <sup>2</sup>			
		Context	Knapping site			
		Additional	Located on a clear dune, almost on the dune apex. Approximately 3ha. Scatterd LSA debris all over site. Probably and extension of the site at Waypoint 020.			
Waypoint 022	219-239	Type lithics	Flakes, grinders, chunks, cores points and chips.	LSA	<b>26° 42' 41" S 20° 09' 36" E</b>	Field Rating III B  Medium to high significance  Resources must be protected where possible. It must be fully researched, documented and mitigated if not possible.
		Raw material	Sandstone, CCS, Quartz, Dolorite, Quartzite.			
		N in m <sup>2</sup> .	5-10/m <sup>2</sup>			
		Context	Knapping site			
		Additional	Located on a clear dune, almost on the dune apex. Approximately 1ha. Scatterd LSA debris all over site. Probably and extension of the site at Waypoint 021.			
Waypoint 025	255-257	Type lithics	Lower grinder and scattered LSA debris.	LSA	<b>26° 42' 34" S 20° 09' 15" E</b>	Field Rating III B  Medium to high significance  Resources must be protected where possible. It must be fully researched, documented and mitigated if not possible.
		Raw material	Sandstone, CCS, Quartz, Dolorite, Quartzite.			
		N in m <sup>2</sup> .	1/10m <sup>2</sup>			
		Context	Grinding/Food preparation site			
		Additional	Small LSA site located on the foot of a dune, almost in the field underneath a large Camelthorn tree. Approximately 50m <sup>3</sup> . Scatterd LSA debris all over site.			

## HERITAGE RESOURCES RECORDING

### Historical Period Resources Identified

Way Point ID & Site #	Photo #	Description	Period	Location	Field rating/ Significance/ Recommended Mitigation
N/A	N/A	Type of feature Material N in m <sup>2</sup> . Context Additional	None	N/A	N/A

### Iron Age Resources Identified

Point ID & Site #	Photo #	Period	Location	Field rating/ Significance/ Recommended Mitigation
None	None	None	None	None

### Graves Identified

Point/ID	Descriptions	Photo Number	Period	Location	Field Rating	
Waypoint 001	Grave markers Inscription Graves' Orientation Dimensions/ Extent Additional	Loubos Municipal Cemetery	001-008	1900's to current	26° 42' 49" S 20° 06' 24" E	Field Rating of Local Grade IIIB High/medium significance Mitigation Required:

Waypoint 003	<b>Grave markers</b>	Marked graves "Gilbert family graves	019-024	Ca. 1900 to 1950	<b>26° 41' 47" S 20° 08' 10" E</b>	Field Rating of Local Grade IIIB High/medium significance Mitigation Required:
	<b>Inscription</b>	Yes: Gilbert family				
	<b>Graves' Orientation</b>	East-west				
	<b>Dimensions/ Extent</b>	Approximately 1,2m x 2m graves. A total of 2 graves were identified at this point.				
	<b>Additional</b>	Dated 1940 to 2011, thus a recent grave. Graves located within the fenced off yard of the farm house.				
Waypoint 007	<b>Grave markers</b>	None. Unmarked suspect grave	055-058	Unknown	<b>26° 42' 19" S 20° 08' 57" E</b>	Field Rating of Local Grade IIIB High/medium significance Mitigation Required: Fencing required. Buffer zone No-Go zone of 20m radius around the grave.
	<b>Inscription</b>	None				
	<b>Graves' Orientation</b>	East-West				
	<b>Dimensions/ Extent</b>	1,5m x 1,8m				
	<b>Additional</b>	Suspect/possible grave				
Waypoint 008	<b>Grave markers</b>	None. Unmarked suspect grave	059-062	Unknown	<b>26° 42' 19" S 20° 08' 56" E</b>	Field Rating of Local Grade IIIB High/medium significance Mitigation Required: Fencing required. Buffer zone No-Go zone of 20m radius around the grave.
	<b>Inscription</b>	None				
	<b>Graves' Orientation</b>	East-West				
	<b>Dimensions/ Extent</b>	1,5m x 1,8m				
	<b>Additional</b>	Suspect/possible grave				

Waypoint 009	<b>Grave markers</b>	None. Unmarked suspect grave	063-065	Unknown	<b>26° 42' 20" S 20° 08' 57" E</b>	Field Rating of Local Grade IIIB High/medium significance Mitigation Required: Fencing required. Buffer zone No-Go zone of 20m radius around the grave.
	<b>Inscription</b>	None				
	<b>Graves' Orientation</b>	East-West				
	<b>Dimensions/ Extent</b>	1,5m x 1,8m				
	<b>Additional</b>	Suspect/possible grave				

### HERITAGE RESOURCES RECORDING

Intangible Heritage Resources/ Cultural Landscape Identified

Point ID & Site #	Photo #	Description	Period	Location	Field rating/ Significance/ Recommended Mitigation						
N/A	N/A	<table border="1"> <tr><td>Nature</td></tr> <tr><td>Cultural evidence</td></tr> <tr><td>Access</td></tr> <tr><td>Affected community</td></tr> <tr><td>Additional</td></tr> </table>	Nature	Cultural evidence	Access	Affected community	Additional	None	N/A	N/A	N/A
Nature											
Cultural evidence											
Access											
Affected community											
Additional											

### IDENTIFIED HERITAGE RESOURCES DISCUSSION

Specialist comments

<b>Stone Age finds</b>
The LSA sites recorded are mostly on the apex of a dune range. It is highly possible that the identified Stone Age sites are probably related and linked into a network of sites. These sites were probably used multiple times through the ages, depending on the season and availability of resources such as water. The Hakskeenpan still is a major source of water during the raining seasons.
<b>Iron Age/ Agri-pastoralist Early Farming communities finds</b>
No evidence that IA is located on the sites.
<b>Historical finds</b>
No evidence that historical period remnants are located on the sites.
<b>Identified graves</b>
A total of 2 graves were identified. A total of 3 suspect graves were identified within the corridor site footprint.
<b>Intangible Heritage/ Cultural Landscape</b>



None located
Other
N/A

## IDENTIFIED HERITAGE RESOURCES MITIGATION

Specialist recommendations

<b>Stone Age finds</b>
Stone Age sites should be mitigated and added to heritage or provincial registers. We recommend that the proposed development need to avoid all dunes, especially the apex of dune ranges. All dunes are archaeological sensitive..
<b>Iron Age/ Agri-pastoralist Early Farming communities finds</b>
None. Project may continue.
<b>Historical finds</b>
None. Project may continue.
<b>Identified graves</b>
Graves identified should be mitigated. Therefore, we recommend a 20 m safety buffer zone around all gravesites. Graves are a no-go zone. Farm owner must confirm suspect graves if possible and fence off the graves accordingly.
<b>Intangible Heritage/ Cultural Landscape</b>
No mitigation, the project may continue.
<b>Other</b>
<b>None</b>

## ADDITIONAL NOTES AND RESOURCES

Attached Field Data

Filename	File type	Description
Images Hakskeenpan-Loubos Folder 1	Folder	Photographic images of sites and AIA
Images Hakskeenpan-Loubos Folder 2	Folder	Photographic images of sites and AIA
Cell Images Hakskeenpan-Loubos	Folder	Photographic images of sites and AIA
Tracks and Waypoints 13 to 14 June 2023 Hakskeenpan/Loubos	GPX Files	Mapping data

<b>Additional Notes</b>
None



**UBIQUE**  
HERITAGE CONSULTANTS

**JAN ENGELBRECHT**  
ARCHAEOLOGIST  
HERITAGE SPECIALIST

082 845 6276  
jan@ubiquecrm.com  
@ubiquecrm  
ubiqueheritage

[www.ubiquecrm.com](http://www.ubiquecrm.com)

**Declaration of independence:**

I, Jan Engelbrecht, hereby confirm my independence as a heritage specialist and declare that:

- I am suitably qualified and accredited to act as an independent specialist in this application;
- I do not have any vested interests (either business, financial, personal or other) in the proposed development project other than remuneration for the heritage assessment and heritage management services performed;
- The work was conducted objectively and ethically, in accordance with a professional code of conduct and within the framework of South African heritage legislation.

  
Signed:  
JAC. Engelbrecht  
Heritage Consultants

Date: 2023-06-21  
UBIQUE

# FIELD NOTES

## Phase 1 Archaeological Impact Assessment

### Site ID: Proposed Eskom powerline diversion near Koopan-South in the Northern Cape Province.

Phase 1 survey conducted			
CRM Archaeologist	Jan Engelbrecht	Date/s	2023-06-15
Additional surveyors	None		
Type of survey	Pedestrian and Vehicular	Transects	Where accessible
Technical equipment	GPS Garmin Etrex 10 and Locus Maps	Camera	Canon Ixus

### PROJECT PARTICULARS

#### Technical information

Project description	
Project name	Proposed Rietfontein Eskom Power line Diversion at Koopan-South area in the Northern Cape Province
Description	Eskom Power line Diversion within a corridor.
Developer	
Eskom Holdings SOC Ltd	
Contact information	Mobile: 082 482 7579 Email: <a href="mailto:vGenseAL@eskom.co.za">vGenseAL@eskom.co.za</a>
Development type	Power Line
Landowner	
Mr Collin Louw	
Contact information	Cell: 071 284 4967
Consultants	
Environmental	Enviroworks
Heritage and archaeological	UBIQUE Heritage Consultants and CTS Heritage
Paleontological	CTS Heritage
Property details	
Province	Northern Cape
District municipality	Z.F. MgCawu
Local municipality	Dawid Kruiper
Topo-cadastral map	1:50 000

Farm name	Portion 2 of Uitkoms Farm No. 136	
Closest town	Askham	
GPS Co-ordinates	26° 55' 10" S 20° 37' 30" E	
Property size	Portion 2 of Uitkoms Farm No. 136: 5208ha	
Development footprint size	Approximately 200ha	
<b>Land use</b>		
Previous	Agriculture	
Current	Agricultural	
Rezoning required	No	
Sub-division of land	No	
<b>Development criteria in terms of Section 38(1) NHRA</b>		<b>Yes/No</b>
Construction of a road, wall, power line, pipeline, canal or other linear forms of development or barrier exceeding 300m in length.		Yes
Construction of bridge or similar structure exceeding 50m in length.		No
Construction exceeding 5000m <sup>2</sup> .		Yes
Development involving three or more existing erven or subdivisions.		No
Development involving three or more erven or divisions that have been consolidated within the past five years.		No
Rezoning of site exceeding 10 000m <sup>2</sup> .		No
Any other development category, public open space, squares, parks, recreation grounds.		No

## GENERAL ENVIRONMENT, INFRASTRUCTURE AND LANDSCAPE

### Site description

<b>Description of the general area affected by development</b>	
<b>Type of environment</b>	
Kalahari klipveld combined with duneveld and flat sandy plains. Koopan-South is located just to the NNW of the corridor footprint. The corridor is located on private owned farmland.	
<b>Terrain description</b>	
Flat sandy plains with alternate dunes crossing the proposed development footprint. Minimal klipveld. The site is located on the Plato SSW of Koopan-South. Certain areas are densely vegetated and scattered trees are present throughout the site. Typical Kalahari/Savannah type field and vegetation.	
<b>Geology</b>	
The geology observed on the ground surface throughout the survey was as follows: <ul style="list-style-type: none"> <li>• Calcrete/Limestone</li> <li>• Sedimentary sandstone</li> <li>• Shale</li> <li>• Quartz</li> <li>• CCS</li> </ul>	

Vegetation	
Dominant (Prime) vegetation: <ul style="list-style-type: none"> <li>• Black Thorn Acacia/Swarthaak (<i>Acacia mellifera</i>)</li> <li>• Camel thorn Tree/Kameeldoringboom (<i>Acacia erioloba</i>)</li> <li>• Grey Camel thorn Tree/Vaalkameeldoringboom (<i>Acacia haematoxylon</i>)</li> <li>• Camphor Bush (<i>Tarchonanthus camphorates</i>)</li> <li>• Tall Bushman grass/Lanbeen Boesmangras (<i>Stipagrostis ciliate</i>)</li> <li>• Silky Bushman grass/Blinkblaar Boesmangras (<i>Stipagrostis uniplumis</i>)</li> <li>• Krulblaargras (<i>Eragrostis biflora</i>)</li> <li>• Driedoring/Three thorn bush (<i>Rhigozum trichotomum</i>)</li> <li>• Witgat/Shepherds Tree (<i>Boscia albitrunca</i>)</li> <li>• Ridge grass (<i>Stipagrostis amabilis</i>)</li> </ul>	
Waterways/sources	
The only waterway clearly identified is Koopan-South. Non-perennial.	
Site boundaries	
<b>North:</b> Koopan-South and the R31 main road. <b>South:</b> Neighbouring farmland/agricultural land, Duneveld... <b>East:</b> Neighbouring farmland/agricultural land. Duneveld. <b>West:</b> Neighbouring farmland/agricultural land. Duneveld.	
Site Access	GPS Co-ordinates
From the R31 Main road (East)	26° 55' 10" S 20° 37' 30" E
From the R31 Main road (West)	26° 53' 36" S 20° 34' 10" E
From the R31 Main road (Central) via Koopan-South	26° 54' 23" S 20° 36' 30" E
Disturbances	
Natural erosion	<ul style="list-style-type: none"> <li>• Trenches caused by previous heavy rains at several places.</li> <li>• Water erosion on the edge of Koopan-South.</li> <li>• Wind erosion at some dunes.</li> </ul>
Human-made	<ul style="list-style-type: none"> <li>• Two-track roads within the corridor footprint.</li> <li>• Water and wind erosion due to overgrazing at certain places.</li> </ul>
Notes	
The corridor footprint is quite densely infested by vegetation at certain areas. The terrain was quite difficult in the duneveld and foot surveys were done at the accessible areas. Visibility was very good at most parts of the corridor footprint.	

Environmental recording

Way point	Photo number	Description	Location
Site-specific points of interest/ natural significance			
Waypoint 001	001-013	Photo/Image point 1. Contextual images taken towards various directions. Random panorama view.	26° 55' 17.6" S 20° 37' 26.4" E
Waypoint 002	014-043	Photo/Image point 2. Contextual images taken towards various directions. Random panorama view.	26° 56' 24.1" S 20° 36' 56.9" E
Waypoint 003	044-053	Photo/Image point 3. Contextual images taken towards various directions. Random panorama view.	26° 56' 13" S 20° 36' 14" E
Waypoint 004	054-069	Photo/Image point 4. Contextual images taken towards various directions. Random panorama view.	26° 56' 11.1" S 20° 36' 04.6" E
Waypoint 005	070-084	Photo/Image point 5. Contextual images taken towards various directions. Random panorama view.	26° 55' 17.7" S 20° 35' 02.7" E
Waypoint 006	085-1000	Photo/Image point 6. Contextual images taken towards various directions. Random panorama view.	26° 54' 41.1" S 20° 34' 14.2" E
Waypoint 008	107-113	Photo/Image point 7. Contextual images taken towards various directions. Random panorama view.	26° 53' 51.9" S 20° 35' 00.6" E
Waypoint 009	114-119	Photo/Image point 8. Contextual images taken towards various directions. Random panorama view.	26° 54' 02.7" S 20° 35' 08.3" E
Waypoint 010	120-129	Photo/Image point 9. Contextual images taken towards various directions. Random panorama view.	26° 55' 18.6" S 20° 37' 26.7" E
Waypoint 011	130-137	Photo/Image point 10. Contextual images taken towards various directions. Random panorama view.	26° 55' 21.5" S 20° 35' 15.4" E

## HERITAGE RESOURCES RECORDING

### Stone Age Resources Identified

Point ID & Site #	Photo #	Description	Period	Location	Field rating/ Significance/ Recommended Mitigation
N/A	N/A	Type lithic/s Raw material N in m <sup>2</sup> . Context Additional	None	N/A	N/A

## HERITAGE RESOURCES RECORDING

### Historical Period Resources Identified

Way Point ID & Site #	Photo #	Description	Period	Location	Field rating/ Significance/ Recommended Mitigation
N/A	N/A	Type of feature Material N in m <sup>2</sup> . Context Additional	None	N/A	N/A

### Iron Age Resources Identified

Point ID & Site #	Photo #	Period	Location	Field rating/ Significance/ Recommended Mitigation
None	None	None	None	None

Graves Identified

Point/ID	Descriptions		Photo Number	Period	Location	Field Rating
Waypoint 007	<b>Grave markers</b>	Marked grave with headstone	101-106	1946-2008	<b>26° 53' 53.7" S 20°34' 11.5" E</b>	Field Rating of Local Grade IIIB High/medium significance Mitigation Required:
	<b>Inscription</b>	Hendrik Vaalbooi. 1946-2008. Recent grave. Only one grave identified.				
	<b>Graves' Orientation</b>	East-West				
	<b>Dimensions/ Extent</b>	2m x 1,5m				
	<b>Additional</b>	Grave within the corridor footprint. Grave of the Vaalbooi family who lives in close proximity of the grave on the site.				

**HERITAGE RESOURCES RECORDING**

Intangible Heritage Resources/ Cultural Landscape Identified

Point ID & Site #	Photo #	Description	Period	Location	Field rating/ Significance/ Recommended Mitigation						
N/A	N/A	<table border="1"> <tr><td>Nature</td></tr> <tr><td>Cultural evidence</td></tr> <tr><td>Access</td></tr> <tr><td>Affected community</td></tr> <tr><td>Additional</td></tr> </table>	Nature	Cultural evidence	Access	Affected community	Additional	None	N/A	N/A	N/A
Nature											
Cultural evidence											
Access											
Affected community											
Additional											



## IDENTIFIED HERITAGE RESOURCES DISCUSSION

Specialist comments

Stone Age finds
No Stone Age resources identified or recorded.
Iron Age/ Agri-pastoralist Early Farming communities finds
No evidence that IA is located on the sites.
Historical finds
No evidence that historical period remnants are located on the sites.
Identified graves
A total of 1 grave was identified...
Intangible Heritage/ Cultural Landscape
None located
Other
N/A

## IDENTIFIED HERITAGE RESOURCES MITIGATION

Specialist recommendations

Stone Age finds
None. Project may continue.
Iron Age/ Agri-pastoralist Early Farming communities finds
None. Project may continue.
Historical finds
None. Project may continue.
Identified graves
Grave identified should be mitigated. Therefore, we recommend a 20 m safety buffer zone around all gravesites. Graves are a no-go zone. The identified grave is already fenced off and in close proximity of the farm house of the farm owner, Mrs. Vaalbooi.
Intangible Heritage/ Cultural Landscape
No mitigation, the project may continue.
Other
<b>None</b>

## ADDITIONAL NOTES AND RESOURCES

Attached Field Data

Filename	File type	Description
Images Koopan Suid CTS	Folder	Photographic images of sites and AIA
Cell Images Koopan	Folder	Photographic images of sites and AIA
	GPX Files	Mapping data

#### Additional Notes

Two cavities in the calcrete rock along the edges of Koopan were investigated for possible remnants of archaeological artefacts. These cavities resemble rock shelters. No archaeological material was identified inside the shelters. If archaeological material was present in the shelters, people have by this time removed it. Images of the shelters are included in the folder marked as "Cell Images Koopan" These shelters are not on the development footprint, but was worthy of investigating in interest of the regional archaeology.



**JAN ENGELBRECHT**  
ARCHAEOLOGIST  
HERITAGE SPECIALIST

082 845 6276  
jan@ubiquecrm.com  
@ubiquecrm  
ubiqueheritage

[www.ubiquecrm.com](http://www.ubiquecrm.com)

#### Declaration of independence:

I, Jan Engelbrecht, hereby confirm my independence as a heritage specialist and declare that:

- I am suitably qualified and accredited to act as an independent specialist in this application;
- I do not have any vested interests (either business, financial, personal or other) in the proposed development project other than remuneration for the heritage assessment and heritage management services performed;
- The work was conducted objectively and ethically, in accordance with a professional code of conduct and within the framework of South African heritage legislation.

  
Signed:  
**JAC. Engelbrecht**  
Heritage Consultants

Date: 2023-06-21  
**UBIQUE**



CTS HERITAGE

## APPENDIX 2: Chance Fossil Finds Procedure



## **CHANCE FINDS OF PALAEOLOGICAL MATERIAL**

*(Adopted from the HWC Chance Fossils Finds Procedure: June 2016)*

### **Introduction**

This document is aimed to inform workmen and foremen working on a construction and/or mining site. It describes the procedure to follow in instances of accidental discovery of palaeontological material (please see attached poster with descriptions of palaeontological material) during construction/mining activities. This protocol does not apply to resources already identified under an assessment undertaken under s. 38 of the National Heritage Resources Act (no 25 of 1999).

Fossils are rare and irreplaceable. Fossils tell us about the environmental conditions that existed in a specific geographical area millions of years ago. As heritage resources that inform us of the history of a place, fossils are public property that the State is required to manage and conserve on behalf of all the citizens of South Africa. Fossils are therefore protected by the National Heritage Resources Act and are the property of the State. Ideally, a qualified person should be responsible for the recovery of fossils noticed during construction/mining to ensure that all relevant contextual information is recorded.

Heritage Authorities often rely on workmen and foremen to report finds, and thereby contribute to our knowledge of South Africa's past and contribute to its conservation for future generations.

### **Training**

Workmen and foremen need to be trained in the procedure to follow in instances of accidental discovery of fossil material, in a similar way to the Health and Safety protocol. A brief introduction to the process to follow in the event of possible accidental discovery of fossils should be conducted by the designated Environmental Control Officer (ECO) for the project, or the foreman or site agent in the absence of the ECO.



### **Actions to be taken**

One person in the staff must be identified and appointed as responsible for the implementation of the attached protocol in instances of accidental fossil discovery and must report to the ECO or site agent. If the ECO or site agent is not present on site, then the responsible person on site should follow the protocol correctly in order to not jeopardize the conservation and well-being of the fossil material.

Once a workman notices possible fossil material, he/she should report this to the ECO or site agent. Procedure to follow if it is likely that the material identified is a fossil:

- The ECO or site agent must ensure that all work ceases immediately in the vicinity of the area where the fossil or fossils have been found;
- The ECO or site agent must inform SAHRA of the find immediately. This information must include photographs of the findings and GPS co-ordinates;
- The ECO or site agent must compile a Preliminary Report and fill in the attached Fossil Discoveries: Preliminary Record Form within 24 hours without removing the fossil from its original position. The Preliminary Report records basic information about the find including:
  - The date
  - A description of the discovery
  - A description of the fossil and its context (e.g. position and depth of find)
  - Where and how the find has been stored
  - Photographs to accompany the preliminary report (the more the better):
    - A scale must be used
    - Photos of location from several angles
    - Photos of vertical section should be provided
    - Digital images of hole showing vertical section (side);
    - Digital images of fossil or fossils.

Upon receipt of this Preliminary Report, SAHRA will inform the ECO or site agent whether or not a rescue excavation or rescue collection by a palaeontologist is necessary.

- Exposed finds must be stabilised where they are unstable and the site capped, e.g. with a plastic sheet or sand bags. This protection should allow for the later



CTS HERITAGE

excavation of the finds with due scientific care and diligence. SAHRA can advise on the most appropriate method for stabilisation.

- If the find cannot be stabilised, the fossil may be collect with extreme care by the ECO or the site agent and put aside and protected until SAHRA advises on further action. Finds collected in this way must be safely and securely stored in tissue paper and an appropriate box. Care must be taken to remove the all fossil material and any breakage of fossil material must be avoided at all costs.

No work may continue in the vicinity of the find until SAHRA has indicated, in writing, that it is appropriate to proceed.

**CTS Heritage**

16 Edison Way, Century City, Cape Town 7441

**Tel:** +27 (0)87 073 5739 **Email:** [info@ctsheritage.com](mailto:info@ctsheritage.com) **Web:** [www.ctsheritage.com](http://www.ctsheritage.com)



CTS HERITAGE

FOSSIL DISCOVERIES: PRELIMINARY RECORDING FORM		
Name of project:		
Name of fossil location:		
Date of discovery:		
Description of situation in which the fossil was found:		
Description of context in which the fossil was found:		
Description and condition of fossil identified:		
GPS coordinates:	<i>Lat:</i>	<i>Long:</i>
If no co-ordinates available then please describe the location:		
Time of discovery:		
Depth of find in hole		
Photographs (tick as appropriate and indicate number of the photograph)	<i>Digital image of vertical section (side)</i>	
	<i>Fossil from different angles</i>	
	<i>Wider context of the find</i>	
Temporary storage (where it is located and how it is conserved)		
Person identifying the fossil Name:		
Contact:		
Recorder Name:		
Contact:		
Photographer Name:		
Contact:		

CTS Heritage

16 Edison Way, Century City, Cape Town 7441

Tel: +27 (0)87 073 5739 Email: info@ctsheritage.com Web: www.ctsheritage.com



CTS HERITAGE

## APPENDIX 3: Heritage Screening Assessment





CTS HERITAGE

## HERITAGE SCREENER

CTS Reference Number:	<b>CTS22_235</b>
SAHRIS Reference:	
Client:	<b>EnviroWorks</b>
Date:	<b>June 2023</b>
Title:	<b>Proposed installation of the Koopan and Hakskeenpan Grid Alignments near Rietfontein in the Northern Cape</b>

**Figure 1a.** Satellite map indicating the location of the proposed development in the North West Province

### RECOMMENDATION

**Based on the information available, it is possible that the proposed development will negatively impact on significant heritage resources and as such, it is recommended that an HIA is completed for this project.**

CTS Heritage

16 Edison Way, Century City, Cape Town

Tel: +27 (0)87 073 5739 Email: info@ctsheritage.com Web: www.ctsheritage.com



## 1. Proposed Development Summary

Rerouting of the Rietfontein-Rietfontein 33kV powerline near the Rietfontein Settlement in the Northern Cape Province. The purpose of rerouting this powerline is to get it out of 2 pans (Hakskeen Pan and Koopan). Currently the Rietfontein-Rietfontein 33kV powerline runs through both of these pans. When there is water in the pans the powerline towers are prone to falling over because of the wet clay soil. The wet clay soil then makes it very difficult for maintenance vehicles to reach the fallen structures in order to repair the fallen structures. The result of this is Eskom customers in the area being without electricity for extended periods at a time. The current powerline configuration consists of bird friendly wood pole structure (D-DT-1870). This is the same configuration that will be used on the two sections where the line will be deviated. The length of the wood pole structures will range from 9 to 13 metres. The poles are planted 2 metres deep in holes drilled by a truck mounted drill. The holes are 300mm in diameter and 2 metres deep. The average distance between structures is 100 metres. The Koopan Powerline Deviation will be 10.8km in length and the Hakskeen Pan Powerline Deviation will be 19.8km in length.

## 2. Application References

Name of relevant heritage authority(s)	SAHRA
Name of decision making authority(s)	DFFE

## 3. Property Information

Latitude / Longitude	-26.70096, 20.11734 and -26.93056, 20.59630
Erf number / Farm number	<b>Haksteen Deviation:</b> Remaining Extent of Mier Farm No. 585; Portion 100 of Mier Farm No. 585; Portion 103 of Mier Farm No. 585; Portion 105 of Mier Farm No. 585; Portion 106 of Mier Farm No. 585; <b>Koopan Deviation:</b> Portion 2 of Uitkoms Farm No. 136; Portion 7 of Uitkoms Farm No. 136
Local Municipality	Rietfontein
District Municipality	ZF Mgcawu
Province	Northern Cape
Current Use	Vacant
Current Zoning	Agriculture



#### 4. Nature of the Proposed Development

<b>Total Area</b>	Haksteen: 11,88 ha Koopan: 6,48 ha
<b>Depth of excavation (m)</b>	2m
<b>Height of development (m)</b>	Approximately 6 metres

#### 5. Category of Development

x	<b>Triggers: Section 38(8) of the National Heritage Resources Act</b>
	<b>Triggers: Section 38(1) of the National Heritage Resources Act</b>
x	1. Construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier over 300m in length.
	2. Construction of a bridge or similar structure exceeding 50m in length.
	3. Any development or activity that will change the character of a site-
	a) exceeding 5 000m <sup>2</sup> in extent
	b) involving three or more existing erven or subdivisions thereof
	c) involving three or more erven or divisions thereof which have been consolidated within the past five years
	4. Rezoning of a site exceeding 10 000m <sup>2</sup>
	5. Other (state):

#### 6. Additional Infrastructure Required for this Development

No. Although, there could be a proposal for alternative designs of the steel poles, however, the issue is that it requires larger concrete foundation and it is costly.





**Figure 1c. Overview Map.** Satellite image (2023) indicating the proposed Koopan Line



CTS HERITAGE

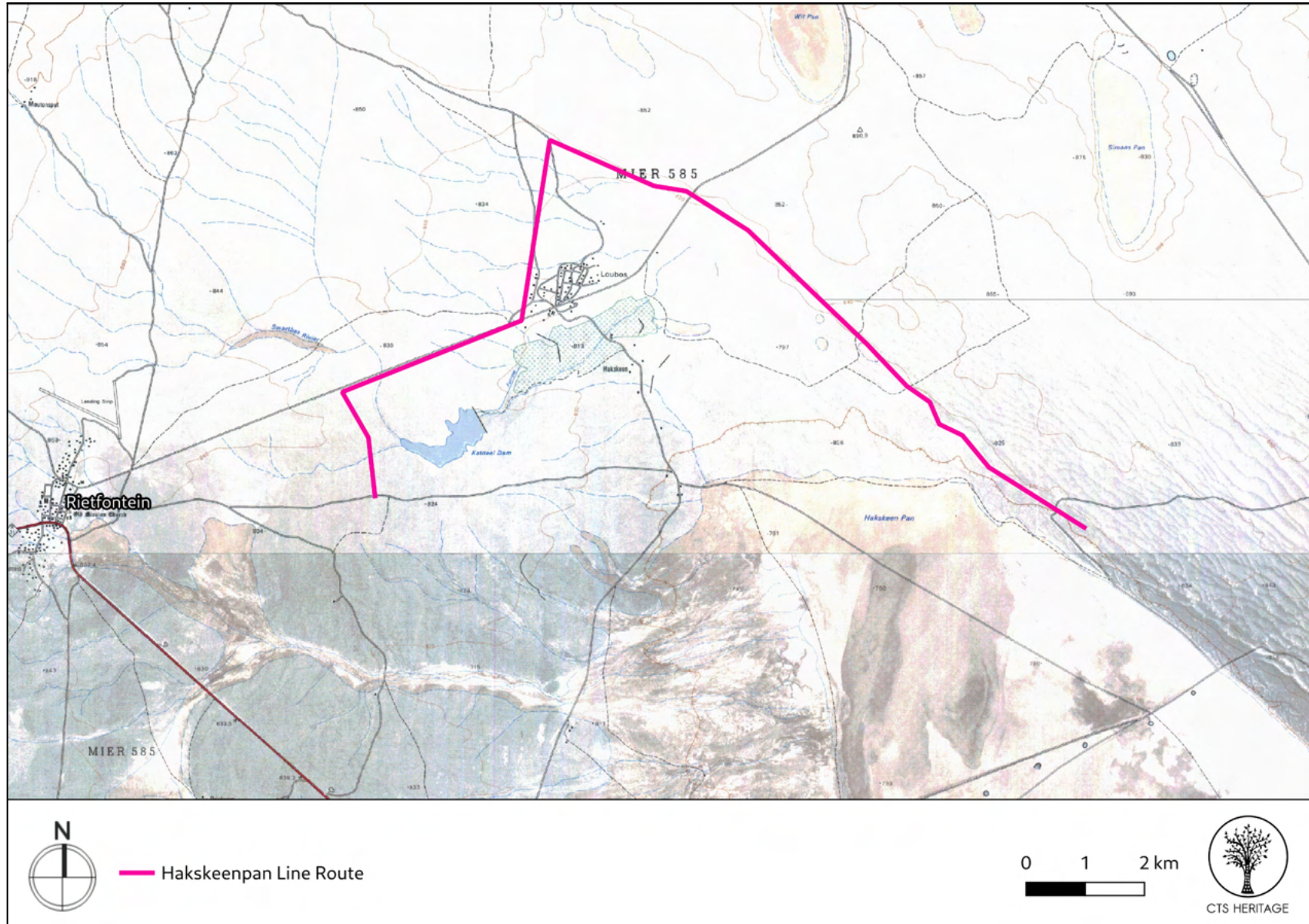


Figure 1d. Overview Map. Extract from the 1:50 000 Topo map

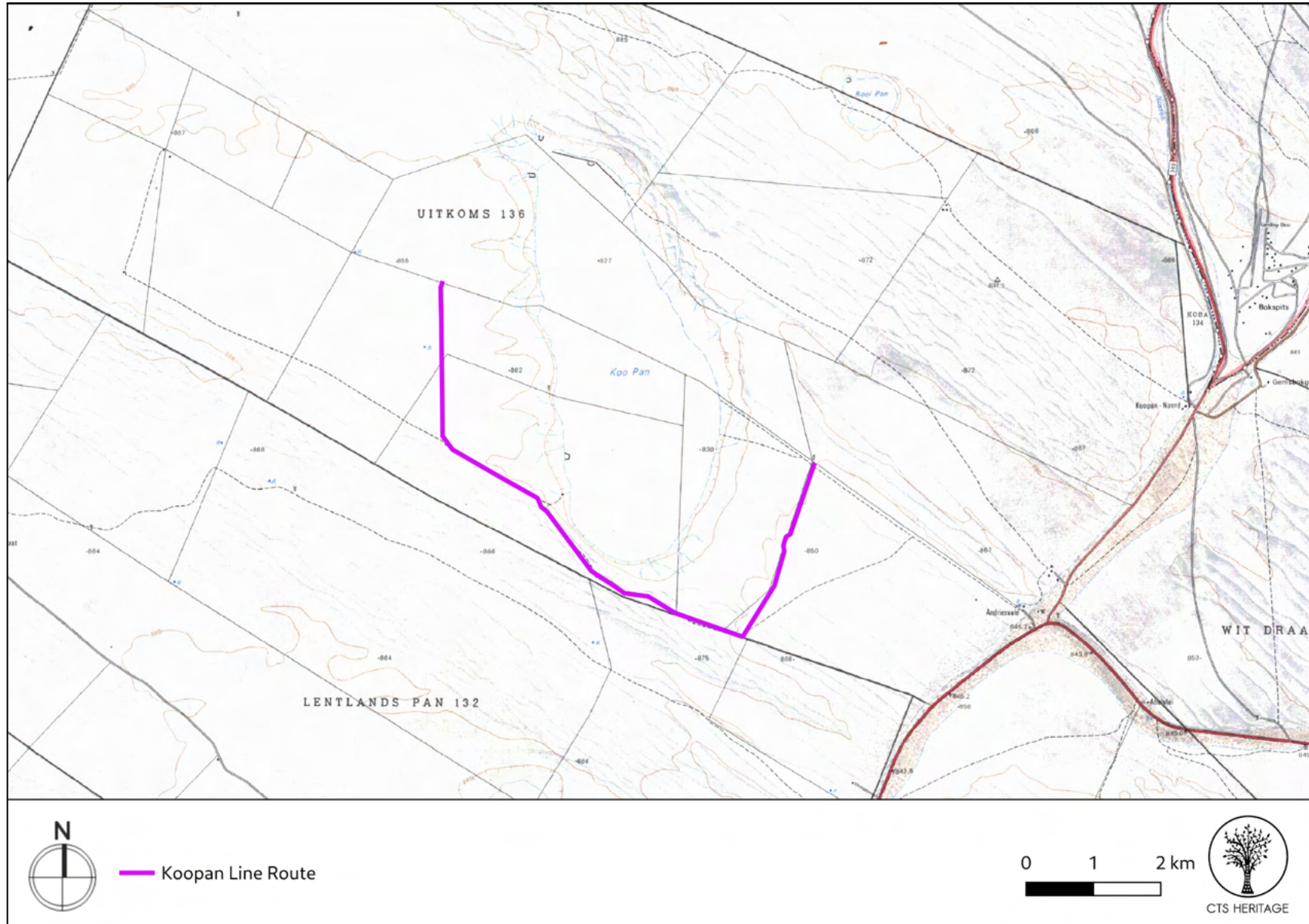
CTS Heritage

16 Edison Way, Century City, Cape Town

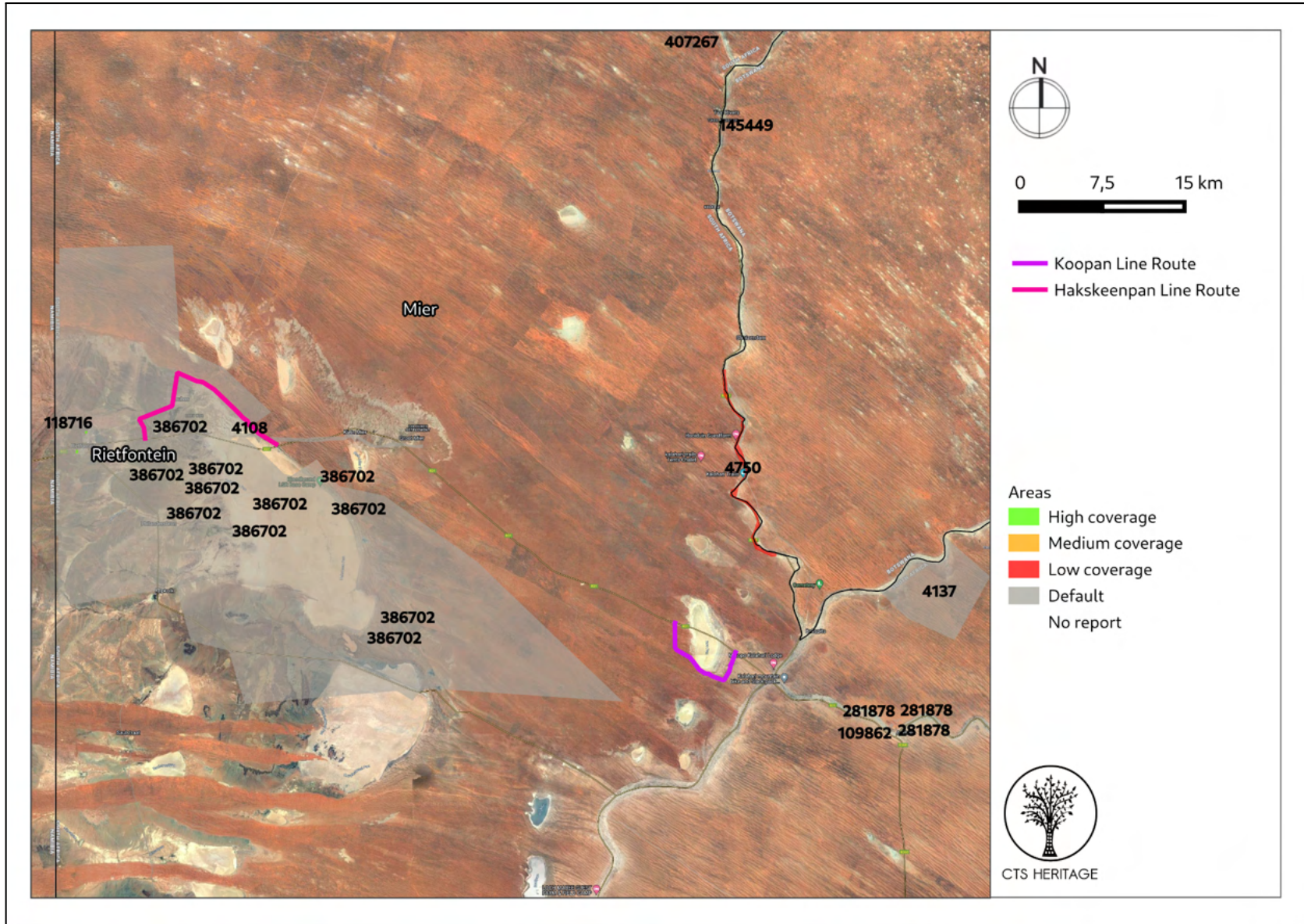
Tel: +27 (0)87 073 5739 Email: info@ctsheritage.com Web: www.ctsheritage.com



CTS HERITAGE

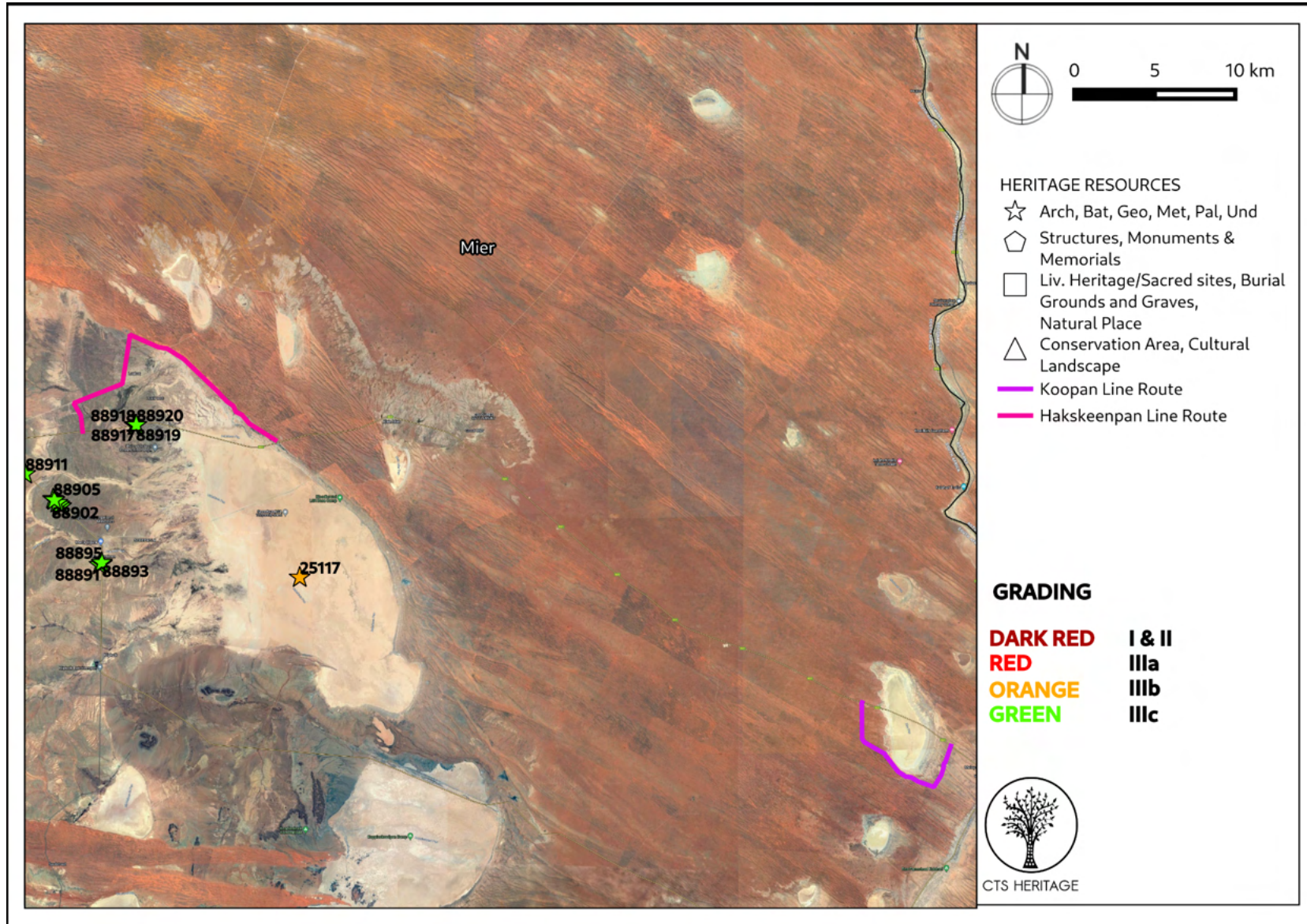


**Figure 1e. Overview Map.** Extract from the 1:50 000 Topo map



**Figure 2. Previous HIAs Map.** Previous Heritage Impact Assessments covering the proposed development area with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.





**Figure 3. Heritage Resources Map.** Heritage Resources previously identified within the study area, with SAHRIS Site IDs indicated in the insets below. Please See Appendix 4 for full description of heritage resource types.

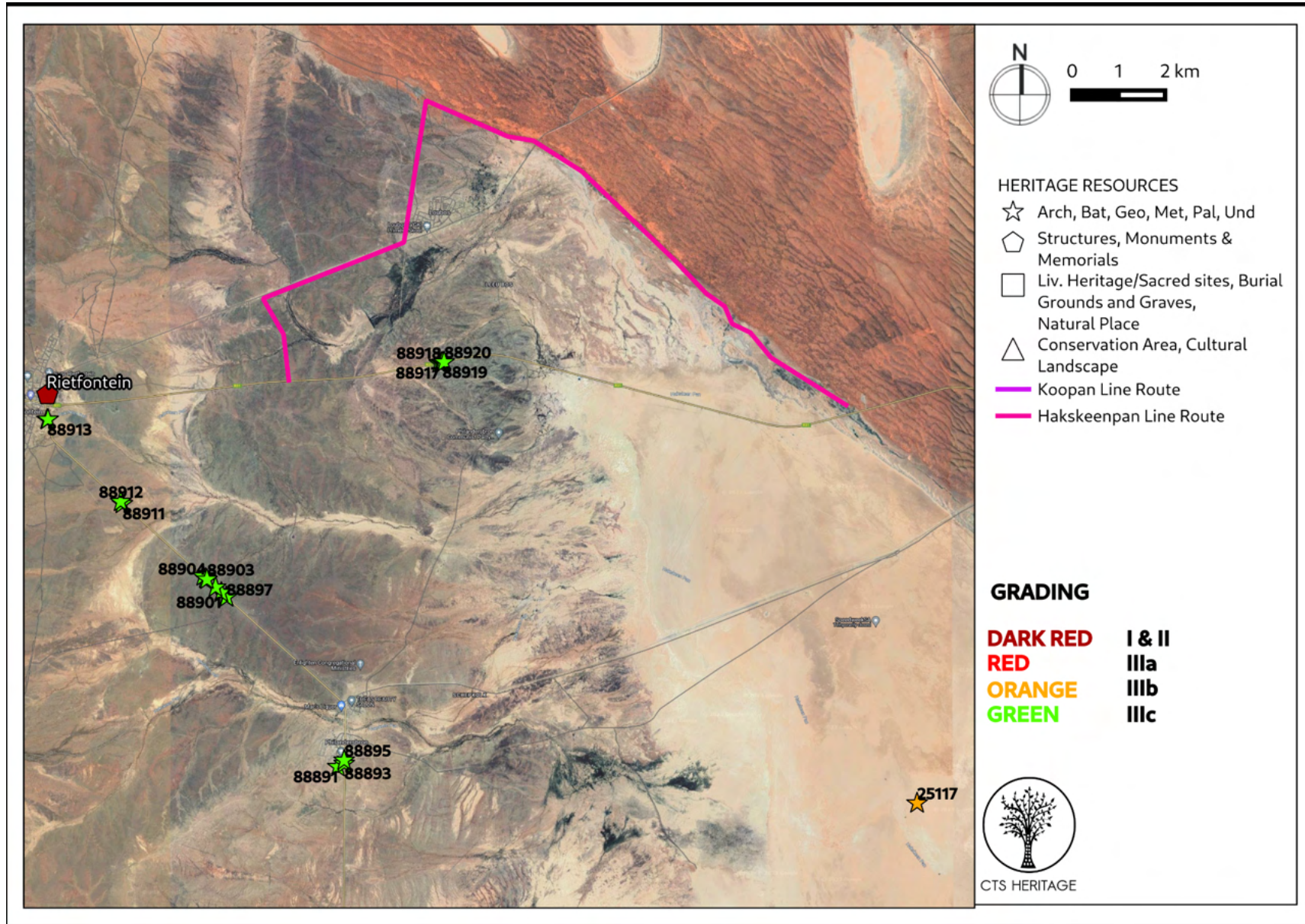
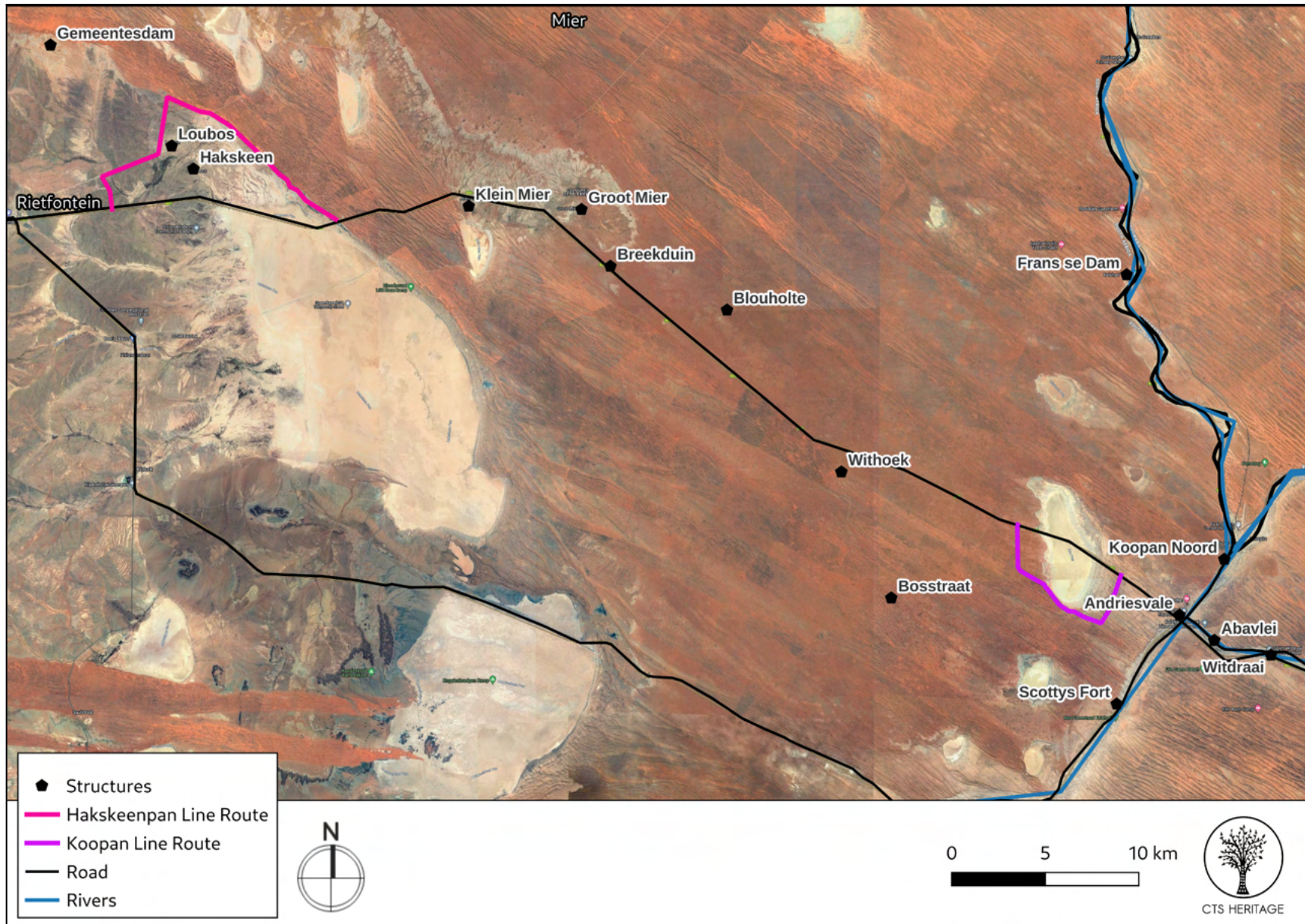


Figure 3a. Heritage Resources Map Inset A



CTS HERITAGE

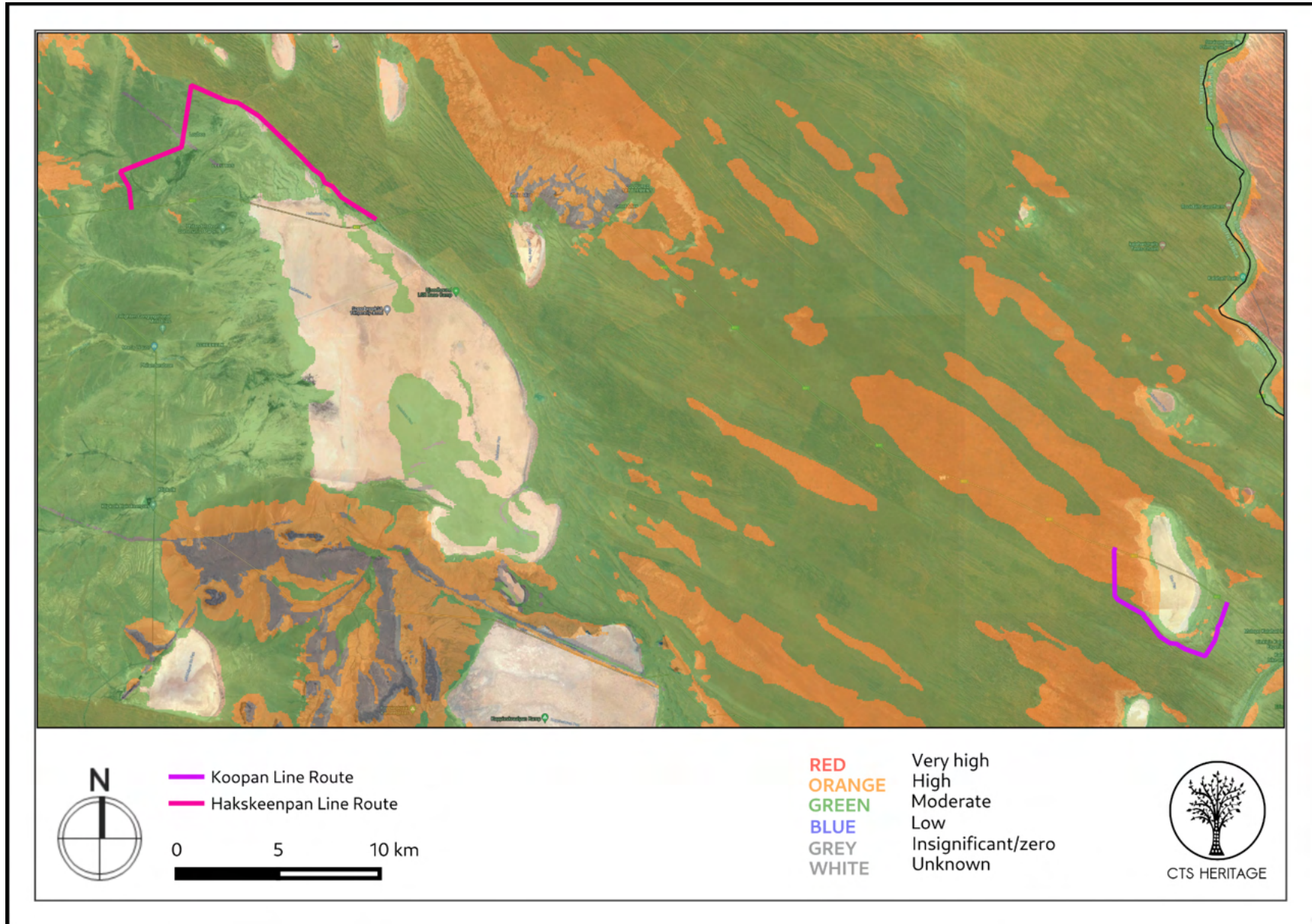


**Figure 3b. Heritage Resources Map Potential sites of heritage sensitivity**

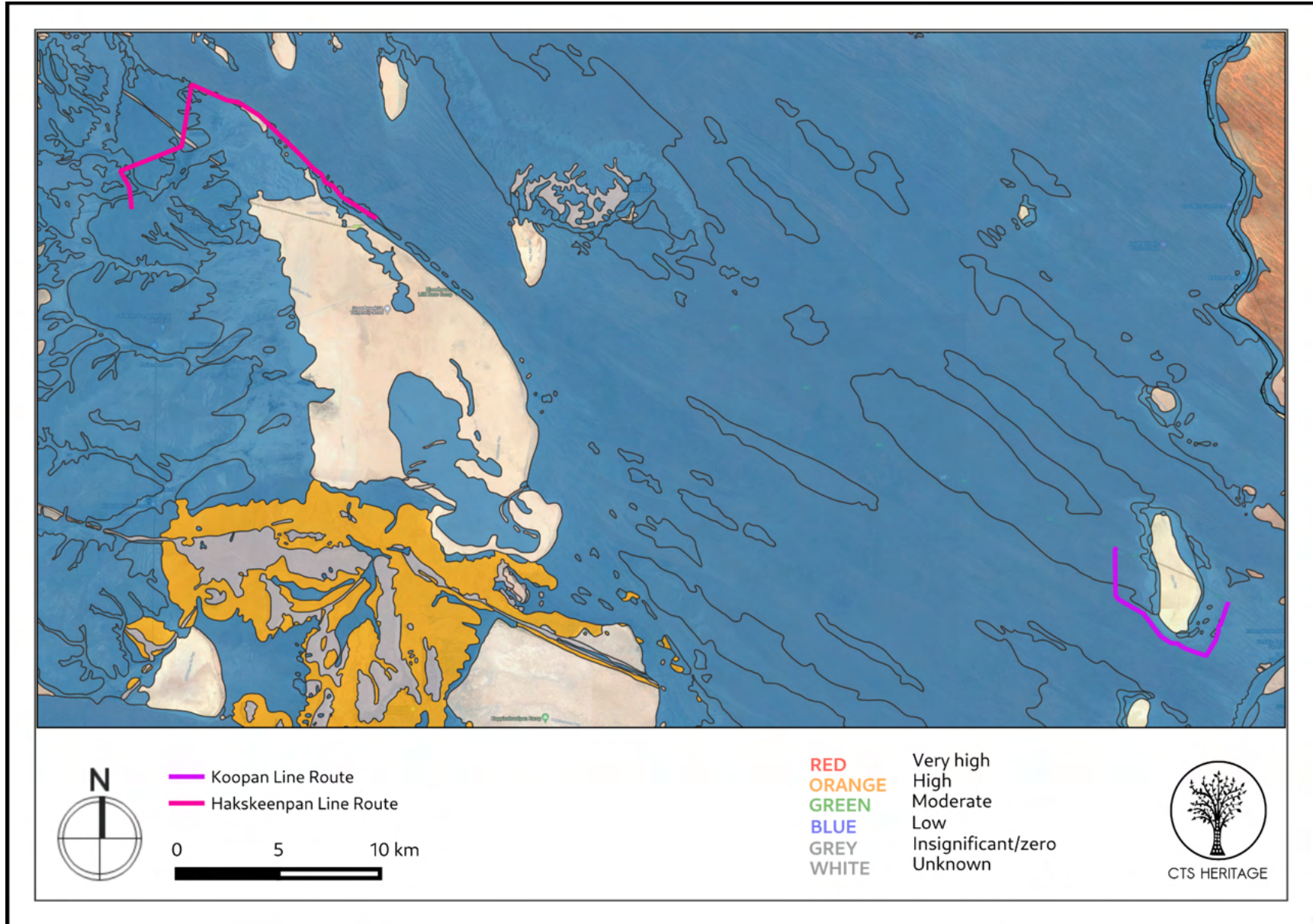
CTS Heritage

16 Edison Way, Century City, Cape Town

Tel: +27 (0)87 073 5739 Email: info@ctsheritage.com Web: www.ctsheritage.com



**Figure 4a. Palaeosensitivity Map.** Indicating fossil sensitivity underlying the study area. Please See Appendix 3 for a full guide to the legend.



**Figure 4b. Corrected Palaeosensitivity Map.** Indicating fossil sensitivity underlying the study area. Please See Appendix 3 for a full guide to the legend.



## 8. Heritage Assessment

### Background

This application is for the proposed development of powerline deviations along the R31 between the border with Namibia at Rietfontein and Askham in the Northern Cape. Hakskeen Pan, Uitsak Pan, Oxford Pan and Koppieskraal Pan form part of the area. Rietfontein is the capital of Mier and the home of infrastructure, such as the Municipal Office, Police Station, Day Hospital and High School. Rietfontein is also the place where the exploring scouts of Dirk Vilander found the bushman, Khys and his family at a fountain surrounded by reed-bushes, from there the name Rietfontein.

A history of the broader area is detailed online<sup>1</sup>, with the key points summarised below:

- The broader area is said to be named Mier after early settlers noticed ants bringing wet mud to the surface in this otherwise arid area
- The area was settled in 1865 and was annexed as British Bechuanaland in 1893, which became part of the Cape Colony in 1895
- In 1930, under the Coloured People Settlement Areas Act of the Cape, the Mier Coloured Settlement Area was established
- Although Rietfontein and Schepkolk did not form part of the proclaimed area, in practice, inhabitants of these areas continued to make use of the Kalahari dunes for seasonal grazing and hunting as they were used to.

### Cultural Landscape and the Built Environment

The area proposed for the powerline infrastructure falls within the area described as the Kalahari Desert and is sparsely populated. Throughout the past, people in this area have settled close to water sources and pans. The proposed powerlines are aligned along the existing R31 and in terms of impacts to the cultural landscape, it is preferred that such infrastructure is clustered rather than spread across an otherwise pristine and desolate landscape.

### Archaeology

The area proposed for the powerlines is located along an existing road between two established towns. An HIA was completed by Kaplan (2014) for a bulk water supply scheme project also located in this area. Other HIA's completed in the area include Beaumont (2006) who found only two stone flakes during a HIA for the construction of several chalets on a game farm a few kilometres north east of Askham, while in Askham no archaeological heritage was encountered by van Pletzen-Vos and Rust (2013a) during a HIA for a proposed low cost housing project, although several informal graves were encountered. At Rietfontein, ephemeral surface scatters of Later Stone Age (LSA) implements and pottery have been encountered on deflated dune surfaces, and around small dry pans in the surrounding area (Smith 1995). Low density scatters of ESA, MSA and LSA tools were also recorded by Engelbrecht (2013) during a HIA for a low cost housing development in the town, while Engelbrecht (2013) also notes the presence of LSA sites with pottery and stone tools on several farms in the surrounding area. Van Pletzen-Vos and Rust (2013b) documented diffuse scatters of LSA tools and ostrich eggshell near Rooipan and Witpan north east of Rietfontein.

Kaplan (2014) notes that "The receiving environment... comprises endless sections of road reserve that are covered in tall, dry winter grass (R31 & R360), and thick scrub, grass and trees (Namibia Road), resulting in low archaeological visibility." Regarding the area around Hakskeenpan, Kaplan (2014) goes on to note that "The receiving environment comprises shrub and grass on a substrate of red windblown (aeolian) sands. There is no surface stone on the proposed dam site and there are no natural sources of water such as streams, springs or drainage channels." Kaplan (2014) goes on to conclude that "The very small numbers, isolated and disturbed context in which they were found means that the archaeological remains recorded during the study are rated as having low (3C) local significance. MSA implements encountered during the study are the same as the tools described and illustrated in several HIA's for social housing projects in Askham and small towns in the region."

<sup>1</sup> <https://www.namahariplaasmark.com/2021/07/rietfontein-and-mier-history.html>



CTS HERITAGE

### **Palaeontology**

According to the SAHRIS Palaeosensitivity Map published on SAHRIS, the area proposed for prospecting is underlain by sediments of moderate and high palaeontological sensitivity (Figure 4a). However, according to the actual geology underlying the project area, the geology has low and zero sensitivity for impacts to significant palaeontology. The formations underlying the development area include the Mokalanen Formation, Dwyka Group Sediments, Karoo Dolerite, the Eden Formation, the Prince Albert Formation and the Gordonia Formation

In terms of palaeontological sensitivity, Kalahari Sands of the Gordonia Formation have LOW sensitivity for impacts to significant palaeontology according to the SAHRIS Fossil Heritage Browser. It is noted that Fossils within this formation are mainly associated with ancient pans, lakes and river systems, and consist of Palynomorphs, root casts (rhizomorphs) and burrows (eg termitaria), rare vertebrate remains (mammals, fish, ostrich egg shell *etc*), diatom-rich limestones, freshwater stromatolites, freshwater and terrestrial shells (gastropods, bivalves), ostracods and charophytes. As such, it is recommended that Chance Fossil Finds Procedure (attached) be implemented for the duration of excavation activities.

### **RECOMMENDATION**

**Based on the information available, it is possible that the proposed development will negatively impact on significant heritage resources and as such, it is recommended that an HIA is completed for this project.**

CTS Heritage

16 Edison Way, Century City, Cape Town

Tel: +27 (0)87 073 5739 Email: [info@ctsheritage.com](mailto:info@ctsheritage.com) Web: [www.ctsheritage.com](http://www.ctsheritage.com)



**Table 2: Impact Assessment Table: Impacts to heritage resources from the proposed prospecting including archaeology, palaeontology, built structures and the cultural landscape**

<b>Aspect</b>	<b>Score</b>	<b>Definition</b>
Nature	-1	Likely to result in a negative impact
Extent	1	Impacts limited to the specific activity
Duration	5	Any impacts will be permanent
Magnitude/Intensity	5	Any impacts will be significant
Reversibility	5	Irreversible Impact
Probability	1	Impacts are improbable due to the limited nature of the activity and is distance from any known resources

$$C = (1+5+5+5)/4$$

$$C = 4 \times -1$$

$$C = -4$$

$$ER = -4 \times 1$$

**Environmental Risk Score is <9: LOW**





CTS HERITAGE

## APPENDIX 1

### List of heritage resources within close proximity to the development area

Site ID	Site no	Full Site Name	Site Type	Grading
88902	KALA007	KALAHARI-EAST 007	Artefacts	Grade IIIc
28787	9/2/032/0013	Dutch Reformed Mission Church, Rietfontein, Gordonia District	Building	Grade II
88904	KALA009	KALAHARI-EAST 009	Artefacts	Grade IIIc
88905	KALA010	KALAHARI-EAST 010	Artefacts	Grade IIIc
88903	KALA008	KALAHARI-EAST 008	Artefacts	Grade IIIc
88911	KALA011	KALAHARI-EAST 011	Artefacts	Grade IIIc
88913	KALA013	KALAHARI-EAST 013	Artefacts	Grade IIIc
88914	KALA014	KALAHARI-EAST 014	Artefacts	Grade IIIc
25117	Haksteen Pan	Haksteen Pan, Northern Cape	Meteorites	Grade IIIb
88912	KALA012	KALAHARI-EAST 012	Artefacts	Grade IIIc
88915	KALA015	KALAHARI-EAST 015	Artefacts	Grade IIIc
88916	KALA016	KALAHARI-EAST 016	Artefacts	Grade IIIc
88917	KALA017	KALAHARI-EAST 017	Artefacts	Grade IIIc
88918	KALA018	KALAHARI-EAST 018	Artefacts	Grade IIIc
88919	KALA019	KALAHARI-EAST 019	Artefacts	Grade IIIc
88920	KALA020	KALAHARI-EAST 020	Artefacts	Grade IIIc

CTS Heritage

16 Edison Way, Century City, Cape Town

Tel: +27 (0)87 073 5739 Email: info@ctsheritage.com Web: www.ctsheritage.com



CTS HERITAGE

34386	RIET001	Rietfontein 001	Artefacts, Burial Grounds & Graves	Grade IIIa
88891	KALA001	KALAHARI-EAST 001	Artefacts	Grade IIIc
88893	KALA002	KALAHARI-EAST 002	Artefacts	Grade IIIc
88895	KALA003	KALAHARI-EAST 003	Artefacts	Grade IIIc
88897	KALA004	KALAHARI-EAST 004	Artefacts	Grade IIIc
88898	KALA005	KALAHARI-EAST 005	Artefacts	Grade IIIc
88901	KALA006	KALAHARI-EAST 006	Artefacts	Grade IIIc
141299	MR001	Mier Roetfontein PV - MR001	Archaeological, Artefacts	
141300	MR002	Mier Roetfontein PV - MR002	Archaeological, Artefacts	
141301	MR003	Mier Roetfontein PV - MR003	Archaeological, Artefacts	
141302	MR004	Mier Roetfontein PV - MR004	Archaeological, Artefacts	
141303	MR005	Mier Roetfontein PV - MR005	Archaeological, Artefacts	
141304	MR006	Mier Roetfontein PV - MR006	Archaeological, Artefacts	
141305	MR007	Mier Roetfontein PV - MR007	Archaeological, Artefacts	
141306	MR008	Mier Roetfontein PV - MR008	Archaeological, Artefacts	

CTS Heritage

16 Edison Way, Century City, Cape Town

Tel: +27 (0)87 073 5739 Email: info@ctsheritage.com Web: www.ctsheritage.com



CTS HERITAGE

## APPENDIX 2

### Reference List with relevant AIAs and PIAs

Heritage Impact Assessments				
Case ID	Report Type	Author/s	Date	Title
109862	HIA Phase 1	Renee Rust, Liezl van Pletzen-Vos	01/01/2013	Heritage Impact Assessment Report Proposed residential development of 100 erven and associated infrastructure on Portion 1 of Farm No 139, Gordonia Road, Mier Municipality, Northern Cape Province.
110518	HIA Phase 1	Jan Engelbrecht	15/02/2013	Phase 1 Heritage Impact Assessment Report: Proposed Development for Low Cost Housing Mier Local Municipality, Siyanda District Municipality, Northern Cape Province, South Africa
110893	Heritage Scoping	Liezl van Pletzen-Vos, Renee Rust	01/01/2013	Preliminary Heritage Impact Assessment Report Proposed Low Income Housing Project Rietfontein, Remainder Farm No. 585, Gordonia Road, Groot Mier Municipality, Northern Cape
110893	Heritage Scoping	Liezl van Pletzen-Vos, Renee Rust	01/01/2013	Preliminary Heritage Impact Assessment Report Proposed Low Income Housing Project Rietfontein, Remainder Farm No. 585, Gordonia Road, Groot Mier Municipality, Northern Cape
118716	HIA Phase 1	Liezl van Pletzen-Vos, Renee Rust	22/04/2013	Heritage Impact Assessment Report: Proposed Low Income Housing Project Rietfontein, Remainder Farm No. 585, Gordonia Road, Groot Mier Municipality, Northern Cape.
185632	AIA Phase 1	Jan Engelbrecht	12/11/2014	Archaeological Impact Assessment for the proposed upgrading of the Rietfontein Oxidation Ponds near Rietfontein in the Northern Cape Province
281878	AIA Phase 1	Jan Engelbrecht	06/04/2015	Archaeological Impact Assessment for the proposed Construction of Oxidation Ponds near Askham in the Northern Cape Province
386702				
4108	AIA Phase 1	Cobus Dreyer	12/09/2007	First Phase Archaeological and Cultural Heritage Assessment of Borrow Pit R Along the Proposed R87 Road Between Rietfontein & Groot Mier, Gordonia District, Northern Cape

CTS Heritage

16 Edison Way, Century City, Cape Town

Tel: +27 (0)87 073 5739 Email: info@ctsheritage.com Web: www.ctsheritage.com



CTS HERITAGE

4137	AIA Phase 1	Peter Beaumont	25/08/2006	Phase 1 Heritage Impact Assessment Report on a Planned Kalahari Tourism Facility on the Farm Dreghorn 145 near Askam, Siyanda District Municipality, Northern Cape
4750	AIA Phase 1	Cobus Dreyer	12/12/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Borrow Pits Sites on the Kgalagadi Access Road Between Askham & Twee Rivieren, Northern Cape

-

**CTS Heritage**

16 Edison Way, Century City, Cape Town

**Tel:** +27 (0)87 073 5739 **Email:** [info@ctsheritage.com](mailto:info@ctsheritage.com) **Web:** [www.ctsheritage.com](http://www.ctsheritage.com)



CTS HERITAGE

## APPENDIX 3 - Keys/Guides

### Key/Guide to Acronyms

<b>AIA</b>	Archaeological Impact Assessment
<b>DARD</b>	Department of Agriculture and Rural Development (KwaZulu-Natal)
<b>DEA</b>	Department of Environmental Affairs (National)
<b>DEADP</b>	Department of Environmental Affairs and Development Planning (Western Cape)
<b>DEDEAT</b>	Department of Economic Development, Environmental Affairs and Tourism (Eastern Cape)
<b>DEDECT</b>	Department of Economic Development, Environment, Conservation and Tourism (North West)
<b>DEDT</b>	Department of Economic Development and Tourism (Mpumalanga)
<b>DEDTEA</b>	Department of economic Development, Tourism and Environmental Affairs (Free State)
<b>DENC</b>	Department of Environment and Nature Conservation (Northern Cape)
<b>DMR</b>	Department of Mineral Resources (National)
<b>GDARD</b>	Gauteng Department of Agriculture and Rural Development (Gauteng)
<b>HIA</b>	Heritage Impact Assessment
<b>LEDET</b>	Department of Economic Development, Environment and Tourism (Limpopo)
<b>MPRDA</b>	Mineral and Petroleum Resources Development Act, no 28 of 2002
<b>NEMA</b>	National Environmental Management Act, no 107 of 1998
<b>NHRA</b>	National Heritage Resources Act, no 25 of 1999
<b>PIA</b>	Palaeontological Impact Assessment
<b>SAHRA</b>	South African Heritage Resources Agency
<b>SAHRIS</b>	South African Heritage Resources Information System
<b>VIA</b>	Visual Impact Assessment

### Full guide to Palaeosensitivity Map legend

	<b>RED:</b>	VERY HIGH - field assessment and protocol for finds is required
	<b>ORANGE/YELLOW:</b>	HIGH - desktop study is required and based on the outcome of the desktop study, a field assessment is likely
	<b>GREEN:</b>	MODERATE - desktop study is required
	<b>BLUE/PURPLE:</b>	LOW - no palaeontological studies are required however a protocol for chance finds is required
	<b>GREY:</b>	INSIGNIFICANT/ZERO - no palaeontological studies are required
	<b>WHITE/CLEAR:</b>	UNKNOWN - these areas will require a minimum of a desktop study.

CTS Heritage

16 Edison Way, Century City, Cape Town

Tel: +27 (0)87 073 5739 Email: info@ctsheritage.com Web: www.ctsheritage.com



CTS HERITAGE

## APPENDIX 4 - Methodology

The Heritage Screener summarises the heritage impact assessments and studies previously undertaken within the area of the proposed development and its surroundings. Heritage resources identified in these reports are assessed by our team during the screening process.

The heritage resources will be described both in terms of **type**:

- Group 1: Archaeological, Underwater, Palaeontological and Geological sites, Meteorites, and Battlefields
- Group 2: Structures, Monuments and Memorials
- Group 3: Burial Grounds and Graves, Living Heritage, Sacred and Natural sites
- Group 4: Cultural Landscapes, Conservation Areas and Scenic routes

and **significance** (Grade I, II, IIIa, b or c, ungraded), as determined by the author of the original heritage impact assessment report or by formal grading and/or protection by the heritage authorities.

Sites identified and mapped during research projects will also be considered.

### DETERMINATION OF THE EXTENT OF THE INCLUSION ZONE TO BE TAKEN INTO CONSIDERATION

The extent of the inclusion zone to be considered for the Heritage Screener will be determined by CTS based on:

- the size of the development,
- the number and outcome of previous surveys existing in the area
- the potential cumulative impact of the application.

The inclusion zone will be considered as the region within a maximum distance of 50 km from the boundary of the proposed development.

### DETERMINATION OF THE PALAEOLOGICAL SENSITIVITY

The possible impact of the proposed development on palaeontological resources is gauged by:

- reviewing the fossil sensitivity maps available on the South African Heritage Resources Information System (SAHRIS)
- considering the nature of the proposed development
- when available, taking information provided by the applicant related to the geological background of the area into account

### DETERMINATION OF THE COVERAGE RATING ASCRIBED TO A REPORT POLYGON

Each report assessed for the compilation of the Heritage Screener is colour-coded according to the level of coverage accomplished. The extent of the surveyed coverage is labeled in three categories, namely low, medium and high. In most instances the extent of the map corresponds to the extent of the development for which the specific report was undertaken.

CTS Heritage

16 Edison Way, Century City, Cape Town

Tel: +27 (0)87 073 5739 Email: info@ctsheritage.com Web: www.ctsheritage.com



**Low coverage** will be used for:

- desktop studies where no field assessment of the area was undertaken;
- reports where the sites are listed and described but no GPS coordinates were provided.
- older reports with GPS coordinates with low accuracy ratings;
- reports where the entire property was mapped, but only a small/limited area was surveyed.
- uploads on the National Inventory which are not properly mapped.

**Medium coverage** will be used for

- reports for which a field survey was undertaken but the area was not extensively covered. This may apply to instances where some impediments did not allow for full coverage such as thick vegetation, etc.
- reports for which the entire property was mapped, but only a specific area was surveyed thoroughly. This is differentiated from low ratings listed above when these surveys cover up to around 50% of the property.

**High coverage** will be used for

- reports where the area highlighted in the map was extensively surveyed as shown by the GPS track coordinates. This category will also apply to permit reports.

## RECOMMENDATION GUIDE

The Heritage Screener includes a set of recommendations to the applicant based on whether an impact on heritage resources is anticipated. One of three possible recommendations is formulated:

**(1) The heritage resources in the area proposed for development are sufficiently recorded** - The surveys undertaken in the area adequately captured the heritage resources. There are no known sites which require mitigation or management plans. No further heritage work is recommended for the proposed development.

This recommendation is made when:

- enough work has been undertaken in the area
- it is the professional opinion of CTS that the area has already been assessed adequately from a heritage perspective for the type of development proposed

**(2) The heritage resources and the area proposed for development are only partially recorded** - The surveys undertaken in the area have not adequately captured the heritage resources and/or there are sites which require mitigation or management plans. Further specific heritage work is recommended for the proposed development.

This recommendation is made in instances in which there are already some studies undertaken in the area and/or in the adjacent area for the proposed development. Further studies in a limited HIA may include:

- improvement on some components of the heritage assessments already undertaken, for instance with a renewed field survey and/or with a specific specialist for the type of heritage resources expected in the area
- compilation of a report for a component of a heritage impact assessment not already undertaken in the area

CTS Heritage

16 Edison Way, Century City, Cape Town

Tel: +27 (0)87 073 5739 Email: info@ctsheritage.com Web: www.ctsheritage.com



CTS HERITAGE

- undertaking mitigation measures requested in previous assessments/records of decision.

**(3) The heritage resources within the area proposed for the development have not been adequately surveyed yet - Few or no surveys have been undertaken in the area proposed for development. A full Heritage Impact Assessment with a detailed field component is recommended for the proposed development.**

**Note:**

The responsibility for generating a response detailing the requirements for the development lies with the heritage authority. However, since the methodology utilised for the compilation of the Heritage Screeners is thorough and consistent, contradictory outcomes to the recommendations made by CTS should rarely occur. Should a discrepancy arise, CTS will immediately take up the matter with the heritage authority to clarify the dispute.

## **APPENDIX 5 -Summary of Specialist Expertise**

**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 since 2016, 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 100 Heritage Impact Assessments and Screening Assessments throughout South Africa.

CTS Heritage

16 Edison Way, Century City, Cape Town

Tel: +27 (0)87 073 5739 Email: [info@ctsheritage.com](mailto:info@ctsheritage.com) Web: [www.ctsheritage.com](http://www.ctsheritage.com)