

ARCHAEOLOGICAL SPECIALIST STUDY

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

Proposed development of the Taaibosch Puts Renewable Energy Facility Cluster and associated Electrical Grid Infrastructure near Postmasburg, Northern Cape

Prepared by



CTS HERITAGE

In Association with

JAWS

November 2021

Updated June 2022



EXECUTIVE SUMMARY

ENERTRAG South Africa (Pty) Ltd, Reg no. 2017/143710/07 (ESA) has appointed Jones & Wagener (Pty) Ltd Engineering and Environmental Consultants (J&W) to assist with the respective permitting processes, including as relevant a Waste Management License (WML), Air Emissions License (AEL), respective applications for Environmental Authorisation (EA) and Water Use License application/s (WUL) (as required) for the proposed Taaibosch Puts Energy Cluster (collectively comprising the proposed projects). In addition, the applicant will apply as per Section 53 of the Mineral and Petroleum Resources Development Act (No 28 of 2002) for land use contrary to the objectives of the act.

As was anticipated, the archaeological field assessment revealed a great many heritage resources evident within the development area - 277 in total. The vast majority of these resources, consisting of individual artefacts and low density artefact scatters ascribed to the Middle and Later Stone Age as well as rural infrastructure such as wind mills, have been determined to be not conservation-worthy. No further mitigation for impacts to these heritage observations is recommended.

A number of heritage resources of significance were, however, identified. These resources range from significant archaeological sites and scatters, to burial grounds and graves as well as historic farm werfs and infrastructure such as the irrigation furrows ascribed to the work of the London Missionary Society and the local Griekwa population. The relationship between the furrows, the farm werfs and the burials form a unique and layered cultural landscape that speaks to the unique past of this area and its Griekwa inhabitants. It is important that the spatial relationship of these resources is not disrupted by the proposed development. Various mitigation measures are proposed in Table 3 above and in the below recommendations in order to mitigate these impacts.

Recommendations

There is no objection to the proposed development from an archaeological perspective on condition that the following mitigation measures are implemented:

1. The no go area identified in Figure 9.1 must be adhered to. No turbines or associated infrastructure is permitted within this area. This includes Khoemana Turbines 25, 29, 30, 33 and 34
2. A minimum no-go development area of 200m must be implemented around Sites 175, 230 and 276 to ensure the conservation of the broader context of these resources (Figure 9.2)
3. A minimum no-go development area of 20m must be implemented around Sites 114 and 161 to ensure that no impact to these structures takes place (Figure 9.3 and Figure 9.4)
4. The Gorachouqua Turbine 34 must be removed from the layout (Figure 9.3).
5. Should any human remains, burials or burial grounds be uncovered during construction activities, work must cease in the vicinity of the find and the SAHRA Burial Grounds and Graves Unit must be contacted regarding a way forward.
6. Should any archaeological resources be uncovered during construction activities, work must cease in the vicinity of the find and the SAHRA Archaeology, Palaeontology and Meteorites Unit must be contacted regarding a way forward.



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1. INTRODUCTION

1.1 Background Information on Project

ENERTRAG South Africa (Pty) Ltd, Reg no. 2017/143710/07 (ESA) has appointed Jones & Wagener (Pty) Ltd Engineering and Environmental Consultants (J&W) to assist with the respective permitting processes, including as relevant a Waste Management License (WML), Air Emissions License (AEL), respective applications for Environmental Authorisation (EA) and Water Use License application/s (WUL) (as required) for the proposed Taaibosch Puts Energy Cluster (collectively comprising the proposed projects). In addition, the applicant will apply as per Section 53 of the Mineral and Petroleum Resources Development Act (No 28 of 2002) for land use contrary to the objectives of the act.

The proposed projects are located approximately 28 km south-west of Danielskuil and 30 km east of Postmasburg in the Tsantsabane Municipality, Northern Cape. The proposed projects collectively comprise approximately 11 110 ha and consists of the following (See attached BID doc):

- Kora (I – IV) Solar PV Energy Facilities;
- Koraqua (I – V) Solar PV Energy Facilities;
- Khoemana Wind Energy Facility;
- Gorachouqua (I and II) Wind Energy Facilities;
- Korakobab Green Hydrogen Facility;
- Kei Korana Green Ammonia production facility;
- Electrical Grid Infrastructure (EGI) respectively for the proposed projects.

This archaeology specialist report records the findings of the fieldwork conducted for the proposed Taaibosch Puts Energy Cluster (collectively comprising the proposed projects). Project-specific findings are recorded in the HIA drafted for each specific project.

After the initial round of fieldwork was completed for this project, the client revised the layout of the southern gridline route to accommodate PPC Lime's future mining areas. The specialists went back into the field to assess the amended gridline routing.

1.2 Description of Property and Affected Environment

The study area is split roughly in two sections with the western side dedicated to the proposed solar farms while the eastern side consists of the proposed wind farm (WEF). Two powerline routes running for about 30km each along the southern and northern ends were also assessed that connect up the electrical generation facilities to the Olien Eskom substation east of Lime Acres. The Asbestos Mountains form a low series of hills running from the southwest to the northeast between Lime Acres and the eastern end of the proposed wind farm. Three gravel roads were used to access the main farms which included the Griquatown - Lime Acres, Postmasburg - Papkuil and Postmasburg - Lime Acres routes. An existing solar farm (Lesedi Solar Park) lies just to the north of the study area and is similar in scale to the Koraqua solar farm proposed at Springfield 470 farm and the Kora solar farm proposed at Farmersfield 572 farm. The WEF lies on the farms Sunnyside (469), Strathmore (500), Fairview and Klein Fairview (497) and Taaibosch Puts (499).



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Taaibosch Puts was the only property which was predominantly flat, uniform and covered in grassland. The rest of the properties held various flat grassland areas in amongst low, gentle ridges and small koppies. The powerline routes traverse similar ground before linking up with an existing 765kV powerline route along nearly flat calcareous ground extending into the Ghaap Plateau Vaalbosveld. The Olifantshoek Plains Thornveld and Kuruman Mountain Bushveld dominate the majority of the study area with rocky, bushy vegetation and thorn trees on the ridges and grassland and low shrubby vegetation found on the plains.

All of the farms are actively used for cattle and sheep farming as well as wild game areas used to breed various antelope species. Small-scale crop agriculture takes place closer to the homesteads and is mainly used to grow feed for the cattle and sheep. Mining has had a very significant impact on the economy of the area as many people are employed in the mining towns of Lime Acres, Kathu, Postmasburg and Danielskuil. The closest mines to the study area are the Finsch diamond mine and the PPC limestone mine at Lime Acres.



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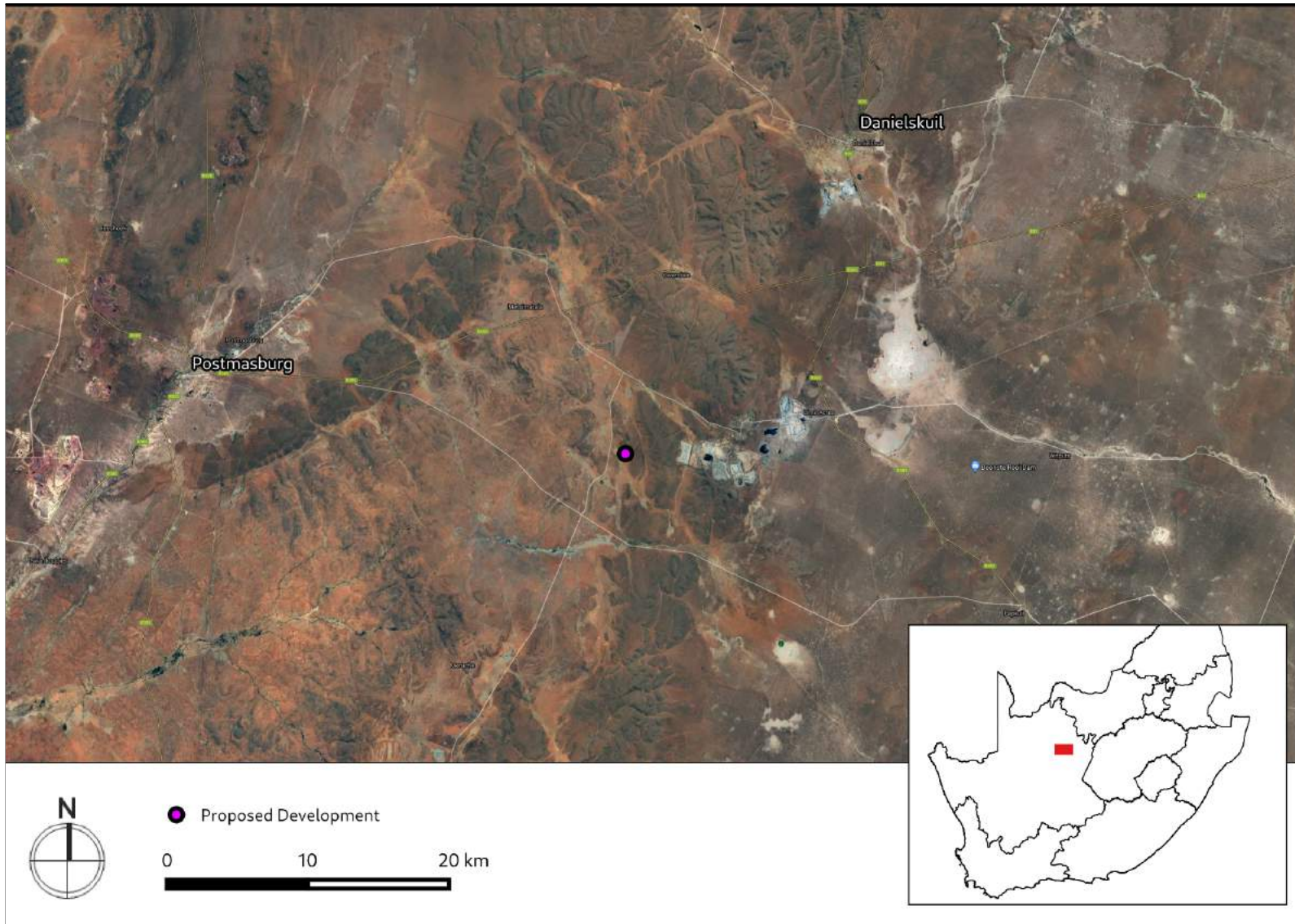


Figure 1.1: Close up satellite image indicating proposed location of development



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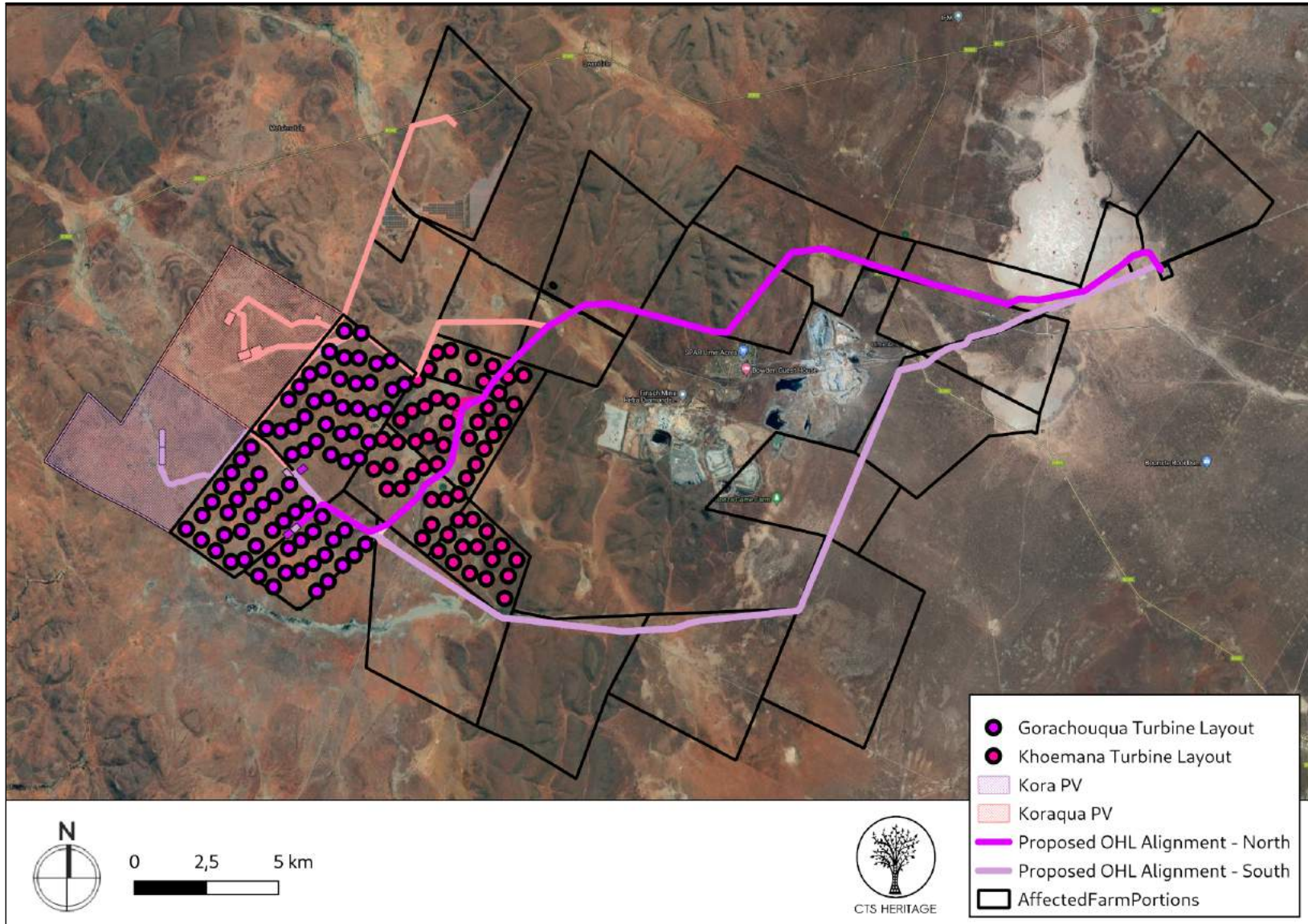


Figure 1.2: Area proposed for development including the proposed layout



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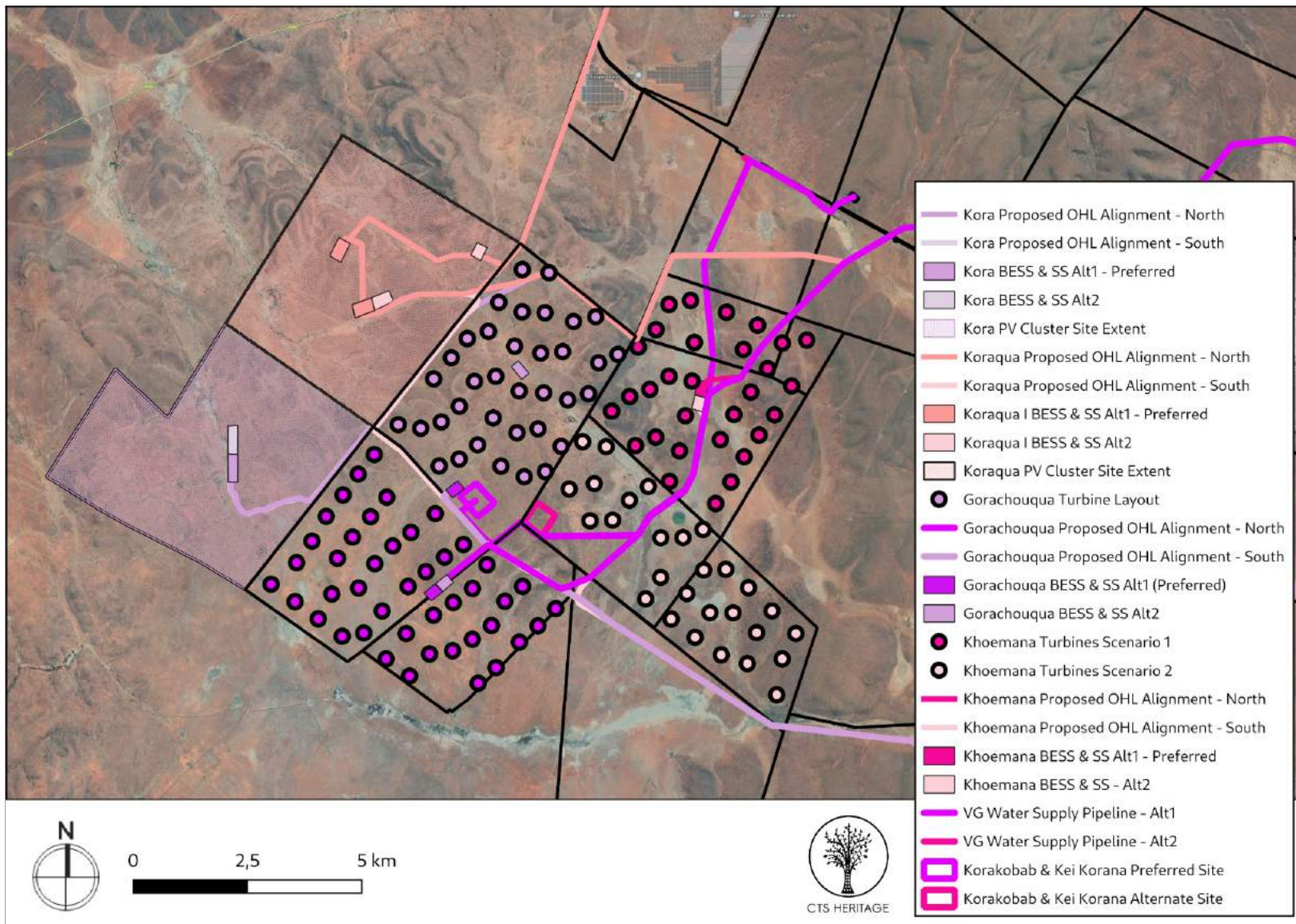


Figure 1.3: Area proposed for development including the proposed layout



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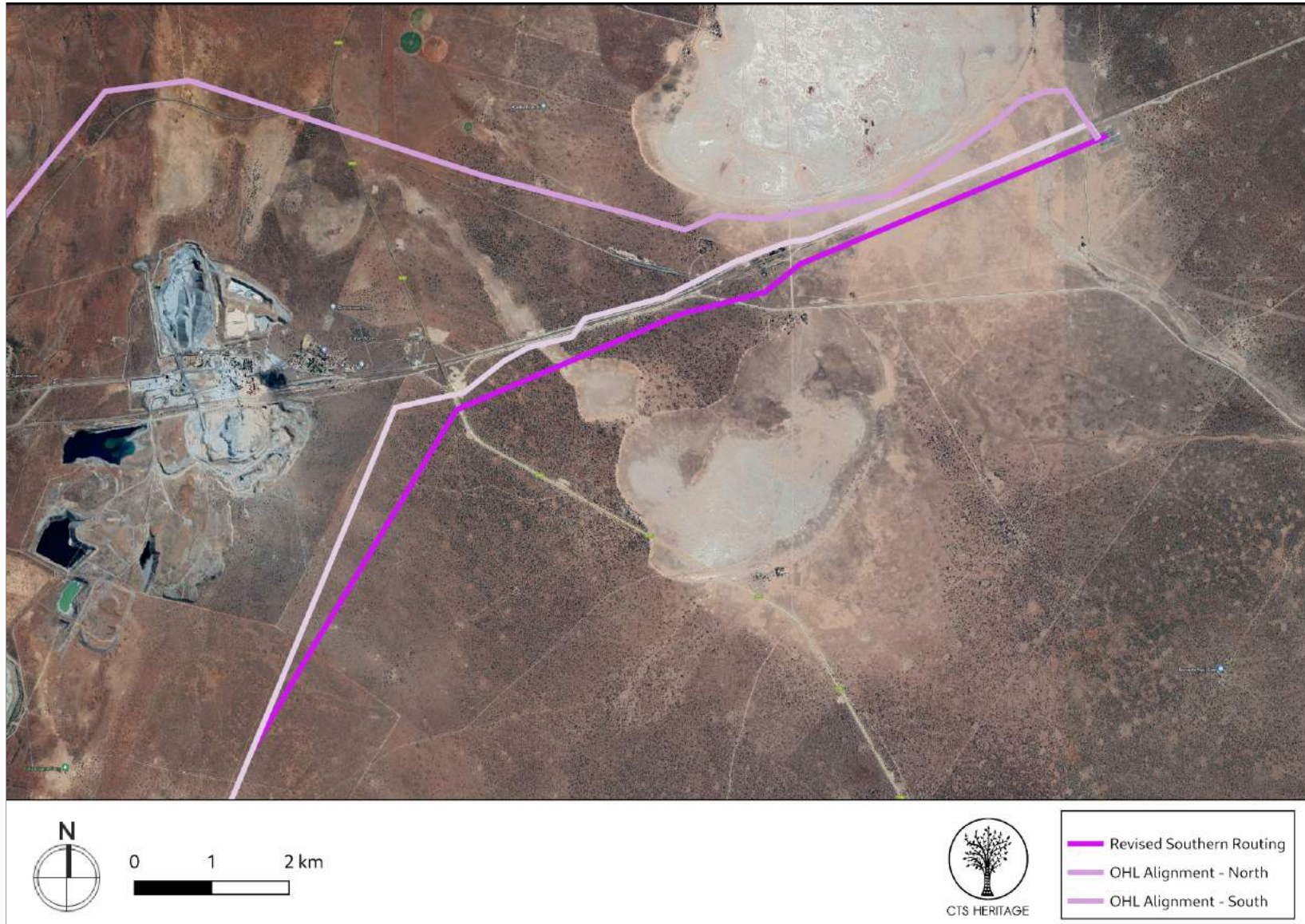


Figure 1.4: Amended southern gridline routing relative to original southern OHL alignment

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 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 from 10 - 15 November 2021 to determine what archaeological resources are likely to be impacted by the proposed development.
- A second archaeological field assessment was conducted on 4 March 2022 to cover a later amendment to the layout in terms of the southern grid alignment (Figure 1.4 and 5.3)
- The area proposed for development was assessed on foot (approx. 150km), mountain bike and 4x4 vehicle, photographs of the context and finds were taken, and tracks were recorded (at 100m intervals) 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

Grassland and shrubbery covered much of the study area at the time of the survey and recent good rains meant the vegetation was quite dense in places. However, small patches of exposed ground were regularly encountered and this meant that the observation of visible archaeological material was not significantly impeded overall. The ground was much rockier on the ridges but despite this archaeological material was still identified without too much trouble in these areas. The survey therefore obtained a good account of the archaeological sensitivity of the area.



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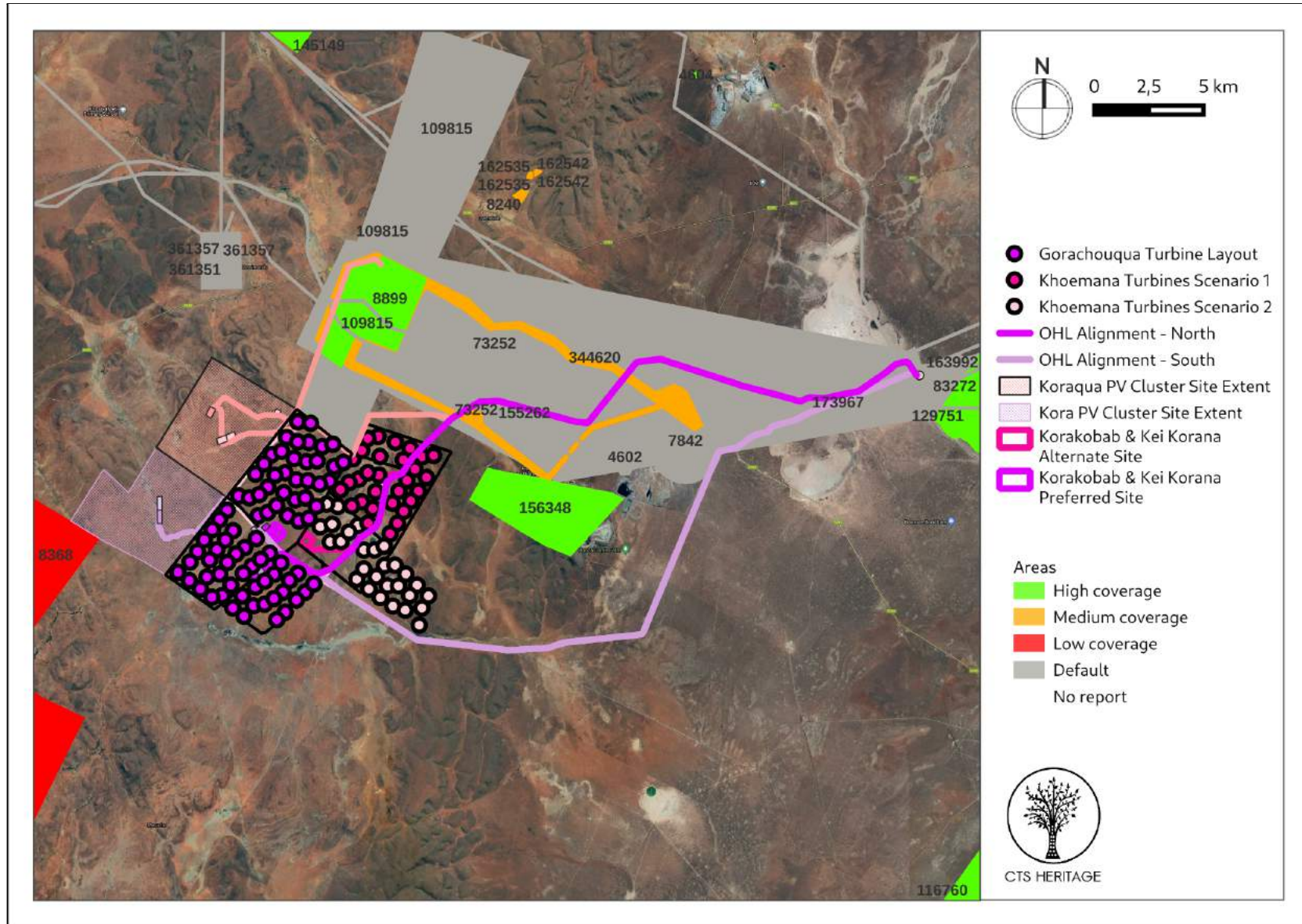


Figure 2: Close up satellite image indicating proposed location of development in relation to heritage studies previously conducted

3. HISTORY AND EVOLUTION OF THE SITE AND CONTEXT

This application is for the proposed development of the Taabosch Puts Renewable Energy Cluster located 20km from Postmasburg in the Northern Cape. Originally a station of the London Missionary Society called Sibiling, it became a Griqua village with the name Blinkklip and was then proclaimed a town on 6 June 1892. Postmasburg achieved municipal status in 1936. Postmasburg had its own diamond rush. The first diamond was discovered in 1918 and as a result an open cast mine grew. The mine was permanently flooded in 1935 and as a result, just like Kimberley, Postmasburg could also boast its very own “Big Hole”. This hole is over 45 m deep and filled with fish. Postmasburg also boasts spectacular architecture and many historical sites. An old blue dolomite stone Reformed Church was built in 1908. There is also a rather impressive gun known as “Howitzer Gun” which stands at the civic centre. It honours the men of Postmasburg who died during World War II. The proposed development is also located less than 10km from Lime Acres, home to the employees of the Finsch Diamond Mine located nearby.

In 1801, the London Missionary Society also established a station among the Griqua at *Leeuwenkuil*. The site proved too arid for cultivation and in about 1805 they moved the station to another spring further up the valley and called it *Klaarwater*. Their second choice was little better than their first, and for many years a lack of water prevented any further development. The name of the settlement was changed later to Griquatown or *Griekwastad* in Afrikaans. They lived among a mixed nomadic community of the Chaguriqua tribe and “bastaards” (people of mixed origin) from Piketberg. Their two leaders were Andries Waterboer and Adam Kok II. From 1813 to 17 July 1871, the town and its surrounding area functioned as *Andries Waterboer’s Land*. *Griekwastad* was later the capital of British Colony Griqualand West from 1873 to 1880, with its own flag and currency, before it was annexed into the Cape Colony. The proposed Taabosch Puts Renewable Energy Cluster is located on one of the main routes between Griekwastad and Kuruman and as such, evidence of this heritage may be impacted by the proposed development.

An archaeological assessment of the Finsch Mine was completed by Henderson in 2005 (SAHRIS ID 6780). Henderson drafted a brief history of the Finsch Mine and this is not repeated here. Suffice to note that “Recent human activity at the Finsch Mine, which would have left traces of mining and structures, therefore only dates back to 1959 on Brits. It would appear that there may be an earlier date for farming activities on Bonza”. Elements of the cultural landscape that may be impacted by the proposed development include the sense of place of the historic core of Postmasburg as well as the mining and farming heritage of the area.

Due to mining activities in the area, a number of heritage impact assessments have been completed in close proximity to the development area and these are relevant here (Figure 2 and Appendix 2). The well known Taung site that preserved early hominid remains is located only some 50 kilometres to the west of the site under investigation. Wonderwerk cave near Kuruman also retain evidence of early peoples in its 6 metre midden deposit, especially in the rear portions of the cave. Towards the front rock-art from later Stone Age peoples are also preserved. Furthermore the engraving sites Wildebeestkuil, Driekopseiland and Nooitgedacht near Kimberly confirm a continued presence of Later Stone Age peoples in the general region. It is very likely that significant archaeological heritage may be impacted by the proposed development.



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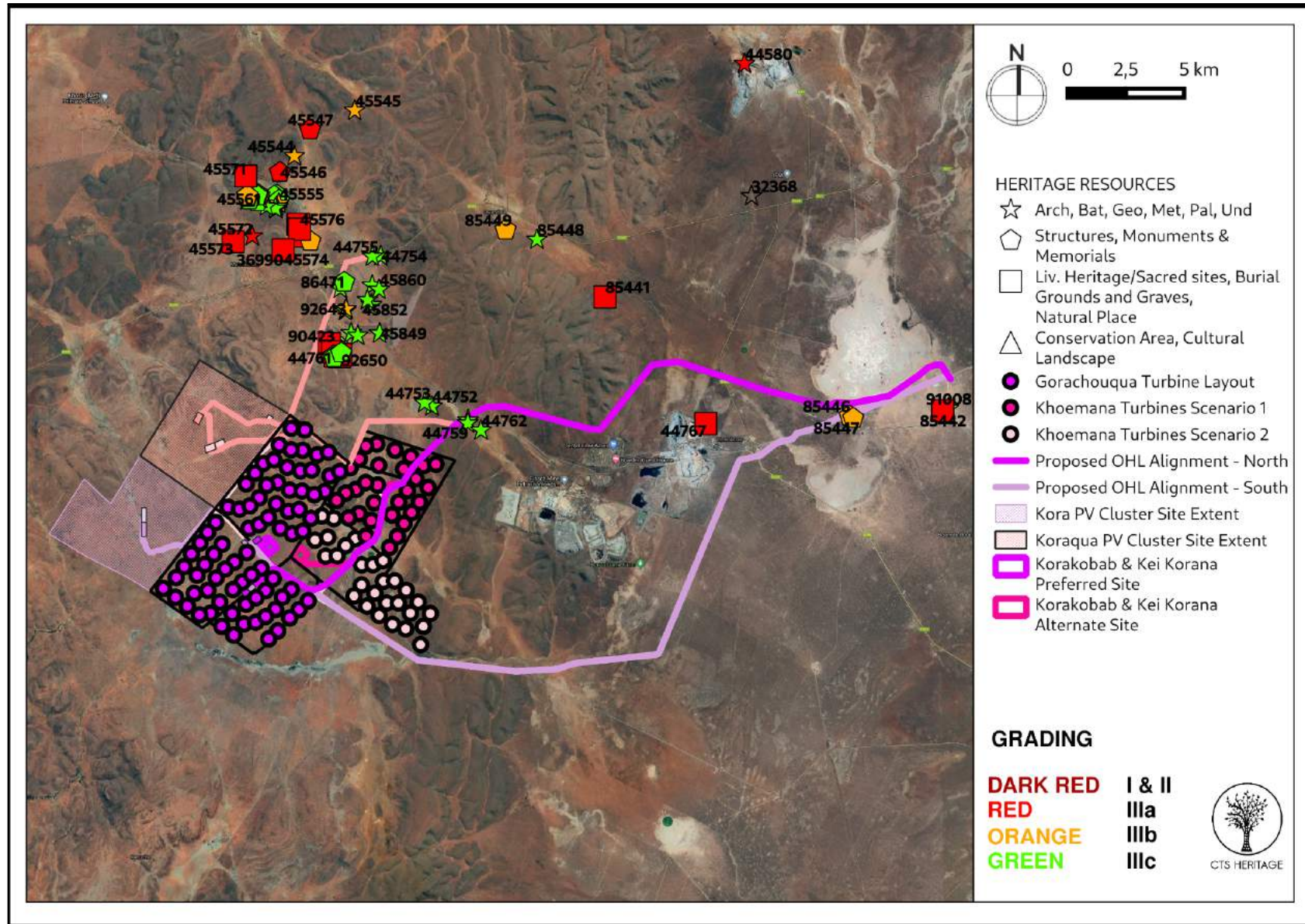


Figure 3. Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated (see Heritage Screening Assessment for insets)

4. IDENTIFICATION OF HERITAGE RESOURCES

4.1 Field Assessment

As indicated in section 3 introducing the context of the study, the area lies on one of the routes connecting Danielskuil and Kuruman to Griquatown further south. The owner (Mr Johan Lamprecht) at Strathmore farm pointed out at least 12 unmarked graves marked by piled stones along the edge of an historic irrigation furrow. He was informed that these were Griqua graves and a subsequent investigation at the Cape Archives supports this as the London Missionary Society was active in the area in the second half of the 19th century where a number of farming projects were undertaken. A further 10 possible unmarked graves were found by another specialist just 1.2km to the east of these graves on the same farm on the eastern side of the Griekwastad road. The original farmhouse complex, now abandoned and ruined, has two stone kraals and a series of historical engravings on the small koppie overlooking the homestead. One of the names engraved could be “Dennis Hinds” and some references were found linking the Hinds family in the Northern Cape to the LMS¹. Unfortunately no dates were made with any of the engraved names but the handwriting style and emphasis on abbreviations led us to interpret these as being at least 100 years old or more.

Other graves of significance included the Lamprechts formal graveyard with at least 7 formal, marked graves, 3 marked graves of resident farm staff, the Roberts grave at the ruined Strathmore farmstead and another two small formal graveyards at Spring Valley and Farmersfield respectively. The farms are very large in the area and are separated by large tracts of land dedicated to cattle and sheep grazing and rearing wild antelope. Most of the buildings found at each homestead were relatively modern but some historical fabric remained at Spring Valley along with ruins recorded at Sunnyside and Strathmore.

The Stone Age archaeological record is widely dispersed across the entire study area and predominantly dates to the Middle Stone Age occupation of the area. However, sufficient numbers of observations were made of Later Stone Age material to conclude that the material clusters around the non-perennial streams criss-crossing the farms. No major rivers are found nearby and the Klein Riet River is at least 40km east. This doesn't appear to have significantly constrained the prehistoric inhabitants of the study area and it is possible that pans and other sources of water were readily used. As would be expected in this area, various grades of hornfels were used to make most of the artefacts observed as well as smaller contributions of CCS and red banded ironstone. Ubiquitous evidence of Levallois manufacture of flakes and blades were found. There is a notable difference in the type of hornfels used in LSA assemblages that could possibly mean these were introduced from elsewhere rather than being sourced locally as was the case for the MSA material. Various points, burins, awls, thumbnail scrapers and small bladelet cores were common within the LSA assemblages.

¹ See <https://www.1820settlers.com/genealogy/familychart.php?personID=I55485&familyID=F20042&tree=master>



Figure 4.1: Contextual Image of development area



Figure 4.2: Contextual Image of development area indicating existing electrical infrastructure



Figure 4.3: Contextual Image of development area indicating existing electrical infrastructure



Figure 4.4: Contextual Images of Development Area



Figure 4.5: Contextual Images of Development Area



Figure 4.6: Contextual Images of Development Area



Figure 4.8: Contextual Images of Landscape



Figure 4.9: Contextual Images of Development Area



Figure 4.9: Contextual Images of Development Area



Figure 4.9: Contextual Images of Development Area



Figure 4.9: Contextual Images of Development Area



Figure 4.9: Contextual Images of Development Area



Figure 4.9: Contextual Images of Development Area



Figure 4.9: Contextual Images of Development Area indicating rail and electrical infrastructure



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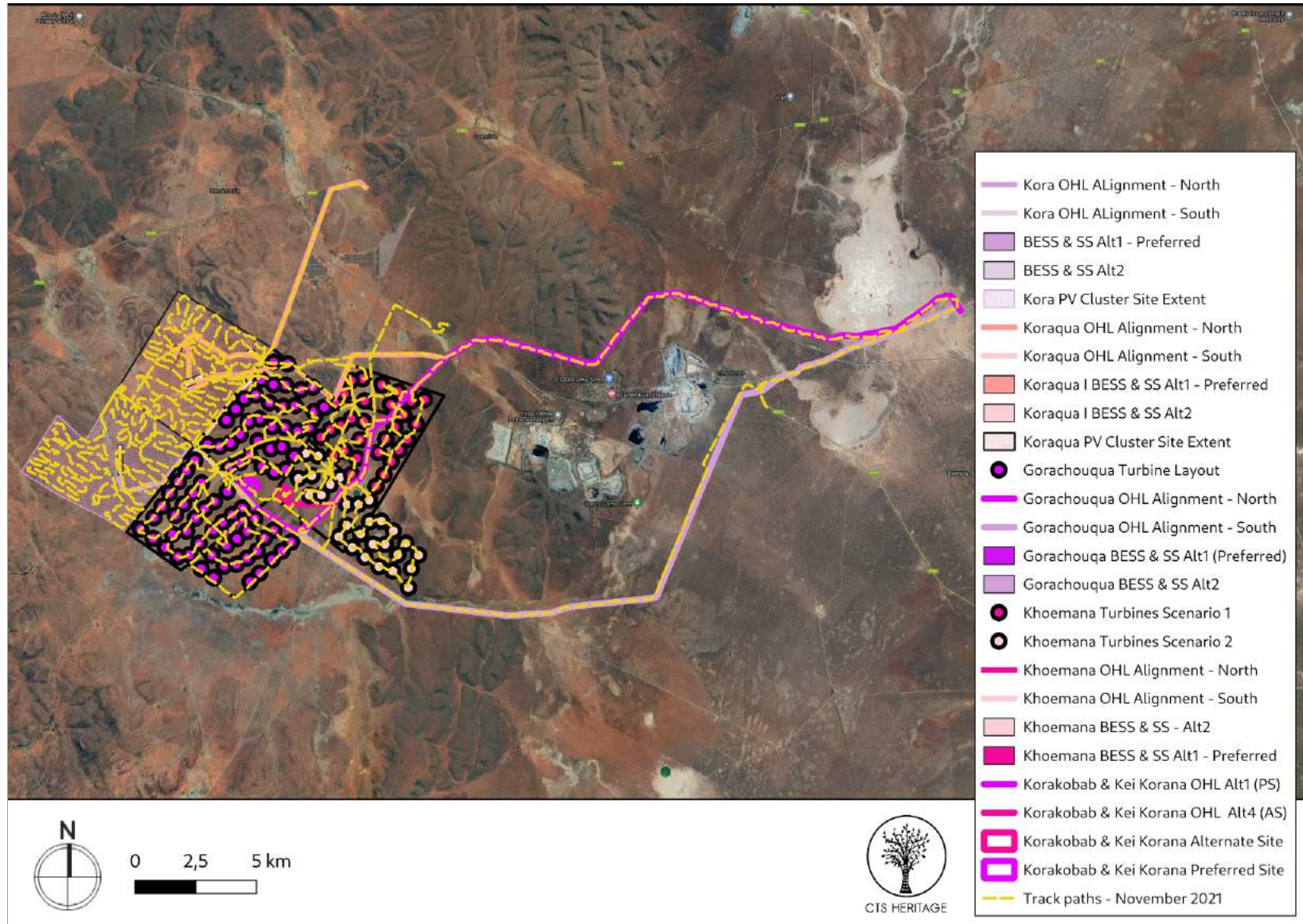


Figure 5.1: Overall track paths of foot survey

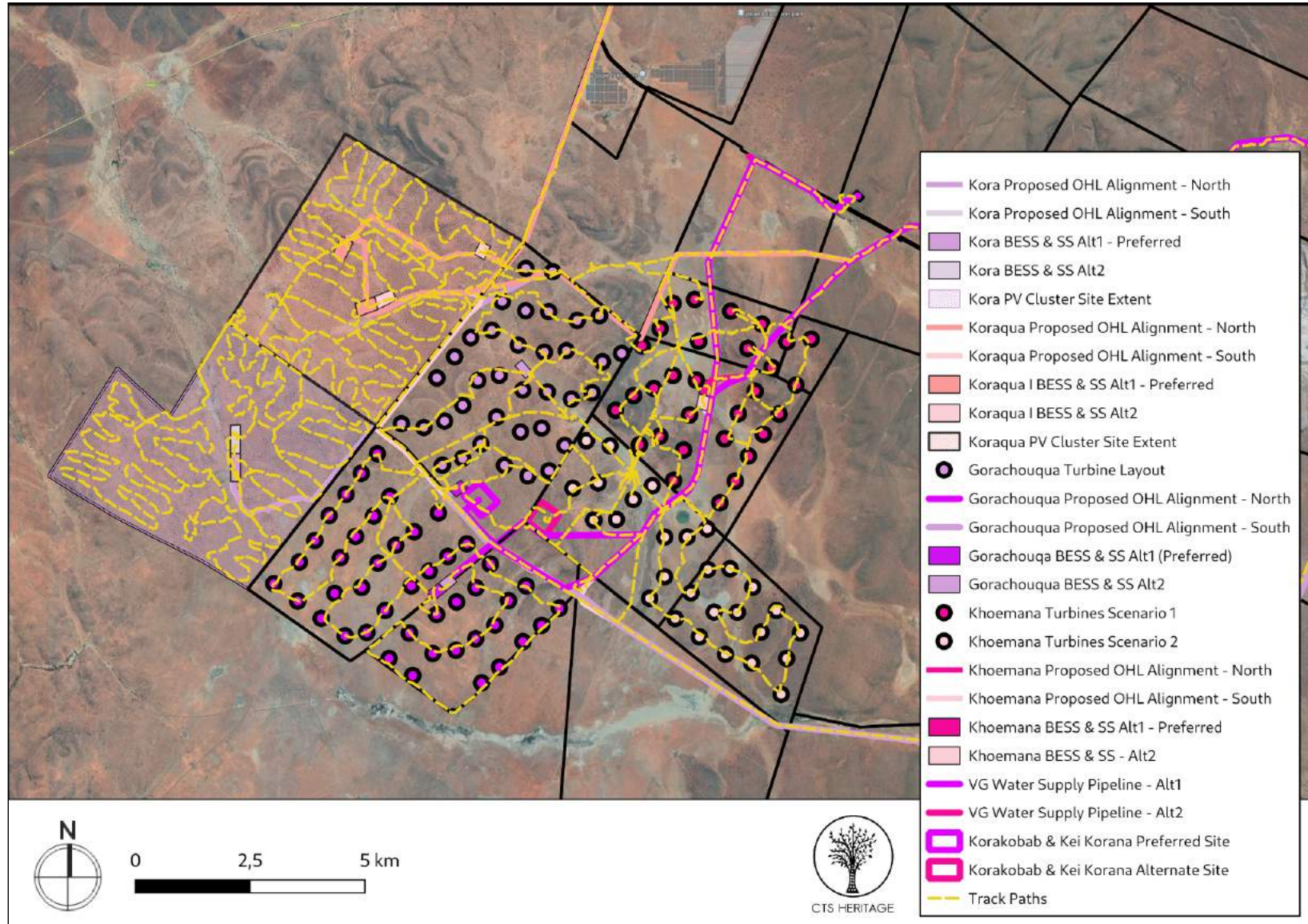


Figure 5.2: Overall track paths of foot survey



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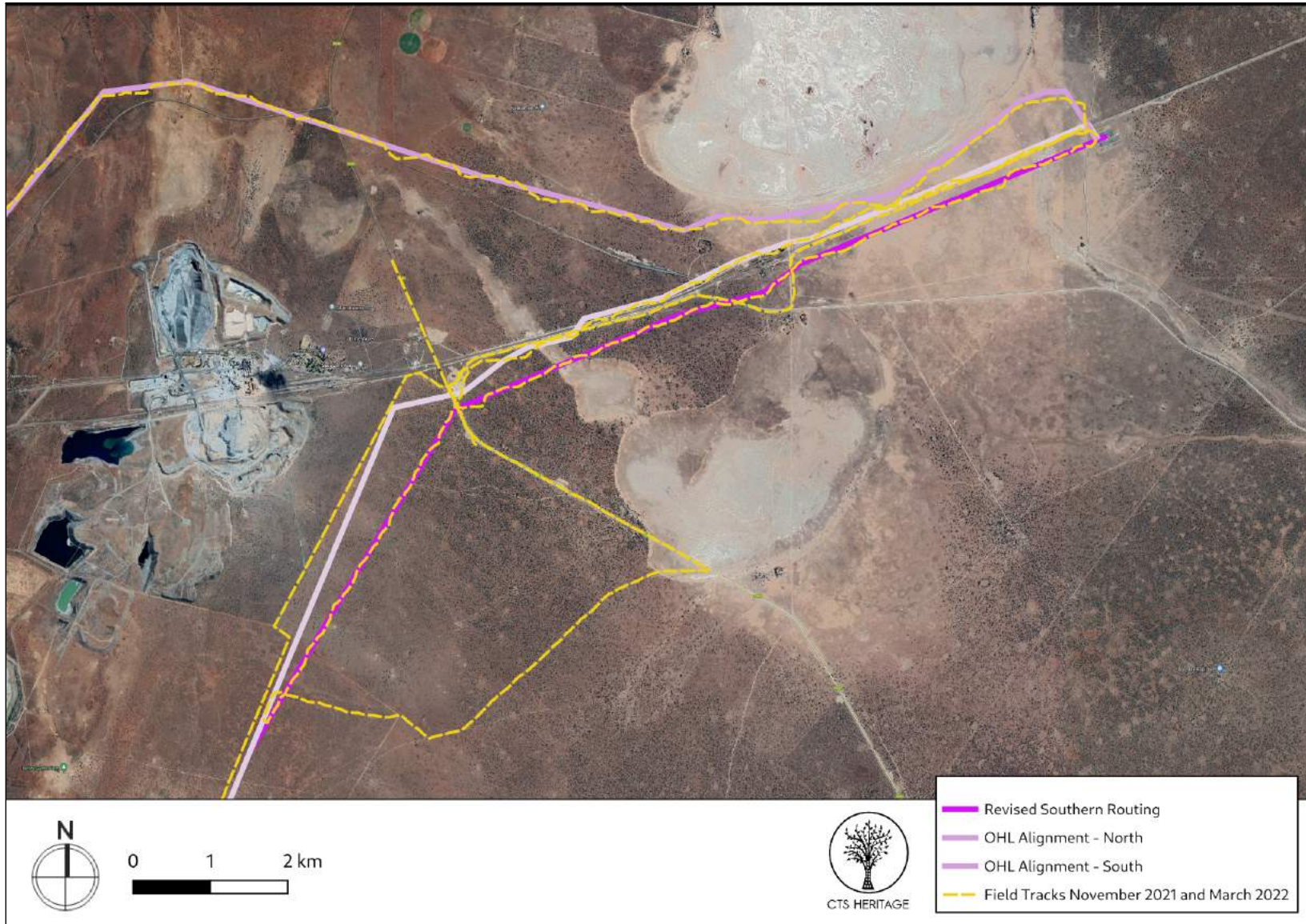


Figure 5.3: Overall track paths of foot survey in addition to tracks taken in the March 2022 assessment for the re-routed southern alignment



4.2 Archaeological Resources identified

Table 1a: Observations noted during the field assessment in November 2021

Obs #	Project	Description	Period	Density	Co-Ordinates		Grading	Mitigation
001	Grid	Two hornfels flakes, dark brown and black, core and debitage, no retouch	LSA	0-5	-28.358578	23.543008	NCW	NA
002	Grid	Hornfels point and chunk	MSA	0-5	-28.349328	23.56869	NCW	NA
003	Grid	Series of railway staff houses abandoned, derelict and being vandalised and stripped; 15 buildings in total including garages/outbuildings. 1960's	Modern		-28.345561	23.579308	NCW	NA
004	Grid	Hornfels flake retouched	LSA	0-5	-28.339121	23.595396	NCW	NA
005	Grid	Two ccs flakes, prominent bulbs of percussion	MSA	0-5	-28.325724	23.501798	NCW	NA
006	Grid	Red banded ironstone flake, edge retouch	MSA	0-5	-28.328637	23.513211	NCW	NA
007	Grid	Ccs core flake with cortex patination	MSA	0-5	-28.332679	23.527421	NCW	NA
008	Grid	Hornfels dark black core	MSA	0-5	-28.335195	23.53548	NCW	NA
009	Grid	Brown hornfels core, several flake scars taken longitudinally	MSA	0-5	-28.337948	23.545206	NCW	NA
010	Grid	Hornfels flake, some retouch	MSA	0-5	-28.341632	23.560792	NCW	NA
011	Grid	Early MSA dark black hornfels flake, central spine on dorsal surface	MSA	0-5	-28.342318	23.569079	NCW	NA
012	Grid	Hornfels flake, early MSA, lateral retouch	MSA	0-5	-28.33071	23.487843	NCW	NA
013	Grid	Hornfels core flake with two prominent flake scars	MSA	0-5	-28.338091	23.480572	NCW	NA
014	Grid	Ccs point	LSA	0-5	-28.347881	23.471801	NCW	NA
015	Grid	Heavily patinated banded ironstone point and core	MSA	0-5	-28.348349	23.448184	NCW	NA
016	Grid	Brown banded ironstone early MSA flake, edge scraper retouch	MSA	0-5	-28.345704	23.43993	NCW	NA
017	Grid	Siltstone large early MSA flake with prominent bulb of percussion	MSA	0-5	-28.343221	23.424838	NCW	NA
018	Grid	Early MSA hornfels point lateral and end retouched	MSA	0-5	-28.347564	23.409366	NCW	NA
019	Grid	Hornfels cores	MSA	0-5	-28.354861	23.398669	NCW	NA
020	Grid	Hornfels flakes	MSA	0-5	-28.348106	23.390961	NCW	NA
021	Grid	Hornfels flaked core, possibly LSA	LSA	0-5	-28.337511	23.380222	NCW	NA
022	Outside Footprint	Wiidzpan Farmhouse complex with small Dams, labourers cottages, main house and ancillary infrastructure	Historic		-28.33971	23.403397	IIC	NA
023	Outside Footprint	Open site along stream bed with msa and LSA material. Hornfels, high grade, unifacially retouch, ccs, siltstone cores and flakes, banded ironstone	LSA, MSA	30+	-28.35176	23.34786	IIC	NA
024	Outside Footprint	Sunnyside old farmhouse ruin, only foundation remains, gum, pepper and willow trees, near kraal	Historic		-28.35084	23.34752	IIC	NA
025	Gorachouqua	Ccs core, hornfels microlith	LSA	0-5	-28.35258	23.34146	NCW	NA
026	Gorachouqua	Ccs core	LSA	0-5	-28.35162	23.33711	NCW	NA
027	Gorachouqua	Hornfels cores	LSA	0-5	-28.35173	23.33396	NCW	NA
028	Grid	Siltstone point, weathered	MSA	0-5	-28.34424	23.33308	NCW	NA
029	Grid	Hornfels core flake with lateral retouch	LSA	0-5	-28.32663	23.34084	NCW	NA



030	Grid	Blue siltstone flake, unworked	MSA	0-5	-28.312615	23.34685	NCW	NA
031	Grid	Hornfels notched flake	MSA	0-5	-28.29869	23.35222	NCW	NA
032	Koraqua	High grade hornfels retouched point, retouched both sides	MSA	0-5	-28.35257	23.32629	NCW	NA
033	Koraqua	Siltstone flakes, debitage, core, points	LSA	0-5	-28.35865	23.32083	NCW	NA
034	Koraqua	Ccs bladelet	LSA	0-5	-28.35693	23.31138	NCW	NA
035	Koraqua	Quartzite radial core	MSA	0-5	-28.34606	23.30665	NCW	NA
036	Koraqua	Quartzite core and flake prominent bulb of percussion	MSA	0-5	-28.34613	23.29254	NCW	NA
037	Koraqua	High grade hornfels retouched flake worth prepared platform, edge retouched	MSA	0-5	-28.36329	23.31669	NCW	NA
038	Koraqua	Siltstone flakes unworked	MSA	0-5	-28.36683	23.31355	NCW	NA
039	Koraqua	Siltstone core	MSA	0-5	-28.37076	23.31002	NCW	NA
040	Koraqua	Unworked siltstone flake in amongst siltstone cobbles	MSA	0-5	-28.37447	23.30663	NCW	NA
041	Koraqua	Unworked siltstone flakes	MSA	0-5	-28.38179	23.30007	NCW	NA
042	Gorachouqua	Ccs core	MSA	0-5	-28.38261	23.3024	NCW	NA
043	Gorachouqua	Hornfels segment	MSA	0-5	-28.38263	23.30351	NCW	NA
044	Gorachouqua	Siltstone core	MSA	0-5	-28.38296	23.30927	NCW	NA
045	Gorachouqua	Siltstone core	MSA	0-5	-28.37862	23.3148	NCW	NA
046	Gorachouqua	Modern farm water tank next to older ruined tank and broken windmill. Pump now solar powered	Modern		-28.376678	23.320996	NCW	NA
047	Gorachouqua	Hornfels point and siltstone flakes	MSA	0-5	-28.37423	23.32018	NCW	NA
048	Gorachouqua	Ccs core and hornfels flake	MSA	0-5	-28.37106	23.3258	NCW	NA
049	Gorachouqua	Kraal cattle water tank etc	Modern		-28.37179	23.33341	NCW	NA
050	Gorachouqua	Hornfels microlithic flake	LSA	0-5	-28.36916	23.33703	NCW	NA
051	Gorachouqua	Fairview farmhouse complex	Modern		-28.3807	23.34314	NCW	NA
052	Khoemana	Ccs core flake and hornfels flake	MSA	0-5	-28.38569	23.35035	NCW	NA
053	Khoemana	Lamprechts family graveyard fenced off, in good state. At least 7 graves	Historic		-28.39043	23.35558	IIIA	No-go area
054	Khoemana	Strathmore farm, Lamprechts farmhouse complex. Some older buildings remain but mostly modern	Historic		-28.39168	23.35673	IIIC	No-go area
055	Khoemana	Vein quartz early MSA flake	MSA	0-5	-28.39708	23.36361	NCW	NA
056	Khoemana	Banded ironstone and ccs core flakes, edge retouched on one	MSA	0-5	-28.39379	23.36498	NCW	NA
057	Khoemana	Hornfels, chert microliths	LSA	5-10	-28.38797	23.36701	NCW	NA
058	Khoemana	Hornfels point and segment (Large)	MSA	0-5	-28.38665	23.36456	NCW	NA
059	Khoemana	Quartz and hornfels, banded ironstone flakes, points	LSA	10-30	-28.38575	23.36219	IIIC	No-go area
060	Khoemana	Banded ironstone, hornfels flakes, very finely worked ; quartz core	LSA, MSA	5-10	-28.38342	23.36287	NCW	NA
061	Khoemana	Red ironstone flake, microlith	LSA	0-5	-28.38126	23.35459	NCW	NA
062	Khoemana	Siltstone core	MSA	0-5	-28.37708	23.35552	NCW	NA
063	Gorachouqua	Banded ironstone flake and hornfels point, uniaxially worked	MSA	0-5	-28.3754	23.34489	NCW	NA
064	Gorachouqua	Early Msa siltstone flake, large bulb of percussion	MSA	0-5	-28.36999	23.34755	NCW	NA
065	Gorachouqua	Hornfels flakes, prepared platforms	MSA	0-5	-28.36735	23.34345	NCW	NA
066	Gorachouqua	Ccs flake, retouched and shaped for hafting	LSA	0-5	-28.36216	23.34231	NCW	NA
067	Gorachouqua	Hornfels blade point	MSA	0-5	-28.36135	23.33946	NCW	NA
068	Gorachouqua	Hornfels flakes, prepared platform	MSA	0-5	-28.36351	23.32738	NCW	NA
069	Gorachouqua	Hornfels flake	MSA	0-5	-28.36043	23.32468	NCW	NA
070	Gorachouqua	Red silcrete point	LSA	0-5	-28.35772	23.32963	NCW	NA



071	Gorachouqua	Weathered siltstone flakes	MSA	0-5	-28.35748	23.33509	NCW	NA
072	Khoemana	Heavily weathered siltstone flake	MSA	0-5	-28.3919	23.35081	NCW	NA
073	Khoemana	Siltstone and hornfels cores	MSA	0-5	-28.3877	23.34477	NCW	NA
074	Khoemana	Two large siltstone possible flakes, may just be product of fencing damage	MSA	0-5	-28.3925	23.33846	NCW	NA
075	Gorachouqua	Large siltstone flake, prominent bulb of percussion	MSA	0-5	-28.39193	23.33516	NCW	NA
076	Gorachouqua	Hornfels flake with platform worked down into narrower section, dorsal removals	MSA	0-5	-28.39182	23.32762	NCW	NA
077	Gorachouqua	Siltstone flake	MSA	0-5	-28.39298	23.3208	NCW	NA
078	Gorachouqua	Siltstone flake with prominent bulb of percussion	MSA	0-5	-28.40185	23.32711	NCW	NA
079	Khoemana	Fine grained hornfels retouched flake	LSA	0-5	-28.4026	23.33479	NCW	NA
080	Khoemana	Hornfels core	MSA	0-5	-28.39898	23.3365	NCW	NA
081	Khoemana	Red ironstone flake, some retouch	MSA	0-5	-28.40399	23.3409	NCW	NA
082	Khoemana	Ruined farmhouse, "ou huis"	Historic		-28.3877	23.35775	IIIB	No-go area
083	Khoemana	Stone walled kraal	Historic		-28.38608	23.36116	IIIC	No-go area
084	Khoemana	Stone walled kraal	Historic		-28.38795	23.35951	IIIC	No-go area
085	Khoemana	Unifacial point hornfels	LSA	0-5	-28.38756	23.35856	NCW	NA
086	Gorachouqua	Hornfels core	MSA	0-5	-28.380183	23.334538	NCW	NA
087	Gorachouqua	Modern farm dam and kraal	Modern		-28.382619	23.323649	NCW	NA
088	Gorachouqua	Modern kraal	Modern		-28.385879	23.323549	NCW	NA
089	Gorachouqua	farm dam	Modern		-28.392375	23.312853	NCW	NA
090	Gorachouqua	Hornfels flake with lateral retouch on one side	MSA	0-5	-28.390952	23.31227	NCW	NA
091	Gorachouqua	Klein Fairview modern farmhouse	Modern		-28.391689	23.306539	NCW	NA
092	Gorachouqua	Fine grained quartzite flake	MSA	0-5	-28.389737	23.296519	NCW	NA
093	Gorachouqua	Fine grained quartzite flake with central spine on dorsal	MSA	0-5	-28.39803309	23.29093546	NCW	NA
094	Gorachouqua	Cream silcrete flake with other impurities colouring the material	MSA	0-5	-28.40625717	23.28382363	NCW	NA
095	Gorachouqua	CCS flake use wear on lateral surface	MSA	0-5	-28.41403614	23.27601551	NCW	NA
096	Gorachouqua	CCS core flake	LSA	0-5	-28.41811748	23.28896134	NCW	NA
097	Gorachouqua	Hornfels flake	MSA	0-5	-28.41019470	23.29795640	NCW	NA
098	Gorachouqua	Microlithic hornfels flake with retouch on ventral side	LSA	0-5	-28.39907132	23.30421540	NCW	NA
099	Gorachouqua	Hornfels flake edge retouched	MSA	0-5	-28.40135499	23.29659257	NCW	NA
100	Gorachouqua	Siltstone and CCS flakes, MSA	MSA	0-5	-28.42338189	23.29492422	NCW	NA
101	Gorachouqua	Hornfels flake with retouch	MSA	0-5	-28.41670395	23.30286131	NCW	NA
102	Gorachouqua	Hornfels cores with blade like flake scars	MSA	0-5	-28.41151275	23.30845179	NCW	NA
103	Gorachouqua	Kraal, modern	Modern		-28.412617	23.289464	NCW	NA
104	Gorachouqua	Large early MSA siltstone flake	MSA	0-5	-28.41348613	23.31523282	NCW	NA
105	Gorachouqua	Banded ironstone flake, early MSA, lateral retouch	MSA	0-5	-28.41816187	23.30995550	NCW	NA
106	Gorachouqua	Ccs point	MSA	0-5	-28.42241160	23.32400258	NCW	NA
107	Gorachouqua	Yellow hornfels core	LSA	0-5	-28.42446045	23.30894898	NCW	NA
108	Gorachouqua	Quartz core with notches on either side	MSA	0-5	-28.42720801	23.29907870	NCW	NA
109	Gorachouqua	Siltstone flake	MSA	0-5	-28.43396502	23.30976580	NCW	NA
110	Gorachouqua	Small hornfels triangular point	LSA	0-5	-28.43197166	23.32491929	NCW	NA
111	Gorachouqua	Hornfels flake	MSA	0-5	-28.42317792	23.33465571	NCW	NA
112	Gorachouqua	Large siltstone flake early MSA	MSA	0-5	-28.41685035	23.33626252	NCW	NA
113	Gorachouqua	Siltstone flake core	MSA	0-5	-28.41381995	23.34344665	NCW	NA
114	Gorachouqua	Older Klein Fairview farmhouse	Historic		-28.391645	23.310011	IIIC	20m buffer area



115	Gorachouqua	Siltstone flake, weathered, early MSA	MSA	0-5	-28.36470497	23.3565771	NCW	NA
116	Khoemana	Dark black hornfels flake	MSA	0-5	-28.35788992	23.36338025	NCW	NA
117	Khoemana	High grade hornfels broken blade	MSA	0-5	-28.36494353	23.37050668	NCW	NA
118	Khoemana	Ccs radial core on dorsal with bipolar reduction on ventral	MSA	0-5	-28.37167082	23.36932924	NCW	NA
119	Khoemana	Two siltstone artefacts, flake and core	MSA	0-5	-28.37678871	23.37214916	NCW	NA
120	Khoemana	Quartz core and hornfels bladelet	LSA	0-5	-28.362711	23.38311	NCW	NA
121	Khoemana	Hornfels flakes, patinated and weathered	MSA	0-5	-28.360145	23.379655	NCW	NA
122	Khoemana	Modern kraal, solar panels and pump further away to west	Modern	n/a	-28.364498	23.386007	NCW	NA
123	Khoemana	Ccs core, LSA, hornfels flake, MSA	LSA+MSA	0-5	-28.362266	23.38967	NCW	NA
124	Khoemana	Hornfels flakes and cores	MSA	0-5	-28.364821	23.394798	NCW	NA
125	Khoemana	Dark hornfels flakes and cores, some LSA	LSA+MSA	0-5	-28.371594	23.393722	NCW	NA
126	Khoemana	Hornfels flakes showing some edge retouch but discarded	LSA	0-5	-28.380079	23.388556	NCW	NA
127	Khoemana	Hornfels flake weathered, siltstone core	MSA	0-5	-28.383075	23.384883	NCW	NA
128	Khoemana	Modern kraal	Modern	n/a	-28.38335	23.382923	NCW	NA
129	Khoemana	Quartz and dark hornfels cores, hornfels flake	LSA	0-5	-28.387509	23.381724	NCW	NA
130	Khoemana	Dark hornfels flake, weathered	MSA	0-5	-28.389954	23.380802	NCW	NA
131	Khoemana	Ccs flake with parallel dorsal scars	MSA	0-5	-28.396098	23.376725	NCW	NA
132	Khoemana	Ccs flake, edge retouch, crater on dorsal from flake removal	MSA	0-5	-28.399938	23.373423	NCW	NA
133	Khoemana	Hornfels flake and ccs core flake with retouched edge along lateral side	MSA	0-5	-28.383245	23.378173	NCW	NA
134	Khoemana	Banded ironstone point, MSA/LSA	LSA+MSA	0-5	-28.376715	23.381692	NCW	NA
135	Khoemana	Hornflakes flakes from blade reduction	MSA	0-5	-28.372581	23.378975	NCW	NA
136	Khoemana	Hornfels segment, edge retouched	MSA	0-5	-28.371693	23.387703	NCW	NA
137	Khoemana	Siltstone early Msa flake	MSA	0-5	-28.370794	23.388205	NCW	NA
138	Khoemana	Hornfels cores and flakes, early MSA biface	MSA	0-5	-28.367467	23.384353	NCW	NA
139	Khoemana	Windmill and tank	Modern	n/a	-28.401142	23.362084	NCW	NA
140	Khoemana	Hornfels core	MSA	0-5	-28.403605	23.369336	NCW	NA
141	Khoemana	Large broken msa blade, lateral retouch	MSA	0-5	-28.413891	23.362006	NCW	NA
142	Khoemana	Ccs flakes, retouched	MSA	0-5	-28.420589	23.369097	NCW	NA
143	Khoemana	Patinated hornfels flake	MSA	0-5	-28.410778	23.372015	NCW	NA
144	Khoemana	Early Msa siltstone flakes, large, notched	MSA	0-5	-28.423777	23.372762	NCW	NA
145	Khoemana	Patinated hornfels flake and ccs point	MSA	0-5	-28.426919	23.378229	NCW	NA
146	Khoemana	Long hornfels flake, pointed with curved end	MSA	0-5	-28.433338	23.387221	NCW	NA
147	Khoemana	Large weathered siltstone flake and hornfels radial core	MSA	0-5	-28.424638	23.391482	NCW	NA
148	Khoemana	Chert/ccs point and flake, edge retouch	MSA	0-5	-28.418097	23.38885	NCW	NA
149	Khoemana	Small ccs core	LSA	0-5	-28.423807	23.384052	NCW	NA
150	Khoemana	Red and dark blue ccs flakes, core	LSA+MSA	0-5	-28.418954	23.379532	NCW	NA
151	Khoemana	Hornfels core and siltstone large early MSA flake	MSA	0-5	-28.413714	23.382633	NCW	NA
152	Khoemana	Red ccs flake with prominent bulb of percussion	LSA	0-5	-28.410396	23.378617	NCW	NA



153	Khoemana	Windmill and tank	Modern	n/a	-28.419661	23.375724	NCW	NA
154	Khoemana	Modern building, likely a hunting hide	Modern	n/a	-28.422713	23.381777	NCW	NA
155	Khoemana	Griqua graves 12	Historic	n/a	-28.3956	23.35636	IIIA	No-go area
156	Khoemana	Farm staff graves, 3 marked	Historic	n/a	-28.39455	23.35378	IIIA	No-go area
157	Khoemana	Ou Huis grave, Roberts. Piet Modise's father buried here too	Historic	n/a	-28.38684	23.35592	IIIA	No-go area
158	Grid	Taibospuits farm, modern farmhouse on southern side of road	Modern	n/a	-28.434514	23.372546	NCW	NA
159	Khoemana	Ubiquitous hornfels gravels from road, some artefactual flakes and cores	MSA	0-5	-28.440754	23.390283	NCW	NA
160	Grid	Jacobsfontein, poor state farmhouse est 1950s with garage. Opposite side (north) of road is a modern incomplete shed and kraals	Modern	n/a	-28.442004	23.400752	NCW	NA
161	Grid	Older cottage, clay walls exposed, corrugated iron roof	Historic	n/a	-28.442405	23.403209	IIIC	20m buffer area
162	Grid	Rocky Flats, Main farmhouse tucked behind trees	Modern	n/a	-28.439585	23.403717	NCW	NA
163	Khoemana	Dark hornfels flake with edge retouch	MSA	0-5	-28.44412985	23.44402707	NCW	NA
164	Khoemana	Triangular hornfels flake	MSA	0-5	-28.44222381	23.45773858	NCW	NA
165	Khoemana	CCS point	LSA	0-5	-28.44060263	23.47212043	NCW	NA
166	Khoemana	Weathered ccs flake	LSA	0-5	-28.4388576	23.4915764	NCW	NA
167	Khoemana	Hornfels scraper, edge retouch	MSA	0-5	-28.4317788	23.49626923	NCW	NA
168	Kora	CCS core	LSA	0-5	-28.42192371	23.5008643	NCW	NA
169	Kora	CCS flakes and cores, primary discard - not much retouch	LSA	0-5	-28.40469398	23.50895285	NCW	NA
170	Kora	Hornfels flake and core	LSA	0-5	-28.4014453	23.51047102	NCW	NA
171	Kora	High grade hornfels point	LSA	0-5	-28.39108537	23.51534076	NCW	NA
172	Kora	CCS flake and core	LSA	0-5	-28.37734345	23.52073556	NCW	NA
173	Kora	Hornfels flake	MSA	0-5	-28.36457698	23.52826619	NCW	NA
174	Khoemana	Historical graffiti on various flat rocks on top of outcrop, no dates, just initials and names and some "I love you's"	Historic	n/a	-28.384464	23.361162	IIIA	No go area
175	Kora	Farm graveyard; Brits, van den Berg, 2 marked graves fenced off	Historic	n/a	-28.376	23.2618	IIIA	200m Buffer area
176	Kora	Farmersfield farmhouse complex, mainly modern buildings	Modern	n/a	-28.37693	23.26088	NCW	NA
177	Kora	More outbuildings related to the farm	Modern	n/a	-28.37833	23.26089	NCW	NA
178	Kora	Siltstone core, early MSA	MSA	0-5	-28.38273	23.25147	NCW	NA
179	Kora	Siltstone flake, prominent bulb of percussion, core	MSA	0-5	-28.38024	23.24666	NCW	NA
180	Kora	Siltstone /hornfels core and struck flake	MSA	0-5	-28.37663	23.2447	NCW	NA
181	Kora	Siltstone core	MSA	0-5	-28.37679	23.24003	NCW	NA
182	Kora	Hornfels core, scars on either side forming wedge	LSA	0-5	-28.37949	23.24105	NCW	NA
183	Kora	Ccs core, only partially reduced	LSA	0-5	-28.38179	23.24343	NCW	NA
184	Kora	Kraal, windmill and tank	Modern	n/a	-28.38137	23.248	NCW	NA
185	Kora	Quartzite flake and quartz core	LSA	0-5	-28.38234	23.23759	NCW	NA
186	Kora	Ccs core	LSA	0-5	-28.38361	23.23918	NCW	NA
187	Kora	Black ccs point, edge retouched, dorsal scars showing reduction	LSA	0-5	-28.38656	23.23542	NCW	NA
188	Kora	Kraal, windmill and tank	Modern	n/a	-28.39341	23.2565	NCW	NA
189	Kora	Siltstone cores and hammerstone	MSA	0-5	-28.38905	23.23244	NCW	NA
190	Kora	Siltstone flakes and cores	MSA	0-5	-28.39272	23.23346	NCW	NA
191	Kora	Yellow hornfels point	LSA	0-5	-28.39559	23.23776	NCW	NA



192	Kora	Siltstone core	MSA	0-5	-28.38979	23.24051	NCW	NA
193	Kora	Fine grained quartzite flake	MSA	0-5	-28.38738	23.24599	NCW	NA
194	Kora	Broken hornfels blade with lateral retouch	MSA	0-5	-28.38738	23.25299	NCW	NA
195	Kora	Siltstone core extensively flaked	MSA	0-5	-28.39228	23.24829	NCW	NA
196	Kora	Quartzite flake	MSA	0-5	-28.39686	23.24539	NCW	NA
197	Kora	Siltstone core and flake	MSA	0-5	-28.40179	23.25054	NCW	NA
198	Kora	Hornfels point, retouched edges	LSA	0-5	-28.39486	23.25441	NCW	NA
199	Kora	windmill	Modern	n/a	-28.39862	23.26985	NCW	NA
200	Kora	Quartz, Silcrete, hornfels microliths	LSA	5-10	-28.39638	23.26306	NCW	NA
201	Kora	quartzite core	LSA	0-5	-28.40136	23.26024	NCW	NA
202	Kora	Kraal and tank	Modern	n/a	-28.40199	23.2735	NCW	NA
203	Kora	Siltstone core and flake, early MSA	MSA	0-5	-28.41205	23.27087	NCW	NA
204	Kora	Fine grained quartzite flakes, curved retouched edges	MSA	0-5	-28.40637	23.2661	NCW	NA
205	Kora	Dark hornfels point with lateral retouch	MSA	0-5	-28.4058	23.27468	NCW	NA
206	Kora	Hornfels point and quartz core	MSA	0-5	-28.40018	23.28099	NCW	NA
207	Kora	Quartzite flake, prominent bulb of percussion	MSA	0-5	-28.39666	23.27758	NCW	NA
208	Kora	Hornfels flake with narrowed platform, probably hafted	MSA	0-5	-28.38911	23.26911	NCW	NA
209	Kora	Green chalcedony points	LSA	0-5	-28.38357	23.26817	NCW	NA
210	Kora	Fine grained quartzite flake	LSA	0-5	-28.38742	23.26223	NCW	NA
211	Kora	Hornfels point and flake	MSA	0-5	-28.39158	23.2724	NCW	NA
212	Kora	Hornfels microlithic point	LSA	0-5	-28.39222	23.27787	NCW	NA
213	Kora	Chalcedony flake, pointed, patinated hornfels blade	MSA	0-5	-28.39418	23.2867	NCW	NA
214	Kora	Banded quartz core	LSA	0-5	-28.39023	23.29089	NCW	NA
215	Kora	Green chalcedony cores and flakes	LSA+MSA	0-5	-28.38975	23.28648	NCW	NA
216	Kora	Brown and black hornfels cores and flakes	MSA	0-5	-28.38869	23.28243	NCW	NA
217	Kora	Weathered quartzite flake, early MSA	MSA	0-5	-28.38538	23.27661	NCW	NA
218	Kora	Broken hornfels blade and quartzite flake	MSA	0-5	-28.37892	23.27485	NCW	NA
219	Kora	Early Msa triangular flake, siltstone	MSA	0-5	-28.3826	23.28278	NCW	NA
220	Kora	Hornfels core	LSA	0-5	-28.38452	23.28989	NCW	NA
221	Kora	Ccs core flake	MSA	0-5	-28.38249	23.29518	NCW	NA
222	Kora	Ccs bladelet core	MSA	0-5	-28.37908	23.28955	NCW	NA
223	Kora	Hornfels point	LSA	0-5	-28.3774	23.28408	NCW	NA
224	Kora	Serrated ccs flake with curved point	MSA	0-5	-28.37283	23.27857	NCW	NA
225	Kora	Hornfels blade core	LSA	0-5	-28.37303	23.2731	NCW	NA
226	Kora	Windmill and tank	Modern	n/a	-28.38503	23.26609	NCW	NA
227	Kora	Kraal and tank	Modern	n/a	-28.38124	23.27254	NCW	NA
228	Kora	Siltstone cores and flakes	MSA	0-5	-28.36784	23.26686	NCW	NA
229	Kora	Siltstone cores and flakes	MSA	0-5	-28.3735	23.26762	NCW	NA
230	Koraqua	Graves, 2 young girls in formal graves and at least 2 other graves marked with stones	Historic	n/a	-28.35683	23.27494	IIIA	200m Buffer area
231	Koraqua	Ccs core and triangular flake, some edge retouch	MSA	0-5	-28.36179	23.26839	NCW	NA
232	Koraqua	Hornfels flake point reworked	LSA	0-5	-28.36703	23.27666	NCW	NA
233	Koraqua	Yellow hornfels flake and ccs microlithic core	LSA+MSA	0-5	-28.36885	23.28443	NCW	NA
234	Koraqua	Vein quartz flake with large dorsal scar	MSA	0-5	-28.37326	23.28982	NCW	NA
235	Koraqua	Quartzite flakes	MSA	0-5	-28.37804	23.29487	NCW	NA
236	Koraqua	Red ironstone early Msa flake with	MSA	0-5	-28.37702	23.30237	NCW	NA



		faceted platform						
237	Koraqua	Blade point hornfels, some retouch on ventral surface	MSA	0-5	-28.37361	23.29855	NCW	NA
238	Koraqua	Ccs flake showing step hinge terminations	MSA	0-5	-28.36879	23.29337	NCW	NA
239	Koraqua	Long patinated hornfels core with flaking and recovered flake scars	MSA	0-5	-28.36505	23.29634	NCW	NA
240	Koraqua	Quartzite core	MSA	0-5	-28.36795	23.30104	NCW	NA
241	Koraqua	Hornfels core	LSA	0-5	-28.37147	23.30669	NCW	NA
242	Koraqua	Red ironstone pointed flake	MSA	0-5	-28.36508	23.3076	NCW	NA
243	Koraqua	Red ironstone core and flake blade	MSA	0-5	-28.36225	23.30289	NCW	NA
244	Koraqua	Red ironstone and quartz mixed flake, early msa	MSA	0-5	-28.36041	23.29415	NCW	NA
245	Koraqua	Kraal, windmill and tank	Modern	n/a	-28.36587	23.29043	NCW	NA
246	Koraqua	Tank and kraal	Modern	n/a	-28.36321	23.29623	NCW	NA
247	Koraqua	Quartz core, very fine flake scars	LSA	0-5	-28.36314	23.31407	NCW	NA
248	Koraqua	Red banded ironstone core	MSA	0-5	-28.3574	23.31362	NCW	NA
249	Koraqua	Unworked siltstone flakes, discard	MSA	0-5	-28.35503	23.30788	NCW	NA
250	Koraqua	Curled hornfels flake with retouch	MSA	0-5	-28.3547	23.32272	NCW	NA
251	Koraqua	Microliths, siltstone, quartz, Silcrete, chert	LSA	0-5	-28.34732	23.32342	NCW	NA
252	Koraqua	Hornfels flake with edge retouch	MSA	0-5	-28.34649	23.32871	NCW	NA
253	Koraqua	Hornfels adze	MSA	0-5	-28.34328	23.31838	NCW	NA
254	Koraqua	Siltstone and hornfels cores	MSA	0-5	-28.34916	23.31621	NCW	NA
255	Koraqua	Siltstone flake and core	MSA	0-5	-28.35033	23.31194	NCW	NA
256	Koraqua	Kraal, windmill and tank	Modern	n/a	-28.34748	23.30555	NCW	NA
257	Koraqua	Tank	Modern	n/a	-28.34381	23.29924	NCW	NA
258	Koraqua	Kraal and tanks	Modern	n/a	-28.3398	23.29255	NCW	NA
259	Koraqua	Siltstone and hornfels flakes	MSA	0-5	-28.3442	23.31298	NCW	NA
260	Koraqua	Quartz flake and core	LSA	0-5	-28.34204	23.30812	NCW	NA
261	Koraqua	Long siltstone flake patinated with retouched end, similar to a large adze	MSA	0-5	-28.33611	23.31019	NCW	NA
262	Koraqua	Siltstone core	MSA	0-5	-28.3319	23.30335	NCW	NA
263	Koraqua	Hornfels microliths	LSA	0-5	-28.32812	23.29371	NCW	NA
264	Koraqua	Hornfels flakes, some only debitage, thumbnail scraper	LSA	0-5	-28.33173	23.29239	NCW	NA
265	Koraqua	Hornfels flake with a lot of cortex remaining and siltstone flake	MSA	0-5	-28.33597	23.29956	NCW	NA
266	Koraqua	Siltstone chopper	MSA	0-5	-28.3402	23.30266	NCW	NA
267	Koraqua	Hornfels core and flake	LSA	0-5	-28.33596	23.28873	NCW	NA
268	Koraqua	Hornfels flake	MSA	0-5	-28.33984	23.28331	NCW	NA
269	Koraqua	Quartz, ccs and hornfels flakes	MSA	0-5	-28.3476	23.2785	NCW	NA
270	Koraqua	Siltstone flakes	MSA	0-5	-28.35044	23.28666	NCW	NA
271	Koraqua	Hornfels flakes with longitudinal scars on dorsal	MSA	0-5	-28.34433	23.2891	NCW	NA
272	Koraqua	Hornfels core	MSA	0-5	-28.34994	23.29852	NCW	NA
273	Koraqua	Hornfels flakes	MSA	0-5	-28.35408	23.30197	NCW	NA
274	Koraqua	Quartz crystal, core and hornfels flakes	LSA	0-5	-28.35377	23.29645	NCW	NA
275	Koraqua	Hornfels flakes	MSA	0-5	-28.35477	23.29095	NCW	NA
276	Koraqua	Spring Valley farmhouse complex, modern buildings on eastern end, some older historic buildings on western end	Historic	n/a	-28.35844	23.27824	IIIB	200m no development buffer
277	Khoemana	Possible graves near Griekwastad road on the eastern end and on the de Klerk's ground. If these are graves there are about 10 in all	Historic	n/a	-28.395504	23.368983	IIIA	No-go area



Table 1b: Observations noted during the field assessment in March 2022 for the amended southern grid alignment

Obs #	Project	Description	Period	Density	Co-Ordinates		Grading	Mitigation
278	Grid	Light brown hornfels with most of the edge retouched	LSA	0 to 5	-28.34516239	23.58926686	NCW	NA
279	Grid	Hornfels debitage	LSA	0 to 5	-28.349886	23.579093	NCW	NA
280	Grid	Chert core	LSA	0 to 5	-28.35348421	23.56608137	NCW	NA
281	Grid	Fine grained hornfels point, retouch	LSA	0 to 5	-28.355791	23.559362	NCW	NA
282	Grid	Hornfels core	MSA	0 to 5	-28.35951154	23.54945785	NCW	NA
283	Grid	Reddish hornfels core flake, edge retouched	MSA	0 to 5	-28.36196068	23.54219168	NCW	NA
284	Grid	Chert flake, lateral edge retouch	MSA	0 to 5	-28.36620806	23.5357312	NCW	NA
285	Grid	Chert point	MSA	0 to 5	-28.37410031	23.53031145	NCW	NA
286	Grid	Light brown hornfels core	LSA	0 to 5	-28.37894424	23.52739722	NCW	NA
287	Grid	Microlithic hornfels core and flake	LSA	0 to 5	-28.38426512	23.52375533	NCW	NA
288	Grid	Large red hornfels core	MSA	0 to 5	-28.38968236	23.52012152	NCW	NA
289	Grid	Light brown hornfels point	LSA	0 to 5	-28.39339719	23.51762844	NCW	NA
290	Grid	Hornfels flake	MSA	0 to 5	-28.39951785	23.51313933	NCW	NA



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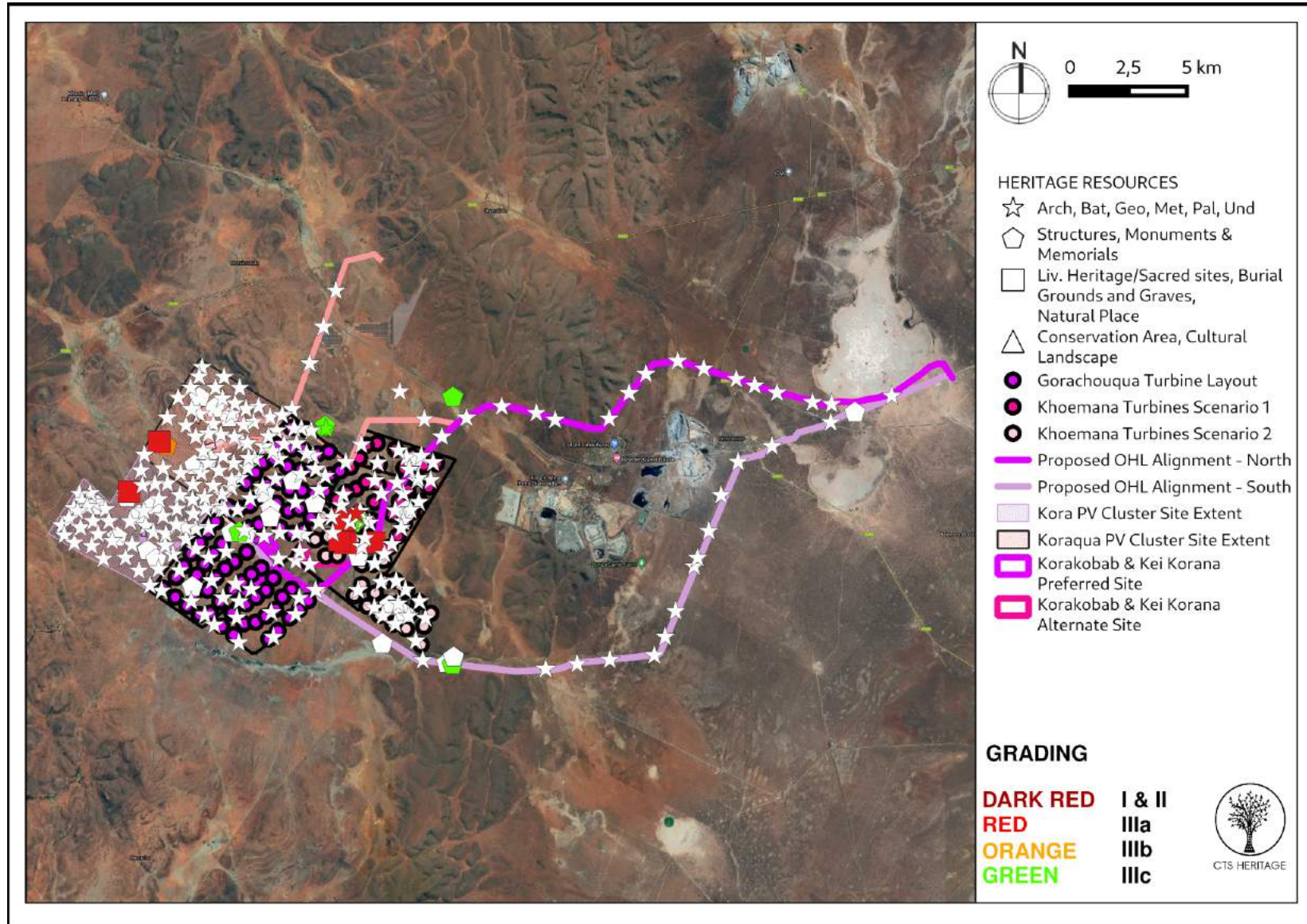


Figure 6: Map of heritage resources identified during the field assessment, and known sites, relative to the proposed development footprint



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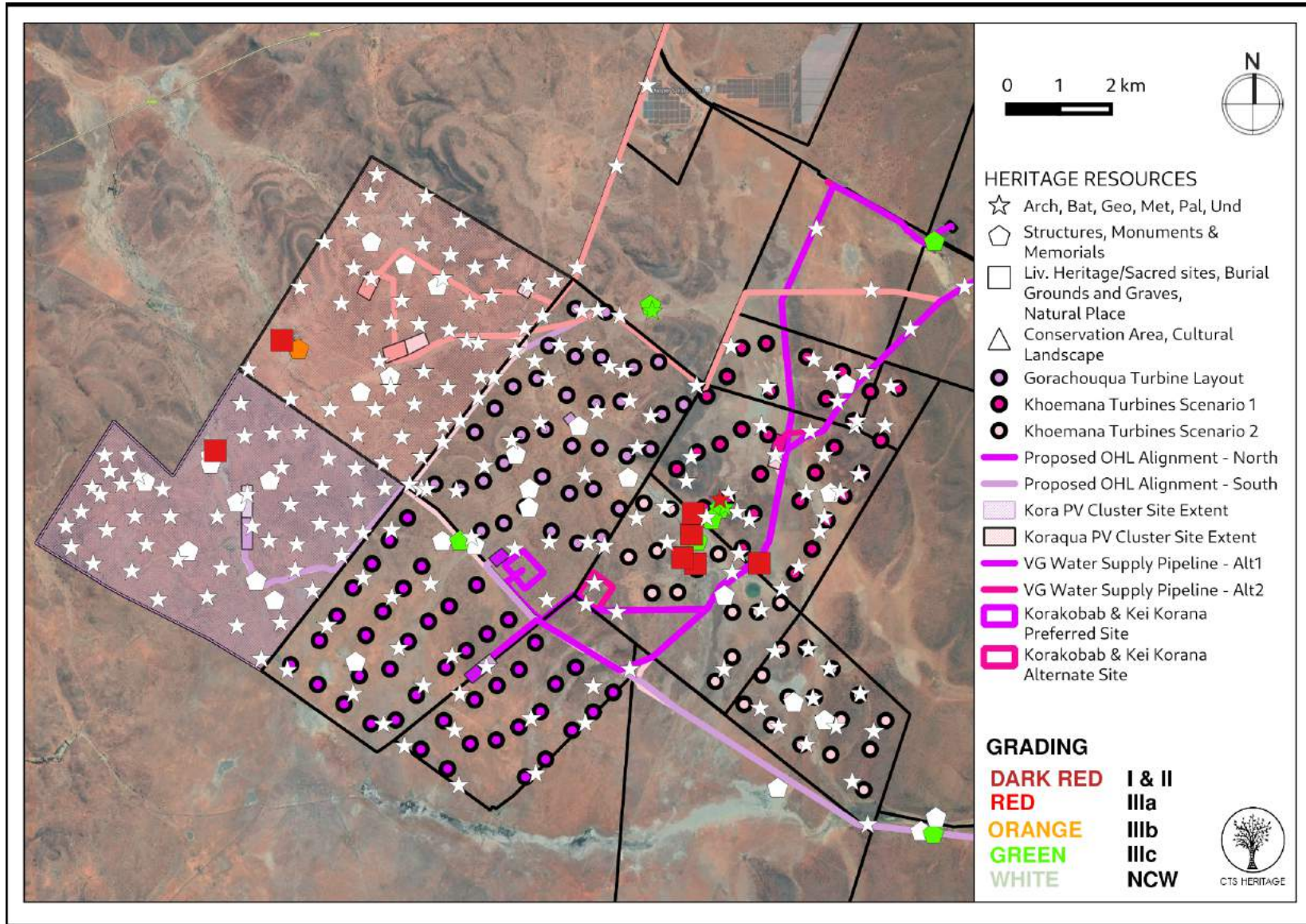


Figure 6.1: Map of heritage resources identified during the field assessment, and known sites, relative to the proposed development footprint

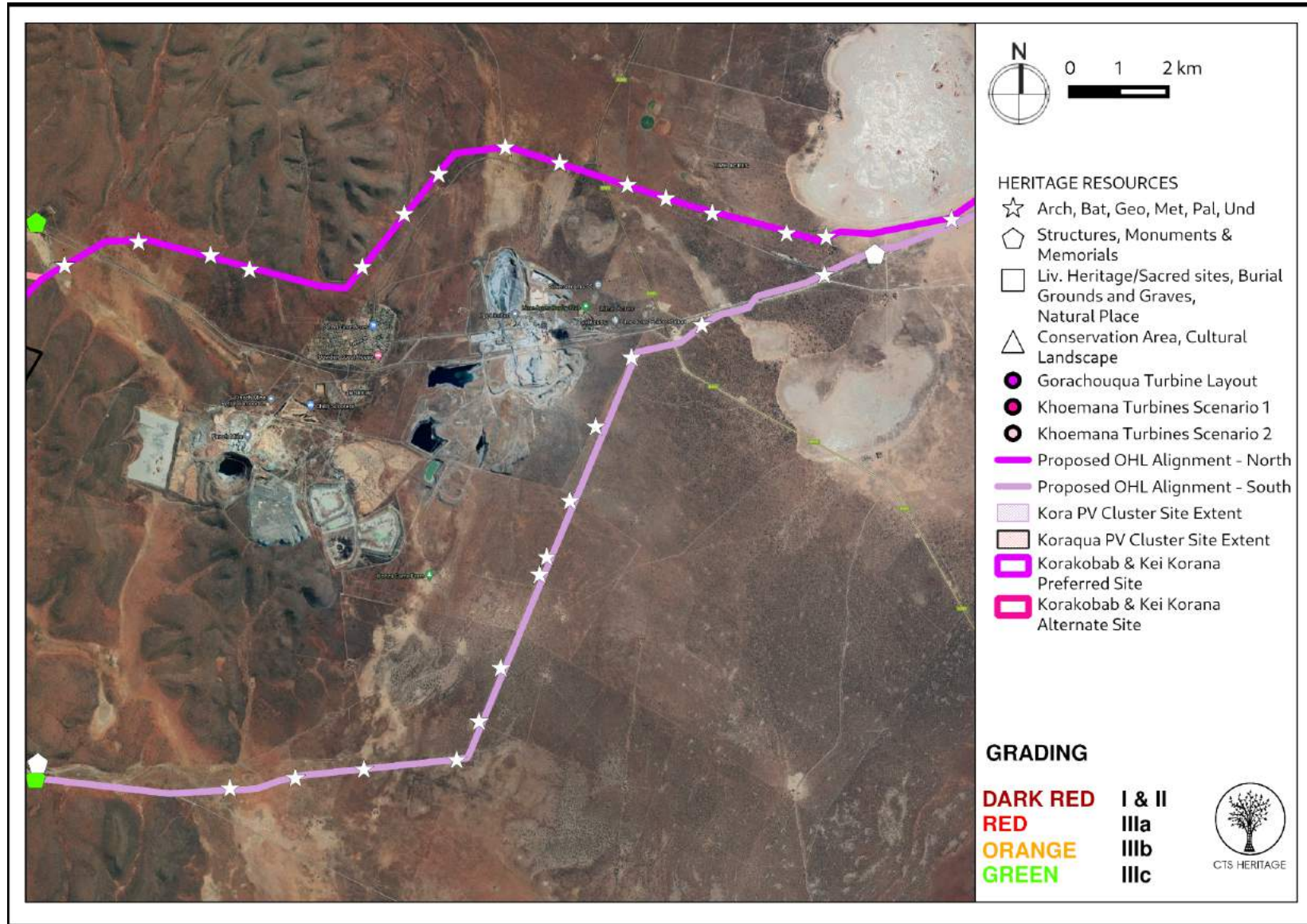


Figure 6.2: Map of heritage resources identified during the field assessment, and known sites, relative to the proposed development footprint



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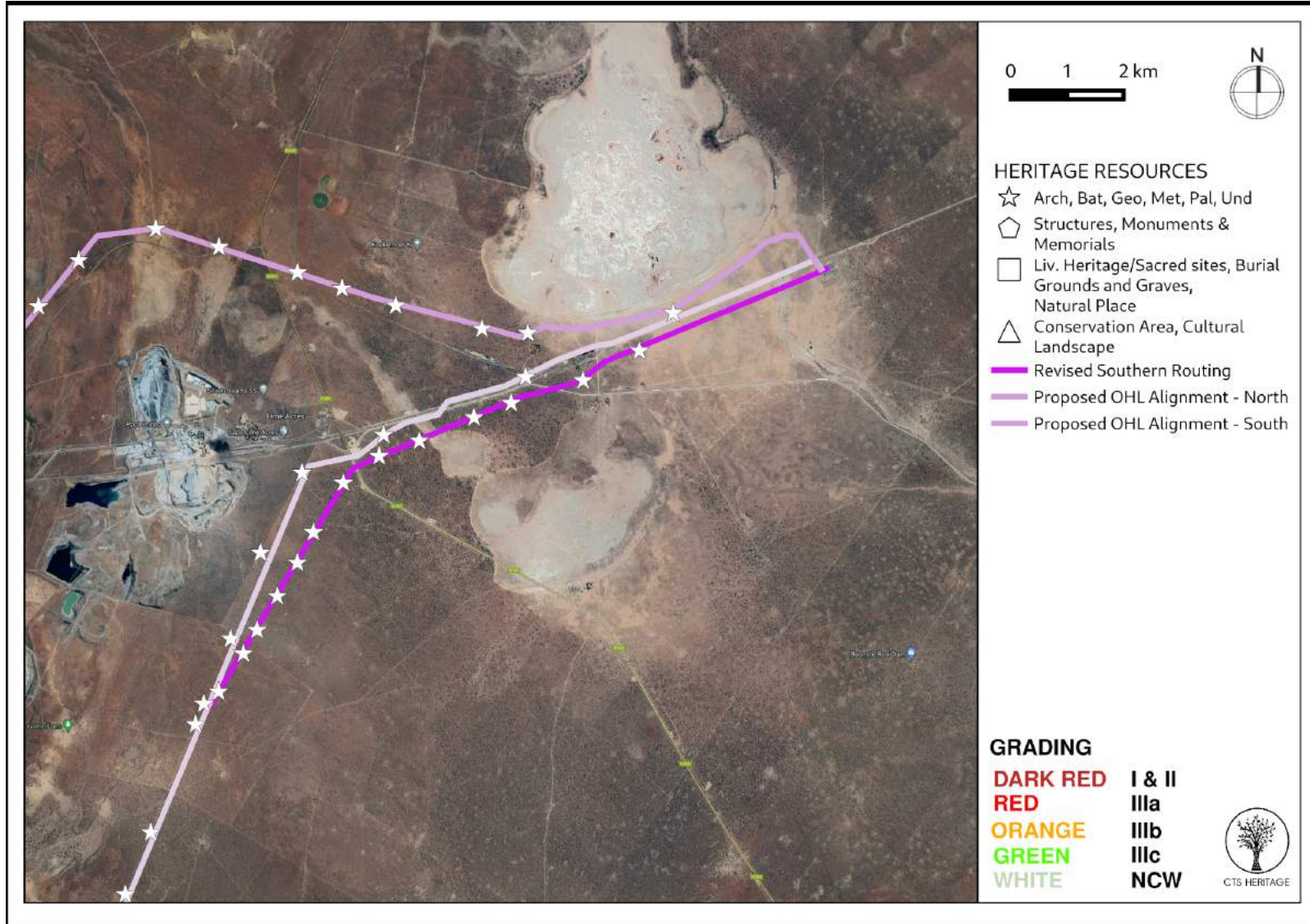


Figure 6.3: Map of heritage resources identified during the field assessment, relative to the proposed development footprint of the revised southern OHL routing. All observations made were determined to be Not Conservation-Worthy

4.3 Selected photographic record

(a full photographic record is available upon request)



Figure 7.1: Site No. 22



Figure 7.2: Site No. 23



Figure 7.3: Site No. 24



Figure 7.4: Site No. 53



Figure 7.5 Site No. 54



Figure 7.6 Site No. 59



Figure 7.7 Site No. 82



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Figure 7.8 Site No. 82



Figure 7.9 Site No. 83



Figure 7.10 Site No. 84



Figure 7.11 Site No. 114



Figure 7.12 Site No. 155



Figure 7.13 Site No. 156



Figure 7.14 Site No. 157



Figure 7.15 Site No. 161



Figure 7.16 Site No. 174



Figure 7.17 Site No. 174



Figure 7.18 Site No. 174



Figure 7.19 Site No. 174



Figure 7.20 Site No. 175



Figure 7.21 Site No. 230



Figure 7.22 Site No. 230

5. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT

5.1 Assessment of impact to Archaeological Resources

The heritage field assessment identified a number of heritage resources located within the areas proposed for development. The majority of these heritage resources were determined to be not conservation-worthy and as such, no further mitigation for impacts to these heritage observations is recommended.

A number of heritage resources of significance were, however, identified. These resources range from significant archaeological sites and scatters, to burial grounds and graves as well as historic farm werfs and infrastructure such as the irrigation furrows ascribed to the work of the London Missionary Society and the local Griekwa population. The relationship between the furrows, the farm werfs and the burials form a unique and layered cultural landscape that speaks to the unique past of this area and its Griekwa inhabitants. It is important that the spatial relationship of these resources is not disrupted by the proposed development.

Below, we detail the specific heritage resources identified within each proposed project associated with the Taai Bosch Puts Renewable Energy Development.

Khoemana WEF

There are a number of significant heritage resources located within the footprint of the Khoemana WEF development, most of which are oriented around Strathmore Farm (Site No. 54) and the ruined farm werf (Site No. 82). The identified heritage resources located in close proximity to the Strathmore Farm, the irrigation furrows and the ruined farm werf include a number of burial ground or graves (Site No. 53, 155, 156, 157 and 277), stone kraals (Site No. 83 and 84) and archaeological sites (Site No. 59 and 174).

In the layout provided, a number of turbines are proposed to be located in very close proximity to these resources, thereby disrupting the historic integrity of the landscape. In order to conserve these resources and the unique spatial relationship that they have, a no development zone is proposed around these sites (Figure 9.1). Turbines 25, 29, 30, 33 and 34 fall within this no-development zone and as such, it is recommended that they be removed from the layout proposal as they are not supported from a heritage perspective.

Gorachouqua WEF

The older Klein Fairview farmhouse is located within this development layout (Site No. 114). This site is located along an existing road and within a proposed grid alignment. While no direct impact from the proposed development is anticipated, the nearest turbine to this heritage resource is Turbine 34 located only 450m away. It is recommended that this turbine be removed from the layout in order to conserve the context of this heritage resource.

Koraqua PV

The Springvalley Farm Complex (Site No. 276) and a burial (Site No. 230) are located within the Koraqua PV. In the layout that has been provided these sites are located within the PV area however it is recommended that no impact to

these sites is permitted. A no development buffer of 200m around each site is recommended to ensure that no impact occurs.

Kora PV

The van den Berg historic homestead (Site No. 175) is located within the area proposed for the Kora PV Facility. In the layout that has been provided this site is located within the PV area however it is recommended that no impact to this site is permitted. A no development buffer of 200m around this site is recommended to ensure that no impact occurs.

Grid Connections

An older clay cottage (Site No. 161) is located along the southern grid connection. This site is located along an existing road and within a proposed grid alignment. While no direct impact from the proposed development is anticipated, it is important that no pylons are placed within 20m of the structure and as such, a 20m no development buffer is recommended around this site.

Other heritage resources identified as part of previous HIA processes are known in close proximity to the grid alignments. These are mapped in Figure 3 and include archaeological sites 44751, 44759 and 44762 graded IIIC. These archaeological resources are located more than 100m from the proposed north grid alignment and as such, no impact is anticipated.

Structures 85446 and 85447 graded IIIB are located more than 100m from the proposed south grid alignment and as such, no impact is anticipated.

No heritage resources of significance were identified along the proposed amended southern grid routing.

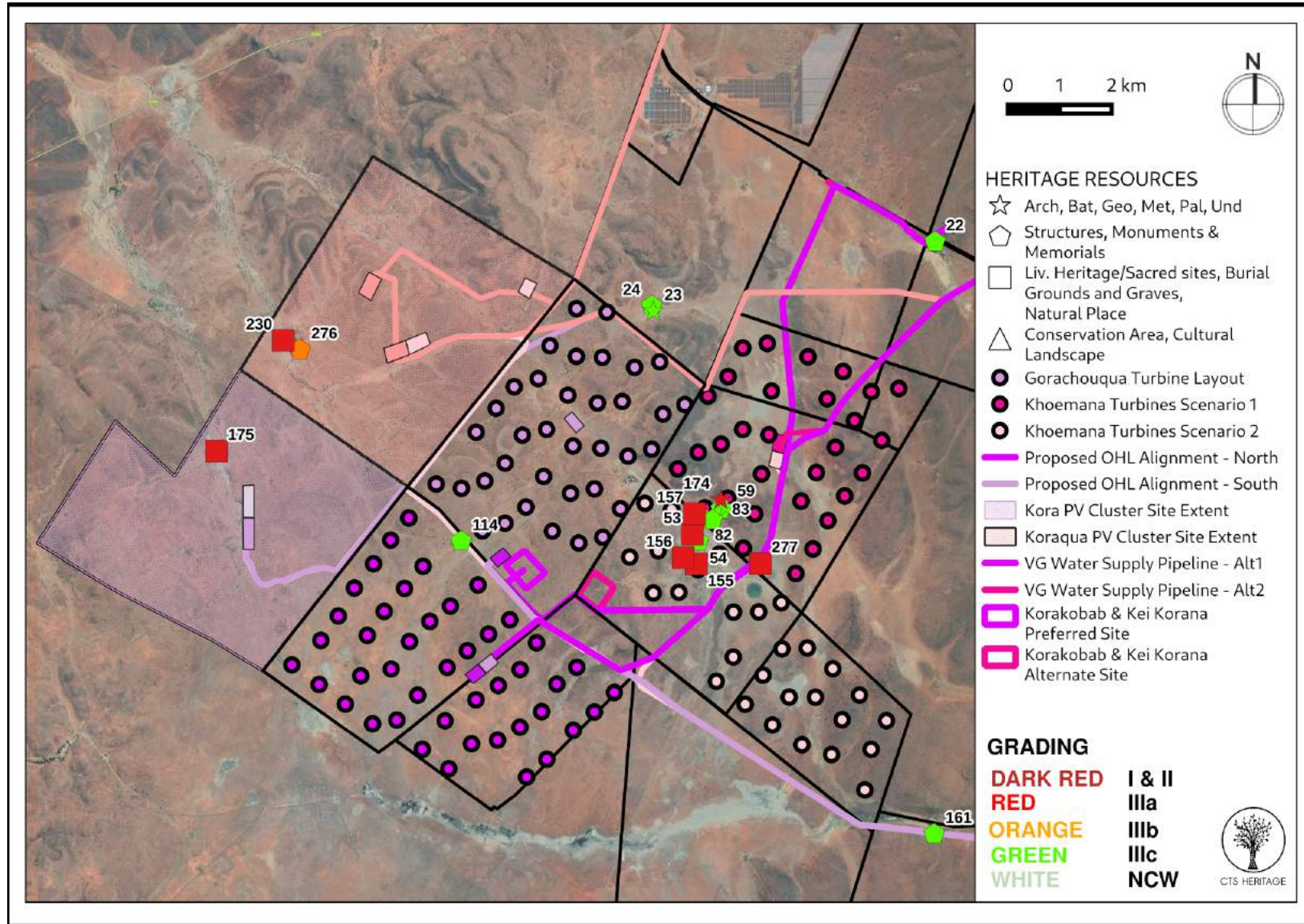


Figure 8: Map of significant heritage resources identified during the field assessment, and known sites, relative to the proposed development footprint

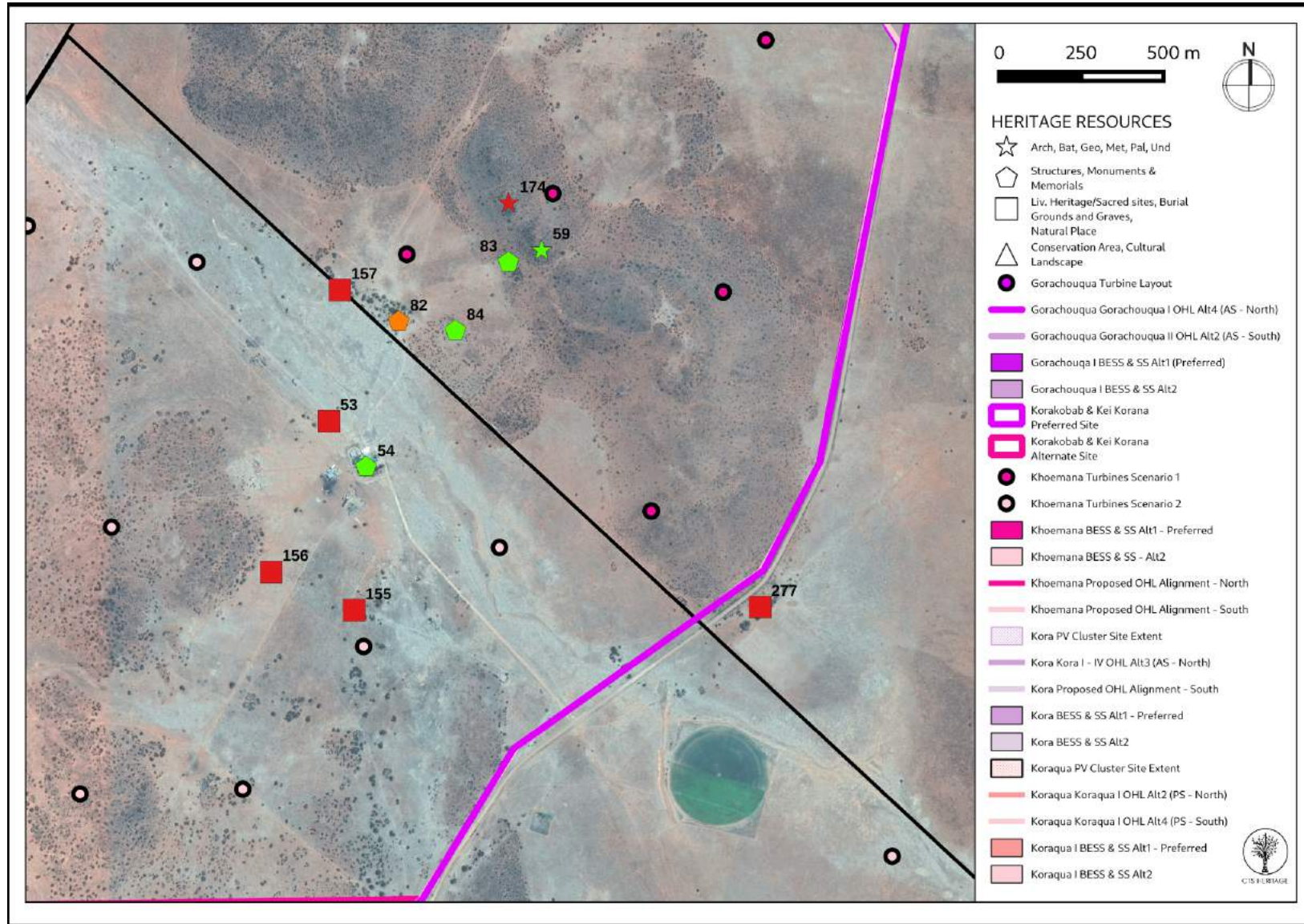


Figure 8.1: Map of significant heritage resources identified during the field assessment, and known sites, relative to the proposed development footprint

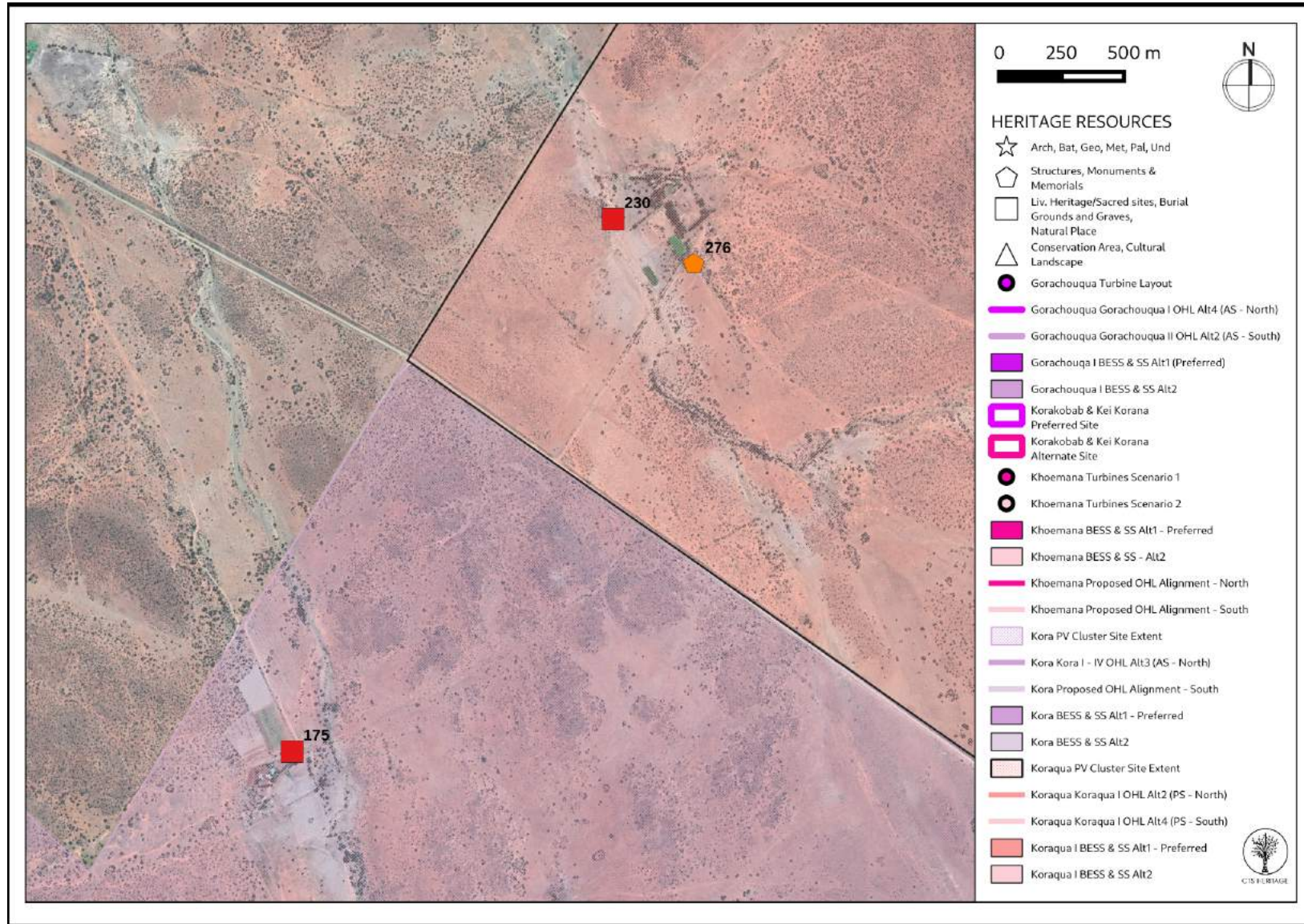


Figure 8.2: Map of significant heritage resources identified during the field assessment, and known sites, relative to the proposed development footprint

6. CONCLUSION AND RECOMMENDATIONS

As was anticipated, the archaeological field assessment revealed a great many heritage resources evident within the development area - 277 in total. The vast majority of these resources, consisting of individual artefacts and low density artefact scatters ascribed to the Middle and Later Stone Age as well as rural infrastructure such as wind mills, have been determined to be not conservation-worthy. No further mitigation for impacts to these heritage observations is recommended.

A number of heritage resources of significance were, however, identified. These resources range from significant archaeological sites and scatters, to burial grounds and graves as well as historic farm werfs and infrastructure such as the irrigation furrows ascribed to the work of the London Missionary Society and the local Griekwa population. The relationship between the furrows, the farm werfs and the burials form a unique and layered cultural landscape that speaks to the unique past of this area and its Griekwa inhabitants. It is important that the spatial relationship of these resources is not disrupted by the proposed development. Various mitigation measures are proposed in Table 3 above and in the below recommendations in order to mitigate these impacts.

Recommendations

There is no objection to the proposed development from an archaeological perspective on condition that the following mitigation measures are implemented:

1. The no go area identified in Figure 9.1 must be adhered to. No turbines or associated infrastructure is permitted within this area. This includes Khoemana Turbines 25, 29, 30, 33 and 34
2. A minimum no-go development area of 200m must be implemented around Sites 175, 230 and 276 to ensure the conservation of the broader context of these resources (Figure 9.2)
3. A minimum no-go development area of 20m must be implemented around Sites 114 and 161 to ensure that no impact to these structures takes place (Figure 9.3 and Figure 9.4)
4. The Gorachouqua Turbine 34 must be removed from the layout (Figure 9.3).
5. Should any human remains, burials or burial grounds be uncovered during construction activities, work must cease in the vicinity of the find and the SAHRA Burial Grounds and Graves Unit must be contacted regarding a way forward.
6. Should any archaeological resources be uncovered during construction activities, work must cease in the vicinity of the find and the SAHRA Archaeology, Palaeontology and Meteorites Unit must be contacted regarding a way forward.

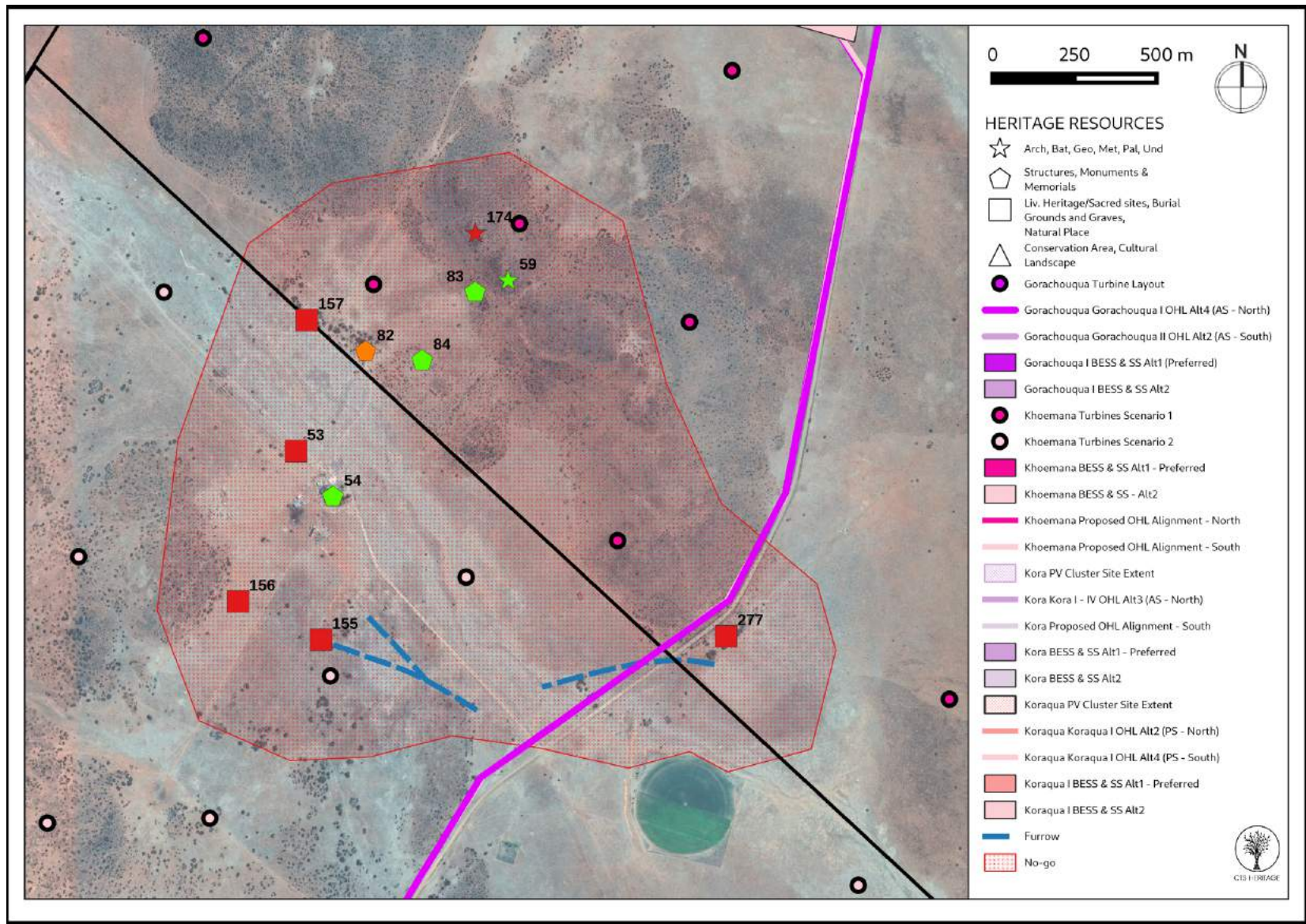


Figure 9.1: Map of significant heritage resources identified during the field assessment, and known sites, relative to the proposed development footprint including recommended no-go area

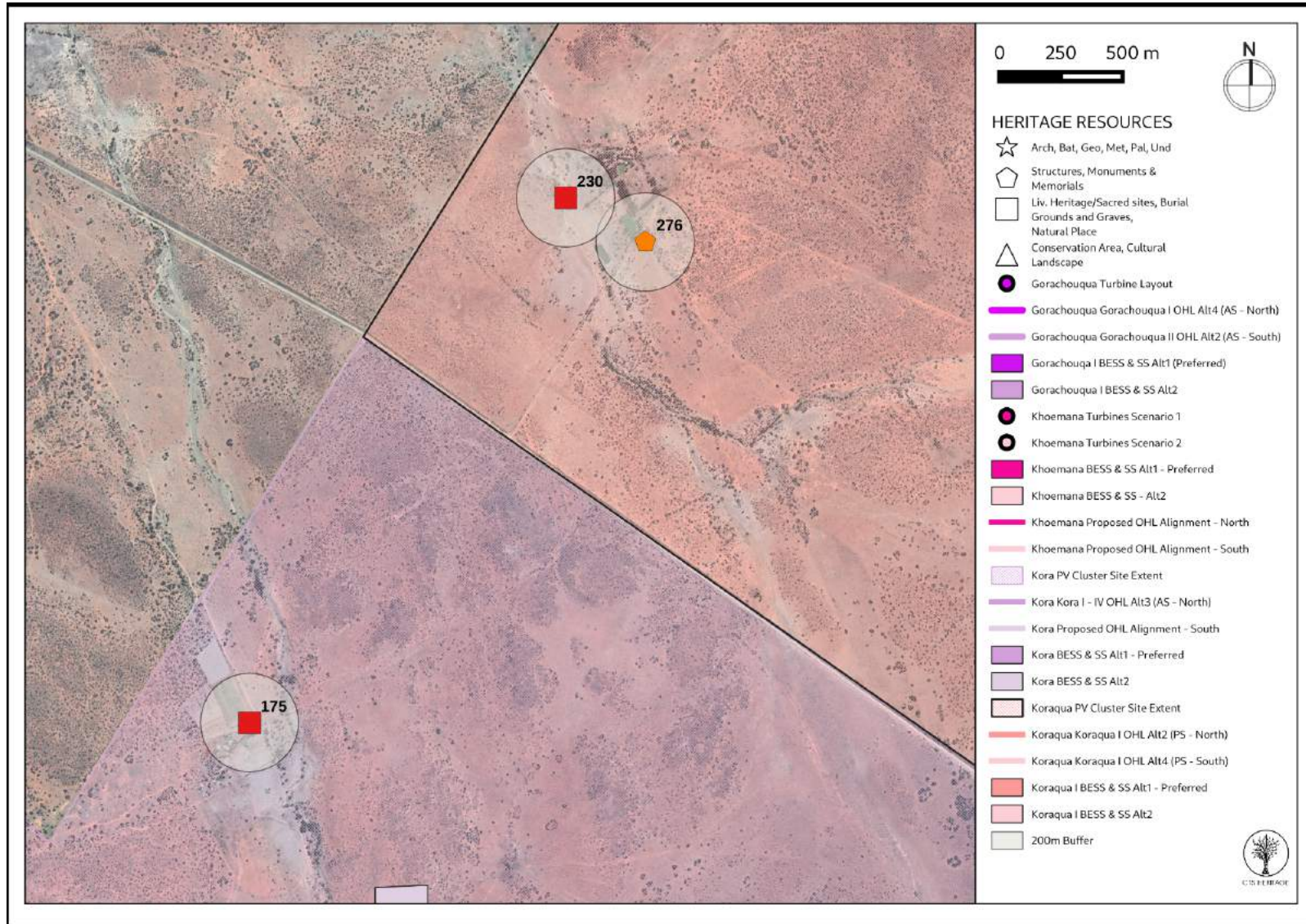


Figure 9.2: Map of significant heritage resources identified during the field assessment, and known sites, relative to the proposed development footprint including recommended 200m buffers

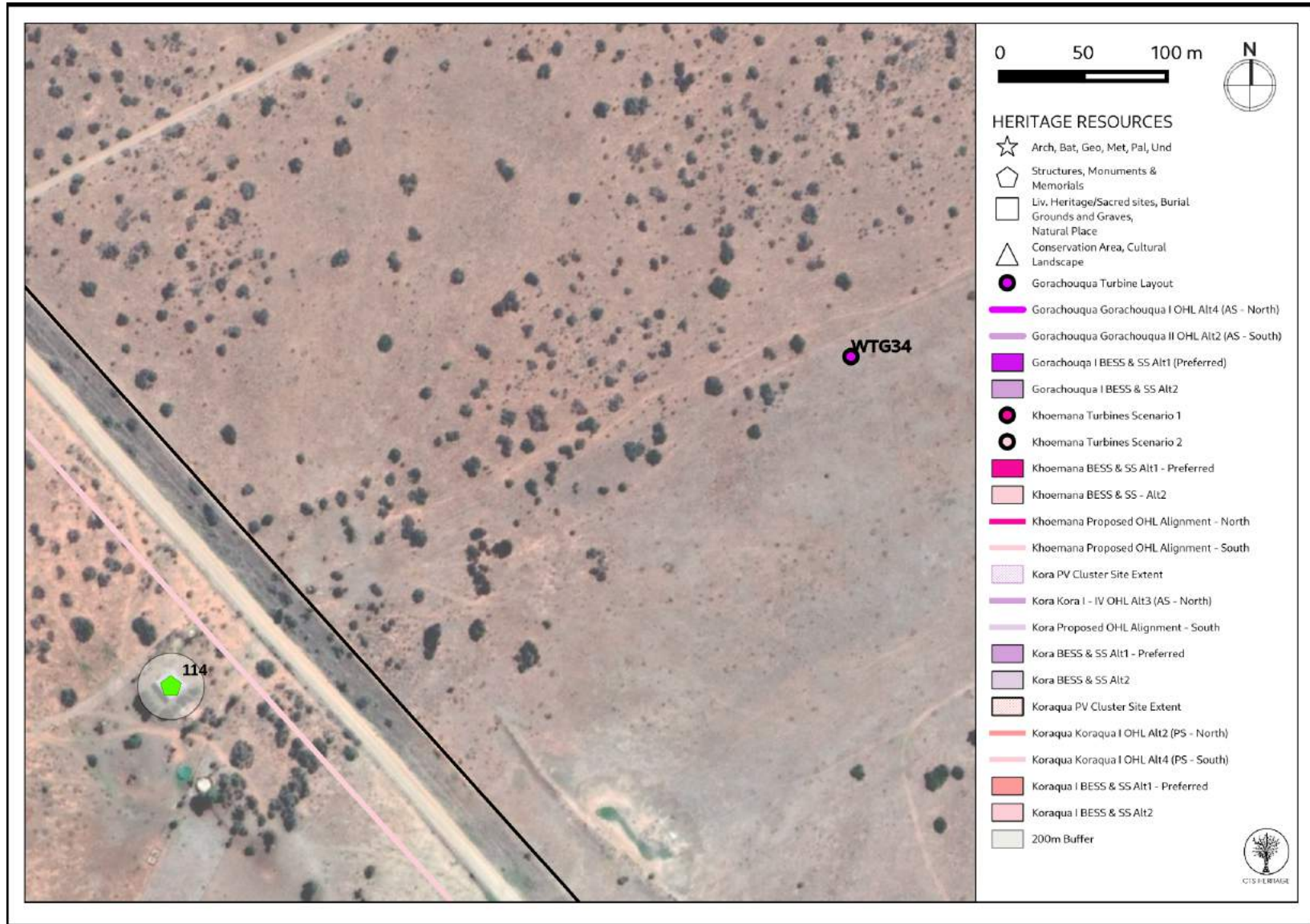


Figure 9.3: Map of significant heritage resources identified during the field assessment, and known sites, relative to the proposed development footprint including recommended 20m buffers

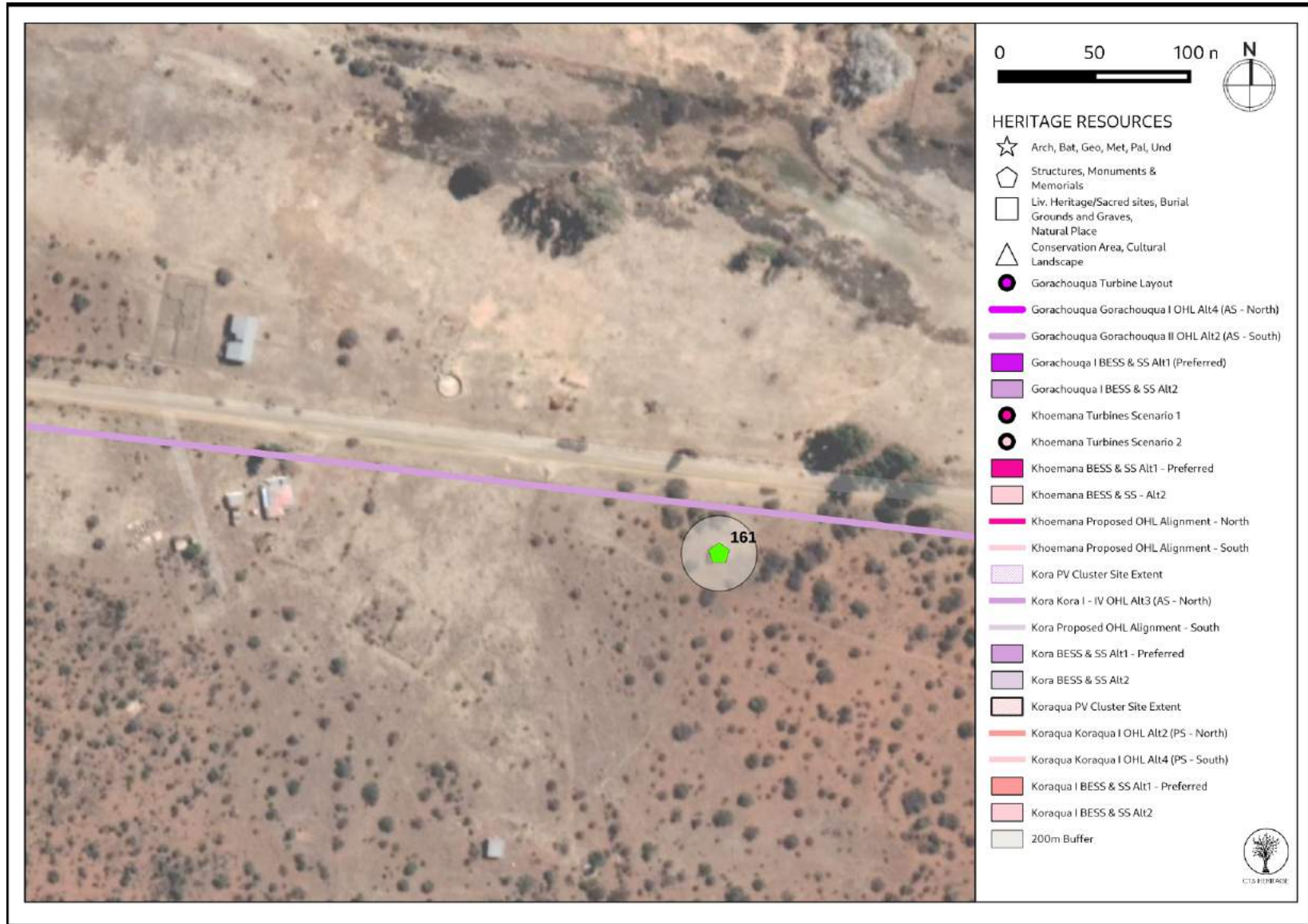


Figure 9.4: Map of significant heritage resources identified during the field assessment, and known sites, relative to the proposed development footprint including recommended 20m buffers



7. REFERENCES

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
6780	AIA Phase 1	Zoe Henderson	01/09/2005	Cultural Heritage Assessment for Finsch Mine
7842	AIA Phase 1	Cobus Dreyer	19/11/2007	Archaeological and Historical Investigation of the Proposed Mining Activities at the Farm Rosslyn, Lime Acres, Northern Cape
4602	AIA Phase 1	David Morris	01/07/2008	Archaeological and Heritage Impact Assessment on Remainder of Carter Block 458, near Limeacres, Northern Cape
163992		Wouter Fourie	03/12/2013	Proposed Construction of the Limestone 1 - 132kV Power Line and the associated Switchyards on Portion 0 (remaining extent) of the Farm 267, Northern Cape Province
164009	Heritage Impact Assessment Specialist Reports	Wouter Fourie	03/12/2013	Proposed Decommissioning and Construction of the Limestone 2 - 132kV Power Line and the associated Switchyards on Portion 0 (remaining extent) of the Plaas 267 Arriesfontein, Northern Cape Province
6218	AIA Phase 1	Wouter Fourie	27/03/2012	Heritage Impact Assessment: The proposed 10mw Photovoltaic (PV) Power Plant on the Farm Arriesfontein (Farm 267) near Danielskuil, Northern Cape Province
6958	AIA Phase 1	Wouter Fourie	10/06/2011	Humansrus Solar Thermal Energy Power Plant, Postmasburg
8240	AIA Phase 1	David Morris	11/06/2010	Proposed development of PV Power Station at Welcome Wood, near Owendale, Northern Cape
8368	AIA Phase 1	Karen Van Ryneveld	29/06/2005	Cultural Heritage Site Inspection Report for the Purpose of a Prospecting Right EMP - (Portion of) Skeyfontein 536, Postmasburg District, Northern Cape, South Africa
8899	PIA Phase 1	John E Almond	04/05/2011	Recommended exemption from further palaeontological studies: Proposed Humansrus Solar Thermal Energy Power Plant development on Farm 469, near Postmasburg, Northern Cape Province
9047	PIA Phase 1	John E Almond	11/06/2010	Proposed photovoltaic power station adjacent to Welcome Wood Substation, Owendale near Postmasburg, Northern Cape Province
73252	HIA Phase 1	Wouter Fourie	13/09/2012	Heritage Impact Assessment - Proposed Construction of 132kv Power Line and Switchyard Associated with the Redstone Solar Thermal Energy Plant in the Northern Cape Province
83272	HIA Phase 1	David Morris	01/08/2012	Archaeological & Cultural Heritage Impact Assessment Phase 1: Proposed Olien Solar Project development on Portion 4 of Farm 300, Barkly West, near Limeacres, Northern Cape
83273	PIA Desktop	Jennifer Botha-Brink	26/06/2012	PALAEONTOLOGICAL IMPACT ASSESSMENT OF THE PROPOSED OLIEN SOLAR PROJECT ON FARM 300, BARKLY WEST, NORTHERN CAPE PROVINCE
109815	HIA Phase 1	Wouter Fourie	22/03/2012	132 kV Power line connection to the Humasrus Solar Thermal Energy Power plant, postmasburg.
114648	PIA Desktop	John E Almond	01/09/2012	Palaeontological specialist assessment: desktop study PROPOSED 16 MTPA EXPANSION OF TRANSNET’S EXISTING MANGANESE ORE EXPORT RAILWAY LINE & ASSOCIATED INFRASTRUCTURE BETWEEN HOTAZEL AND THE PORT OF NGQURA, NORTHERN & EASTERN CAPE.



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Part 1: Hotazel to Kimberley, Northern Cape				
122772	HIA Phase 1	Wouter Fourie	01/09/2011	Heritage Impact Assessment for the Humansrus Solar Thermal Energy Power Plant, Postmasburg
123342	HIA Phase 1	Marko Hutten	01/04/2013	Renewable Energy Generation project on the farm Grootvlei 296, Kgatelopele Local Municipality, Siyanda District Municipality, Northern Cape Province
129751	HIA Phase 1	Elize Becker	20/02/2013	Phase 1 Heritage Impact Assessment Hotazel to Kimberley and De Aar to Port of Ngqura
155262	PIA Desktop	John E Almond	22/12/2013	Palaeontological Heritage Basic Assessment: Desktop Study - Proposed construction of a 132 kV power line and switchyard associated with the Redstone Solar Thermal Energy Plant near Postmasburg, Northern Cape Province
156348	Archaeological Monitoring	Lloyd Rossouw	08/01/2014	Updated report on the Cultural Heritage Impact Assessment for Petra Diamonds Finsch Mine
162535	AIA Phase 1	David Morris	02/03/2012	Archaeological Impact Assessment Phase 1: Proposed development of a PV Power Station at Welcome Wood (extended area), near Owendale, Northern Cape
162542	PIA Desktop	John E Almond	01/02/2012	PALAEONTOLOGICAL IMPACT ASSESSMENT: DESKTOP STUDY Proposed PV power stations Welcome Wood II and III adjacent to Welcome Wood Substation, near DaniÅ«lskuil, Northern Cape Province
173943	Heritage Impact Assessment Specialist Reports	Marko Hutten, John Almond	15/07/2014	Proposed Construction of two 132kV Power Lines and Switchyards to connect the ACWA Power SolarReserve Redstone Solar Thermal Power Plant with the Olien Substation â€“ Option 1: ACWA Power SolarReserve Redstone Solar Thermal Power Plant to Olien Substation, in the ZF Ngcawu District Municipality â€“ Heritage Impact Assessment
173967	Heritage Impact Assessment Specialist Reports	Marko Hutten	15/07/2014	Proposed Construction of two 132kV Power Lines and Switchyards to connect the Redstone Solar Thermal Energy Plant with the Olien Substation in the ZF Ngcawu District Municipality â€“ Heritage Impact Assessment Option 2: Silverstreams substation to Olien Substations
344620	PIA Phase 1	John E Almond	09/11/2015	Palaeontological Heritage Report for the proposed 132 kV power lines between the ACWA Power SolarReserve Redstone Solar Thermal Energy Plant Site and Olien Main Transmission Substation near Lime Acres, Northern Cape Province
361351	AIA Phase 1	Karen Van Ryneveld	20/03/2016	Archaeological Impact Assessment Report
361357	PIA Phase 1	Lloyd Rossouw	03/05/2016	Palaeontological Impact Assessment