HERITAGE IMPACT ASSESSMENT

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

Proposed Development of the 240MW Draailoop Solar PV Energy Facility near Banderlierkop in the Limpopo Province

Prepared by CTS Heritage

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For

DRAAILOOP SOLAR PV (PTY) LIMITED

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CTS HERITAGE

EXECUTIVE SUMMARY

1. Site Name:

Draailoop Solar PV Energy Facility

2. Location:

Near Bandelierkop

- Portion 1 of Farm 425
- Remainder of Farm 430
- Farm 431

3. Locality Plan:

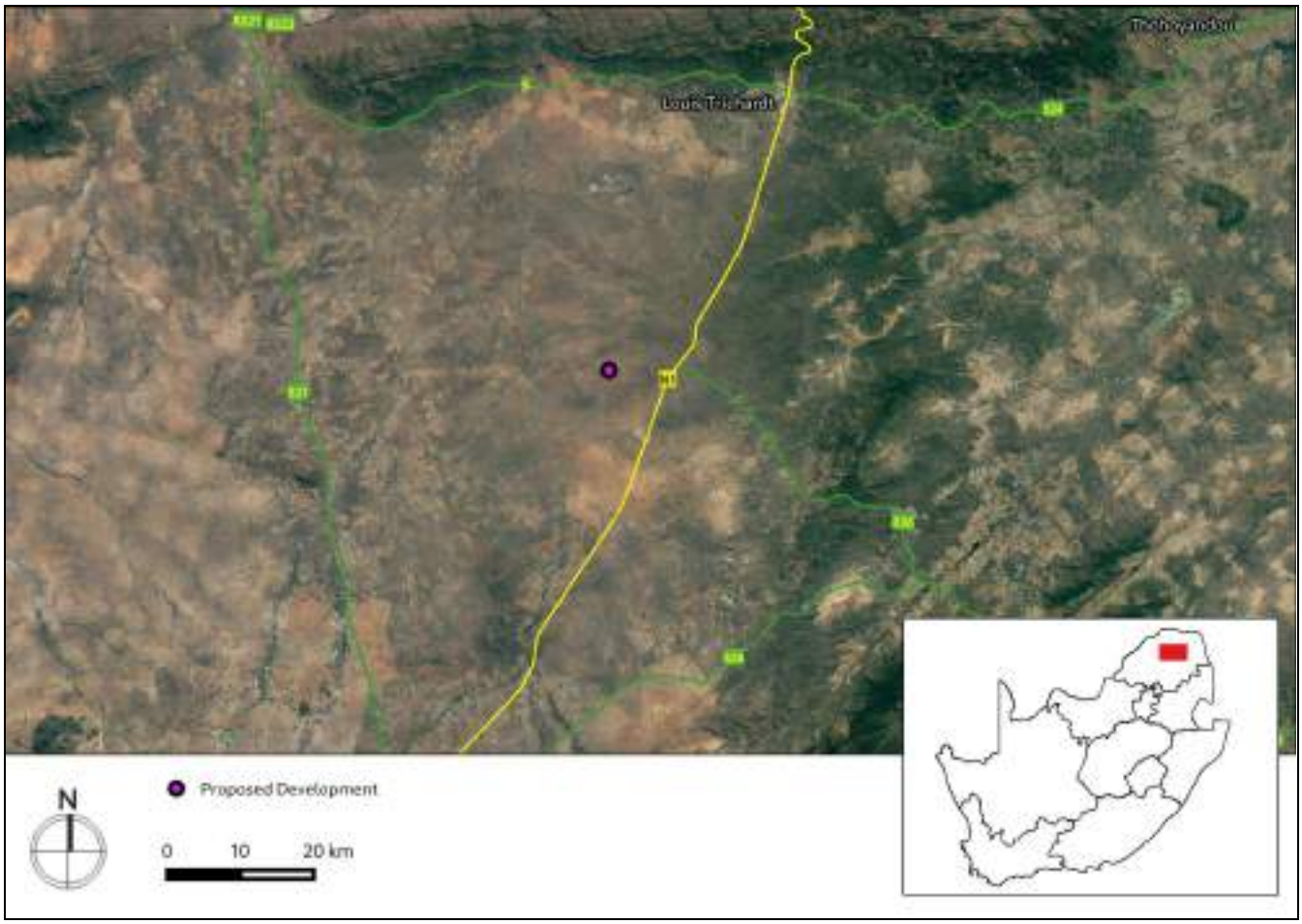

Figure A: Location of the proposed development area

4. Description of Proposed Development:

The applicant Draailoop Solar PV (Pty) Ltd are proposing the construction of a Solar Photovoltaic (PV) Energy Facility and associated infrastructure, known as Draailoop Solar PV, on Portion 1 of Farm 425, Remainder of Farm 430 and Farm 431 located South of Louis Trichardt in the Makhado Local Municipality, Vhembe District, Limpopo Province.

A study site of approximately 857ha is being assessed as part of this Environmental Process and the infrastructure associated with an up to 240 Megawatt (MW) PV facility.

5. Anticipated Impacts on Heritage Resources:

The survey proceeded with no major constraints and limitations, and the project area was comprehensively surveyed for heritage resources. Some significant archaeological material remains were documented within the grid area and the proposed PV facilities. The archaeological observations are somewhat expected here due to the number of Iron Age Sites known from the broader vicinity of the development area. These archaeological resources are associated with granite koppies in the area. A number of granite koppies are known from the southern portion of the grid alignment and these koppies should be considered to be archaeologically sensitive. It is recommended that no development take place within or on the koppies.

A number of significant archaeological resources and burial grounds were identified within the area proposed for development. Recommendations regarding appropriate buffer areas for these significant resources are outlined in table 2.

The final layout of the proposed Draailoop PV facility and its associated grid alignment adhere to the mitigation measures outlined in this report and as such, no significant impact is anticipated.

6. Recommendations:

Based on the outcomes of this report, it is not anticipated that the proposed development of the solar energy facility and grid connection infrastructure will negatively impact on significant heritage resources on condition that:

- The mitigation measures outlined in Table 2 are implemented. This is adhered to in the layout provided
- The granite koppies within the development area are considered to be sensitive and are excluded from the development footprint. This is adhered to in the layout provided
- A Conservation Management Plan is drafted for the ongoing conservation of the significant archaeological sites and burials identified within the area proposed for development

- 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.

Details of Specialist who prepared the HIA

Jenna Lavin, an archaeologist with an MSc in Archaeology and Palaeoenvironments, and since 2016 heads up the heritage division of the organisation. She 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. Prior to joining CTS Heritage, 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 a member 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.

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APPENDICES

1. INTRODUCTION

1.1 Background Information on Project

The applicant Draailoop Solar PV (Pty) Ltd are proposing the construction of a Solar Photovoltaic (PV) Energy Facility and associated infrastructure, known as Draailoop Solar PV, on Portion 1 of Farm 425, Remainder of Farm 430 and Farm 431 located South of Louis Trichardt in the Makhado Local Municipality, Vhembe District, Limpopo Province.

A study site of approximately 857ha is being assessed as part of this Environmental Process and the infrastructure associated with an up to 240 Megawatt (MW) PV facility.

The proposed Draailoop Solar PV Project will include the following components:

- Solar Field
    - Solar Arrays: PV modules;
    - Single axis tracking technology maximum height of 5m (aligned north- south);
    - Solar module mounting structures comprised of galvanised steel and aluminium;
    - Foundations which will likely be drilled and concreted into the ground;
    - Solar measurement and weather stations;
    - Central/string Inverters and MV transformers in in field;
    - DC coupled Battery Energy Storage system (BESS) containers distributed through PV field located adjacent to inverters ;
        - Lithium Ion battery Cells, Modules, Racks and containers.
        - Power Conversion Equipment.
        - Battery Management System.
        - Energy Management System.
- Associated Infrastructure
    - Medium Voltage (MV =22/33 kV) overhead powerlines and underground cables;
    - MV Collector stations;
    - Access road;
    - Internal gravel roads;
    - Fencing;
    - General maintenance area;
    - Storm water channels and berms;
    - Water storage tanks and pipelines;
    - Temporary work area during the construction phase (i.e. laydown area) (up to 7ha);
    - O&M buildings (up to 1ha);
    - Storerooms;

    - Diesel storage area (up to 0.25ha).
- Project IPP Substation (up to 1ha);
    - 132kV substation;
    - HV transformer;
    - Substation Control Building;
    - HV metering, Scada and protection building;
    - MV collector switchgear buildings;
    - Compensation equipment (Filters capacitors reactors statcoms).
- AC coupled BESS installation at project substation and laydown area (up to 6ha):
    - Solid Sate Battery technology - either Lithium-Ion or Sodium Sulphide (NaS)
        - Battery Cells, Modules, Racks and containers;
        - Power Conversion Equipment;
        - Battery Management System;
        - Energy Management System;
        - MV transformers;
        - MV cabling and collector stations;
        - Fencing;
        - Offices, workshop;
        - Fire Protection systems.

This environmental application process includes Electrical Grid Connection Infrastructure required to connect the Draailoop Solar PV to the National Grid via the existing Tabor Main Transmission Substation (MTS). This Electrical Grid Infrastructure includes:

- Onsite Switching Station (SS) (up to 1ha), adjacent to the IPP Substation.
- 132kV Overhead Power Line (OHPL) – 30m height from the switching station to the existing Eskom Tabor Substation;
- Access Road to Switching Station;
- Maintenance access road below or adjacent to the power line.

Three Grid connection alternatives are under investigation as part of this environmental process. Different land portions are affected by the various grid connection alternatives.

1.2 Description of Property and Affected Environment

The proposed Draailoop Solar PV Energy Facility lies about 12km southwest of Bandelierkop in Limpopo. The N1 highway linking Louis Trichardt to Polokwane runs along much of the grid connection routes that terminate at the Eskom Tabor substation. The PV areas are located on three farms, namely Draailoop, Bethel and Klipput and the various grid routes link the PV areas to Tabor substation over several farms adjacent to the N1 highway.

The area has several cattle ranches and game farms that are used for tourism and hunting. Wild buffalo are present within the PV areas and surveying has to be carried out with a staff escort. Besides buffalo, there are giraffes, eland, kudu and various smaller antelope species within the game farms. A series of modern cattle kraals and feeding areas are ubiquitous in the area and are linked via grid-form internal gravel roads and fenced enclosures. The game farms typically have lodges, staff accommodation and various facilities related to the hunting and tourism business such as lapas, chalets and viewing hides.

The terrain is generally flat in the PV areas with more hilly ground east of the N1 highway on Langgedacht farm where a proposed grid connection route is planned. Several granite outcrops dot the area with the largest and most prominent one located at the Tropic of Capricorn monument in Ga-Phasha. The veld consists of bushveld dominated by acacia trees and grassland.

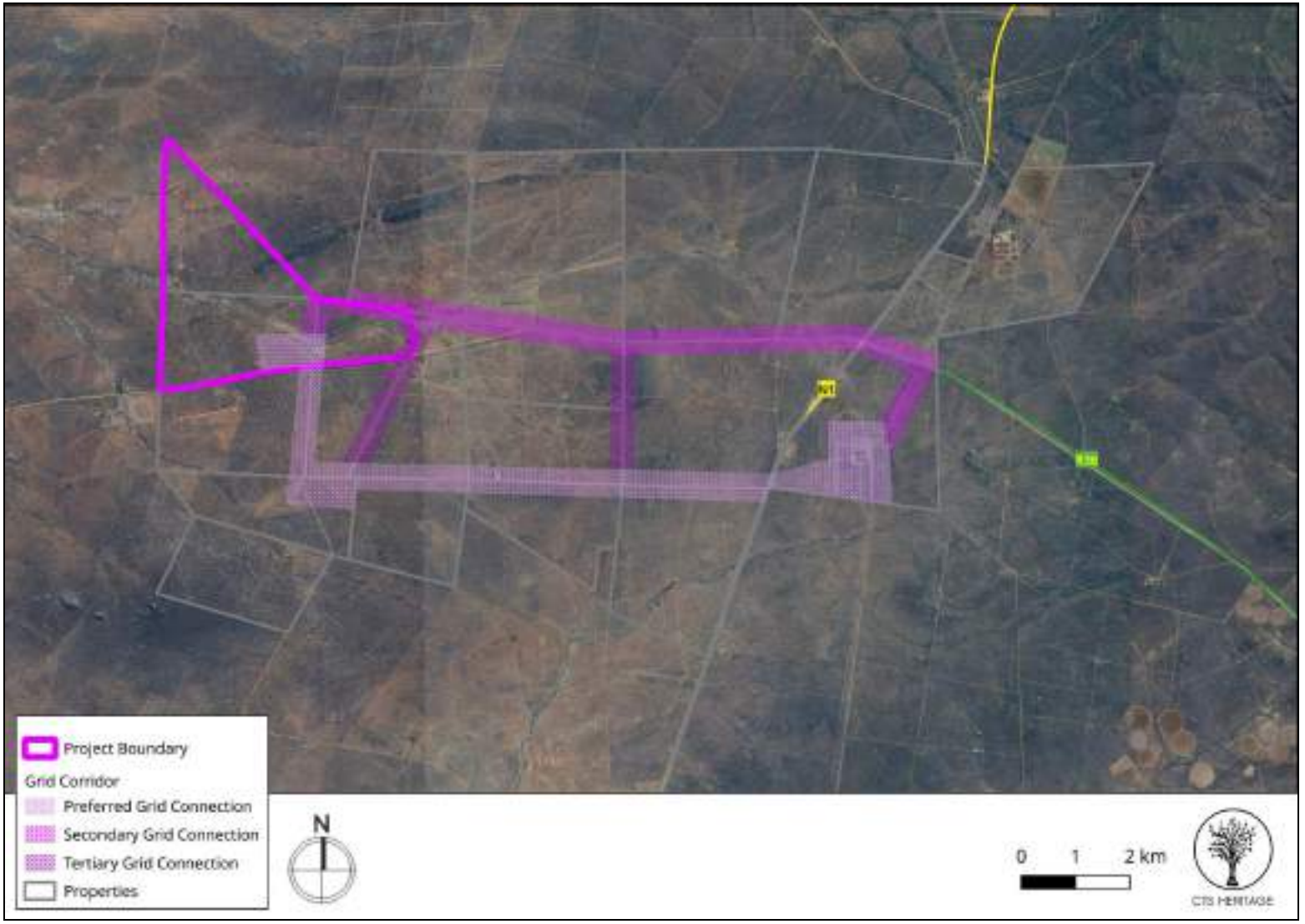

Figure 1.1 Overview Map. Satellite image (2025) indicating the proposed development area at closer range.

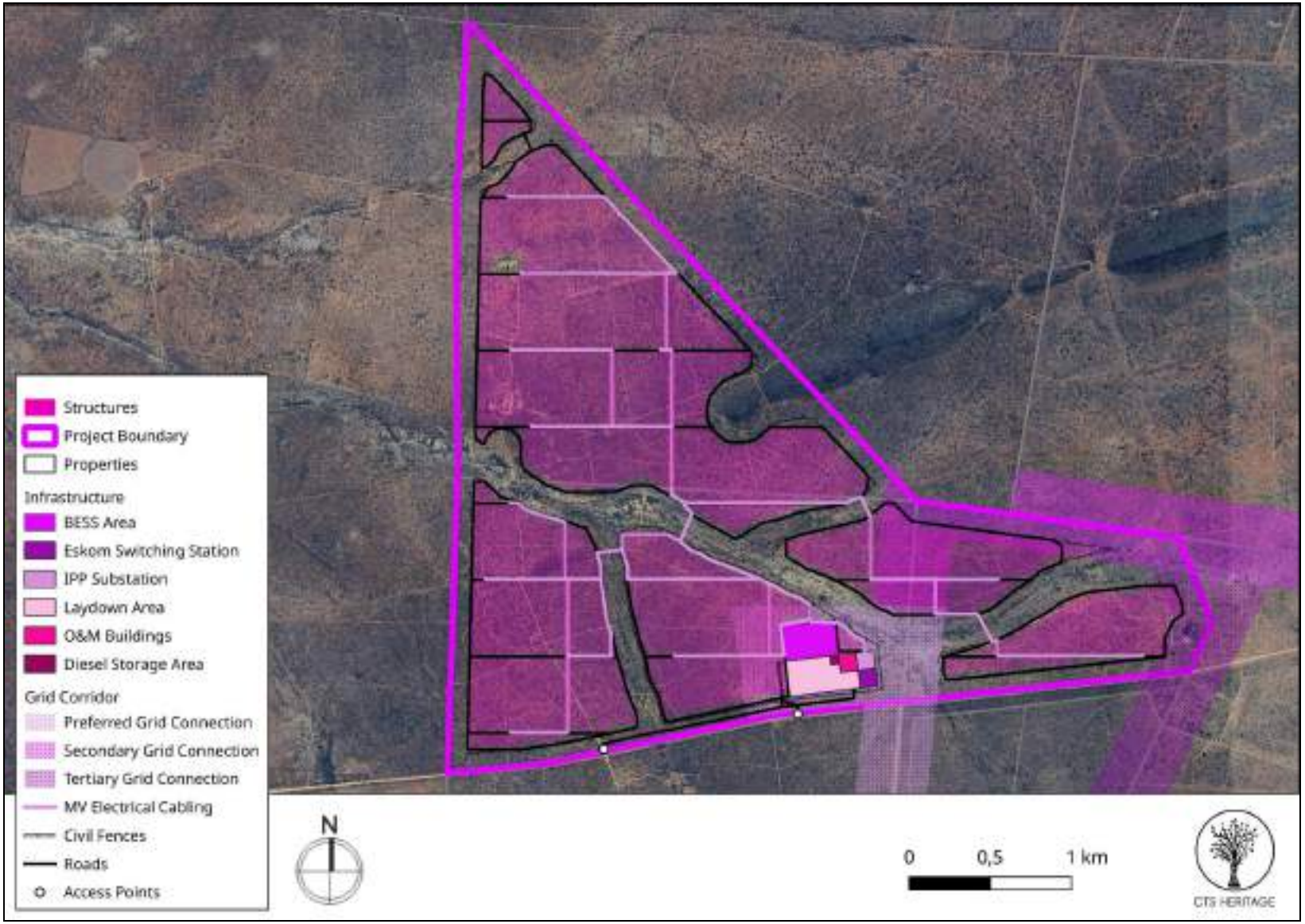

Figure 1.2 Overview Map. Satellite image (2025) indicating the proposed PV Areas at closer range.

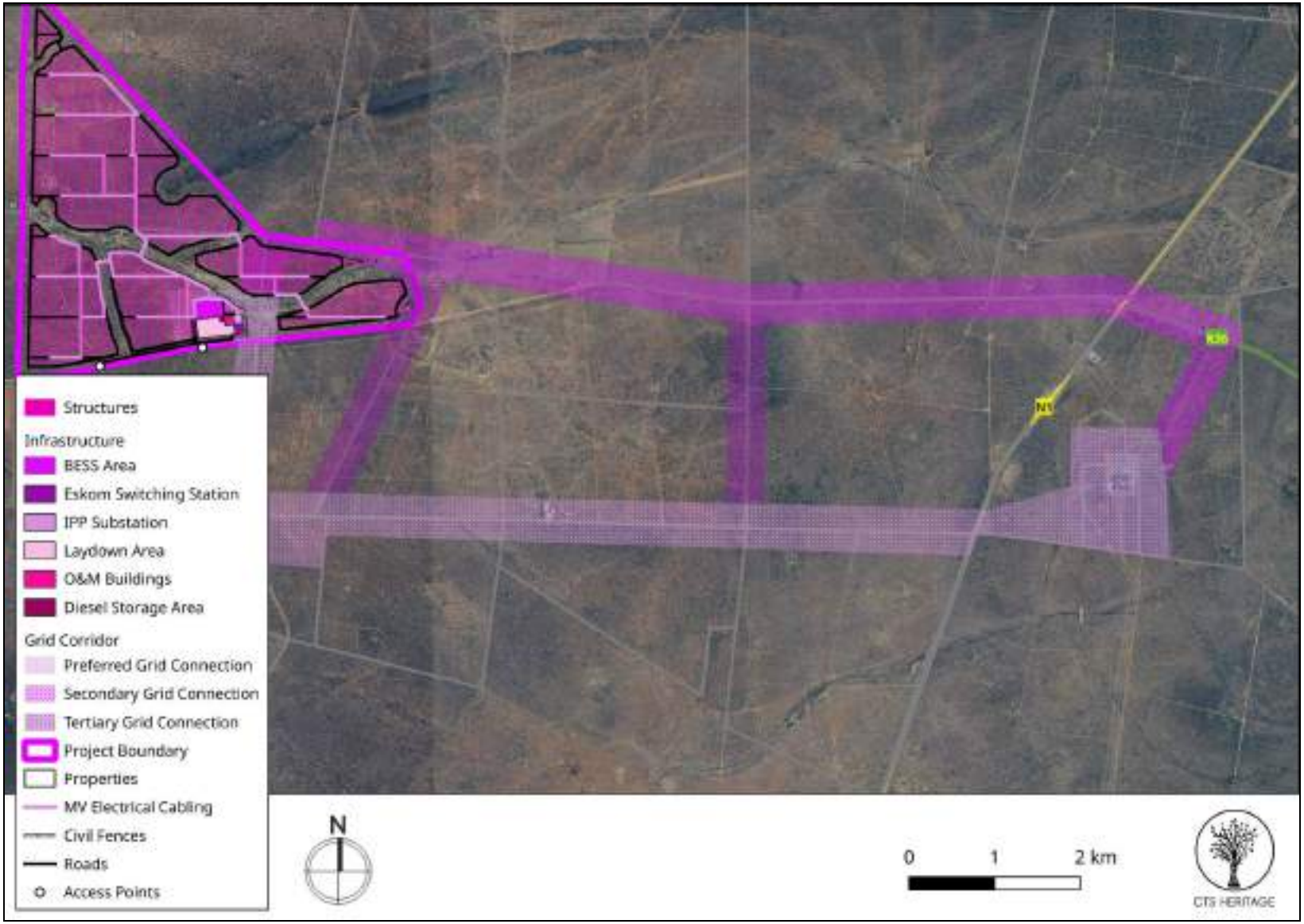

Figure 1.3 Overview Map. Satellite image (2025) indicating the proposed Grid Areas at closer range.

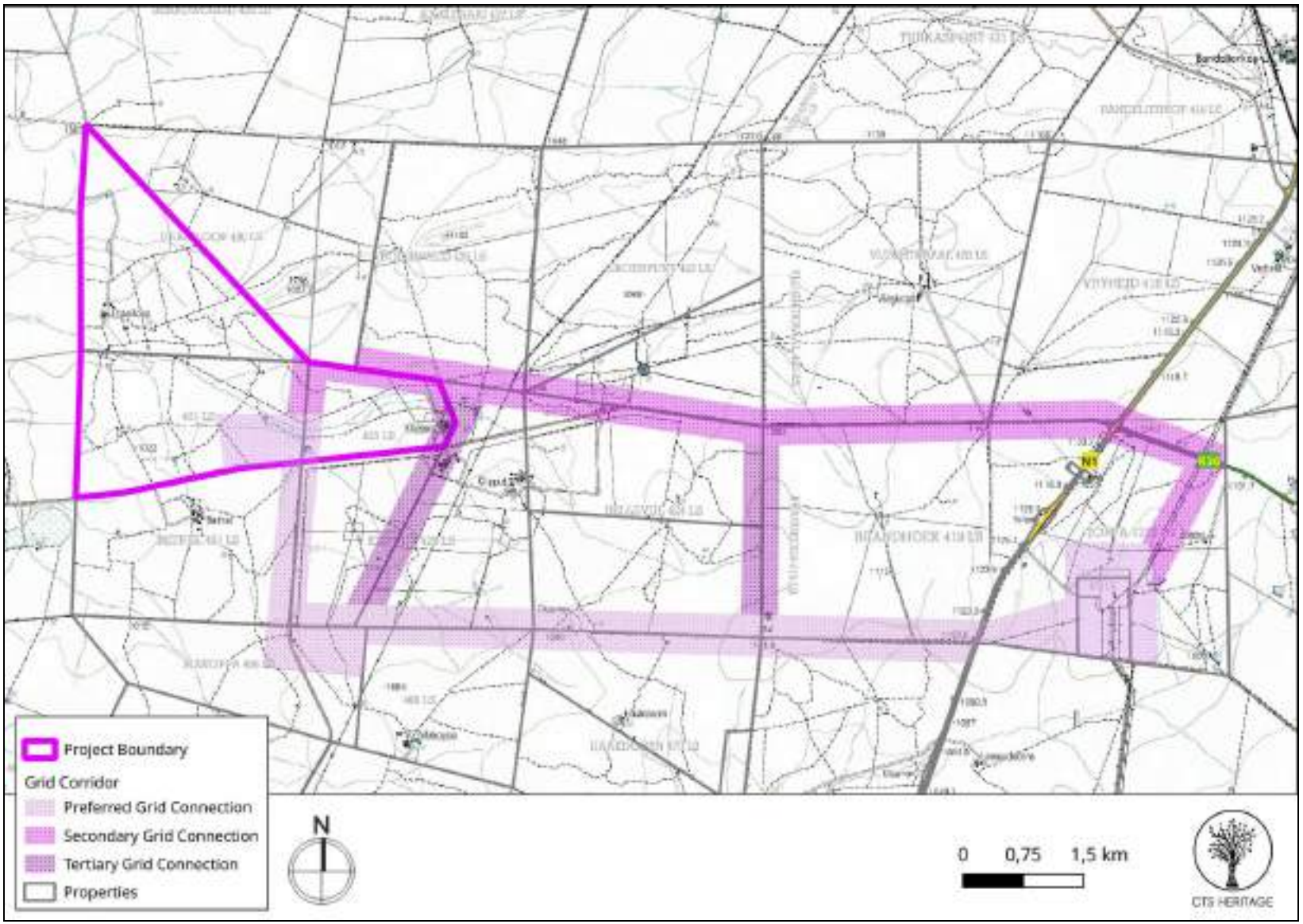

Figure 1.4 Overview Map. 1:50 000 Topo Map for the development area

2. METHODOLOGY

2.1 Purpose of HIA

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

2.2 Summary of Steps Followed

- A Desktop Study was conducted of relevant reports previously written (please see the reference list for the age and nature of the reports used)
- An archaeologist conducted an assessment of archaeological resources likely to be disturbed by the proposed development. The archaeologists conducted their site visit from 24 to 27 July 2024.
- 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 presence of wild buffalo on certain areas of the PV farms required a staff escort and it was not possible to roam freely on foot throughout these sections. The grid connections, for the most part, did not have dangerous game animals and these were easily navigated using the existing jeep tracks within the farms and connecting roads before completing smaller sections on foot where no tracks exist. The vegetation cover ranges from thick to light and a number of older ploughed fields can be seen on the historical satellite imagery which accounts for the

cleared areas observed during the survey as well as the generally low artefact counts in the previously ploughed fields. The highest sensitivities were located at the granite outcrops and these have not been heavily disturbed as the agricultural fields were established around them.

2.5 Impact Assessment Methodology

Direct, indirect and cumulative impacts of the issues identified through the Basic Assessment process were assessed in terms of the following criteria:

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

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

S = (E + D + M) x P

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The significance weightings for each potential impact are as follows:

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

3. HISTORY AND EVOLUTION OF THE SITE AND CONTEXT

3.1 Desktop Assessment

3.1.1 Background

This application is for the proposed development of a PV facility cluster located near Bandelierkop, south of Louis Trichardt, in the Limpopo Province. According to Raper et al (2018) in the Dictionary of Southern African Place Names, Bandolierskop is a "*Village some 35 km south-west of Louis Trichardt, on the route from Pietersburg to Beit Bridge. Afrikaans for 'bandolier hill"; said to have been named after an incident in which a burgher, Jan du Preez, was sent back to fetch the bandolier he had left behind when the commando struck camp."*

3.1.2 History, Background, Archaeology and Built Heritage

Van Schalkwyk (2007, SAHRIS NID 8026) provides a very detailed background and history of the surrounding area. Only the relevant points are summarised here:

Stone Age

- Early Stone Age and Middle Stone Age tools in the area are often found near rivers and outcrops, but these surface finds are of low significance. The study area falls in a relatively flat area, with three smaller koppies around the edges (Molemole and Maokgwe in Figure 3.2).
- The Late Stone Age saw recurring occupations in rock shelters and caves, particularly in areas like Soutpansberg and the Limpopo River.
- Evidence includes ostrich eggshell beads, bone arrowheads, small stones, and wood fragments.
- Rock art from this period indicates complex religious beliefs.

Iron Age

- Iron Age settlements start appearing around AD 300, with notable sites like Silver Leaves near Tzaneen.
- By AD 800, villages in the Limpopo River valley expanded due to East Coast trade.
- Climate changes and trade shifts by AD 1250 led to the abandonment of some areas.
- Large-scale occupation occurred in the 16th century, with farmers moving into previously unsuitable areas due to warmer and wetter climates.
- Defensive stone-walled settlements were built on hilltops near water and arable land.

Historic Period

- European settlers arrived in the early 19th century as hunters, traders, and missionaries, followed by settlers. " *The first European group to pass close by the area were that of Coenraad de Buys in 1821 and 1825, followed by groups of Voortrekkers after 1844 (Bergh 1999: 12-14). "* (Pelser 2019, SAHRIS NID 523228).
- Schoemansdal was one of the first European settlements. "*Schoemansdal (originally Zoutpansbergdorp)*

was established in 1848, and finally abandoned as a result of conflict with local groups in July 1867 (Bergh 1999: 131; 187). The town of Louis Trichardt was formally established in February 1899 (Bergh 1999: 147).” (Pelser 2019, SAHRIS NID 523228)

- Gold discovery at Eersteling spurred mining activity.
- The region saw skirmishes during the Anglo-Boer War, such as at Rhenosterpoort and Fort Marabastad,l but none of these skirmishes appear to have taken place in the study area. Pelser (2019, SAHRIS NID 523228) mentions “*During the Anglo-Boer war (1899- 1902) there was a skirmish between British and Boer forces at Fort Edward near Louis Trichardt between 20 and 28 March 1902 (Bergh 1999: 54).”* Elim is located approximately 30km from the study area in a northeasterly direction.

Ethno-Historical Sequence

- The northern section of Van Schalkwyk’s study area (2007) was predominantly inhabited by Tlokwa people, originally from Tlokweng near Potchefstroom, who moved north before 1700.
- The southern section of Van Schalkwyk’s study area (2007) was notably diverse, with Ndebele and Sotho-speaking groups from various origins.
- The Berlin Mission Society established schools and hospitals from the mid-1800s, contributing to the social and political development of the Sotho-speakers and documenting their early colonial history. Their activity continued until 1962.

Archaeological sites spanning the Earlier, Middle and Later Stone Age have been found in the region despite the limited amount of impact assessments in the near vicinity. In 2001, Roodt conducted an HIA that partially intersects with the study area (SAHRIS NID 6243). Roodt described the environment as “*arid bushveld which is generally in a good condition, although the area on the Farm Joppa has been encroached by Dichrostachys (sickle bush), indicating recent over-exploitation.*” During the field survey, two Iron Age sites were identified (SAHRIS ID 36961 and 36962). Site 1 consists of a single potsherd, but it was noted that the full extent could not be determined due to the limited scope of the survey. Site 2 consists of an ash midden with associated pottery and dung deposits. The sites as well as mitigations suggested by Roodt are discussed in Table 1 below. Roodt also noted that neither sites warrant specific protection status. In another AIA by Stegman and Roodt (2008, SAHRIS NID 7266) located approximately 10km south of the study area, no archaeological resources were noted.

Table 1: Known sites from SAHRIS located within the study area (Roodt 2001, SAHRIS NID 6243)

SAHRIS ID	Site no and Full Site Name	Description	Grade	Mitigation
36961	BAN001, Banderlierkop 001	Site 1: This site contained only one decorated potsherd. Decoration is limited, with the result that the cultural identity could not be identified positively. The extent of this site could not be	IIIb	Site 1 is to be re-evaluated during the construction phase when the clearing of bush and earthworks has commenced. This will allow for an

		established within the scope of this scoping exercise.		informed decision on whether or not mitigation for cultural, resource management measures is required.
36962	BAN002, Banderlierkop 002	Site 2: This site contains clear deposits of grayish ash deposits with pottery as well as possible dung deposits. Previous damage had been done to the Site by the existing road and access road for the existing powerline. A preliminary identification of the pottery would suggest it being of a variant of the Moloko type pottery (early Sotho/Tswana), which could date to the 15" century.	IIIb	A phase two assessment of Site 2 to be mitigated before construction work commences.
135469	Tropic of Capricorn, Tropic of Capricorn, Mphakane 1, Ga-Phasha	• On the face of it, the huge rock outcrop on which the needle marking the Tropic of Capricorn is situated resembles the many huge rock outcrops that can be found all over the Capricorn District Municipality, especially in the Botlokwa and Moletjie areas.[1] • Most of the details on the Inscriptions are not visible as its damaged beyond recognition. The Tropic of Capricorn is one of the five major circles of latitude marked on maps of Earth.		n/a
136466	DC35/NAMM/0045, Tropic of Capricorn, Mphakane 1, Ga phasha			n/a

There are several historical werfs located within the study area, such as Klipput and Draailoop. These werfs are likely to have heritage value and may conserve small farm graveyards, which need further inspection. There is also Ga-Phasha cemetery located just north of Ga-Pasha (Figure 3.2). All burials are considered to have high levels of local social and spiritual significance and as such, are graded IIIA. Due to this high level of significance, it is recommended that a no-development buffer of 100m is implemented around these sites. Often, informal burials can be located on the outskirts of formal cemetery areas. As such, this buffer is recommended to ensure the retention of the sense of place for this burial site, and to ensure that no hidden and unmarked burials are unintentionally impacted by the proposed development. Based on the layout provided, no impact to the identified cemetery or any possible buried remains is anticipated.

[1] https://www.sabcnews.com/sabcnews/sas-abandoned-tropic-of-capricorn/

3.1.3 Palaeontology

According to the SAHRIS Palaeosensitivity Map the development sites are underlain by sediments of very LOW fossil sensitivity (Figure 4). The proposed development is underlain with **Matok Granite** (Coarse-grained, porphyritic, pink and grey biotite granite, in places hornblende granite), and **Goudplaats-Hout River Gneiss** (Leucocratic, strongly migmatised biotite gneiss and greyish, weakly migmatised biotite gneiss; minor leucogneiss and dark grey biotite gneiss). Both these formations have **Insignificant or Zero** Palaeontological sensitivity.

The third formation that is present in the study area is the **Bandelierkop Formation** (Predominantly volcanic igneous rocks, plus some igneous intrusions, minor sediments such as banded iron formation, chert, quartzite, conglomerate, and schists) which has **Low** Palaeontological Sensitivity. According to the Palaeotechnic report for Limpopo (Groenewald & Groenewald, 2014) this formation is known for "*Archaean microfossils and microbial trace fossils (bacterial borings) which have been recorded from cherts and volcanic glasses in similar-aged greenstone belts elsewhere in RSA (e.g. Fig Tree Group & Onverwacht Group of Barberton Greenstone Belt, Mpumalanga & Swaziland). "Fly speck carbon" in sedimentary Uitkyk Fm of the Pietersburg Greenstone Belt, Limpopo, may be fossilised microbes,or alternatively of inorganic origin (e.g. an inorganic precipitate induced by radioactive irradiation)."*

It is unlikely that the proposed development will have a significant impact on palaeontological resources and no further assessments are required.

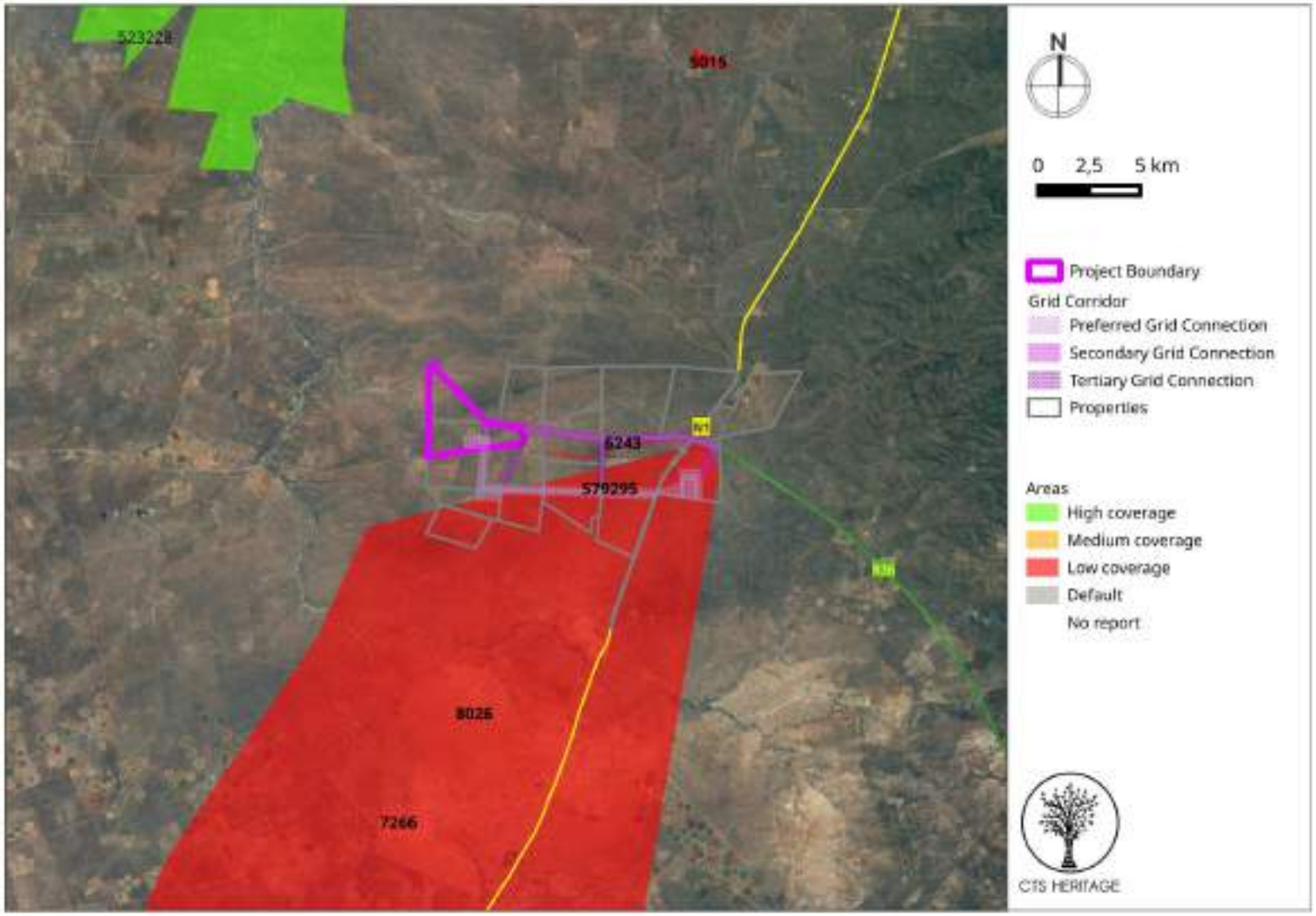

Figure 2: Spatialisation of heritage assessments conducted in proximity to the proposed development

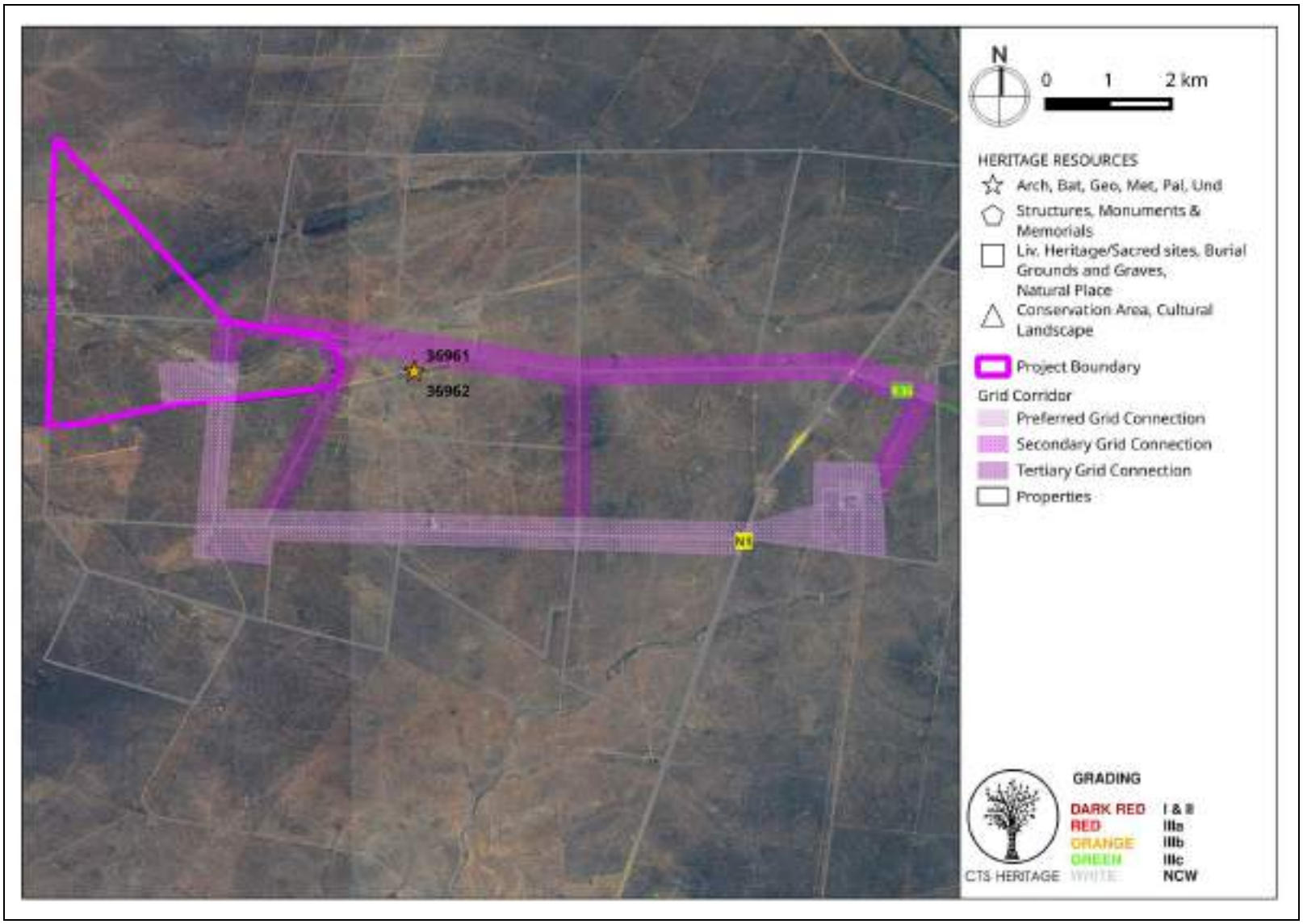

Figure 3.1 Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated.

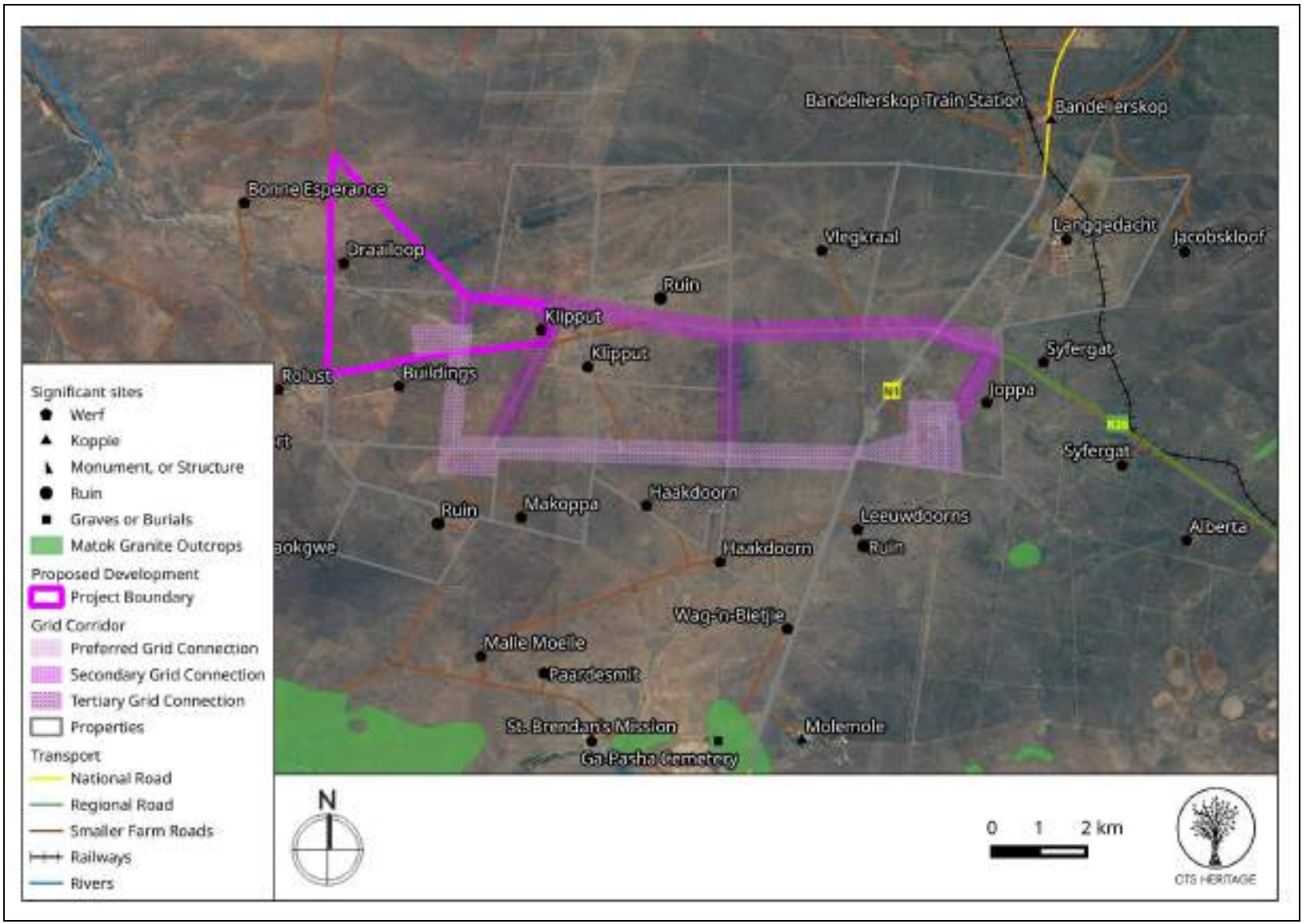

Figure 3.2 Cultural Landscape Map. Map indication sensitive receptors near the proposed development, extracted from the Topo 1:50 000 map.

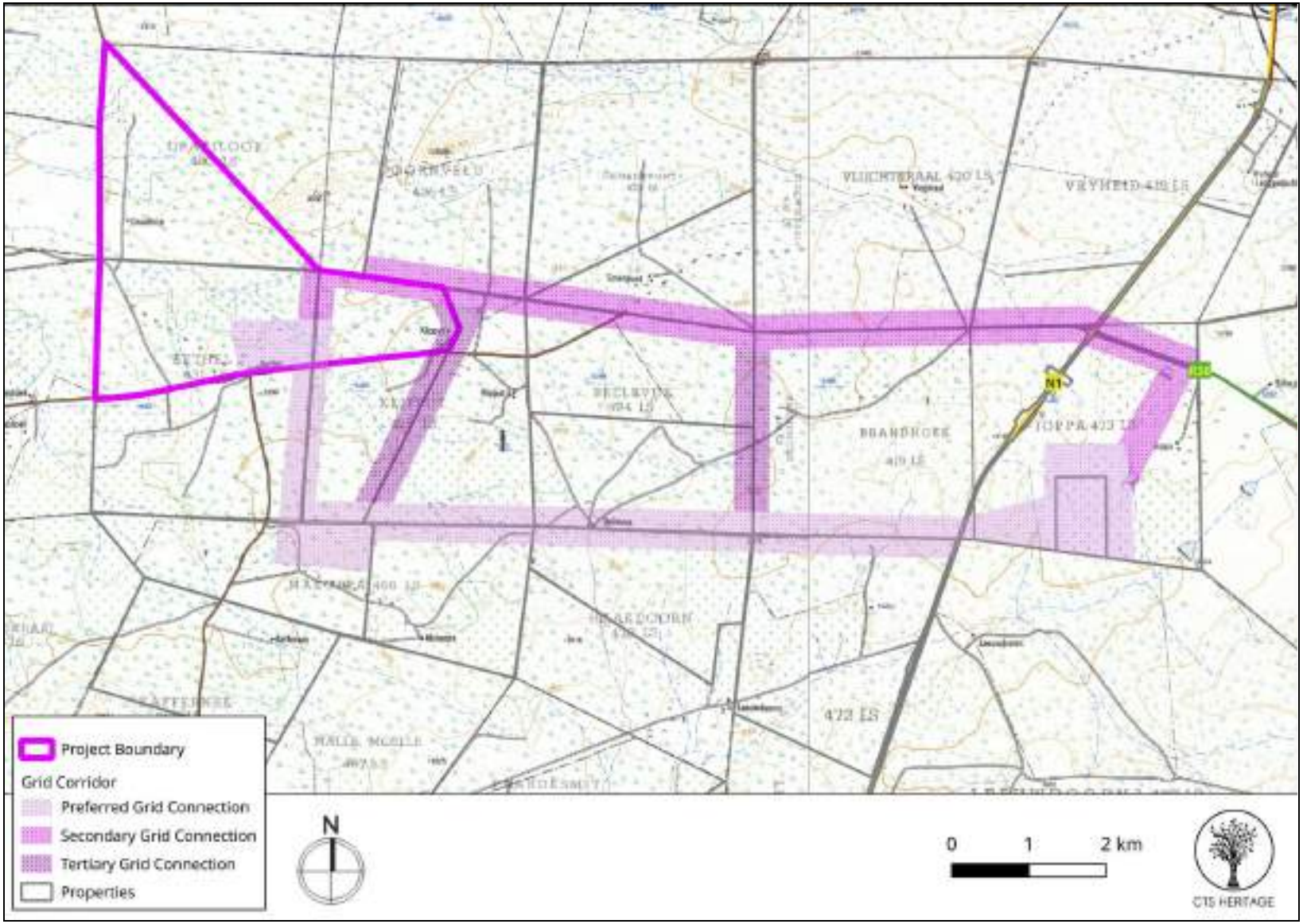

Figure 3.3 First Edition Topo Map. First Edition Topo Map indicating historical farm werfs that still exist

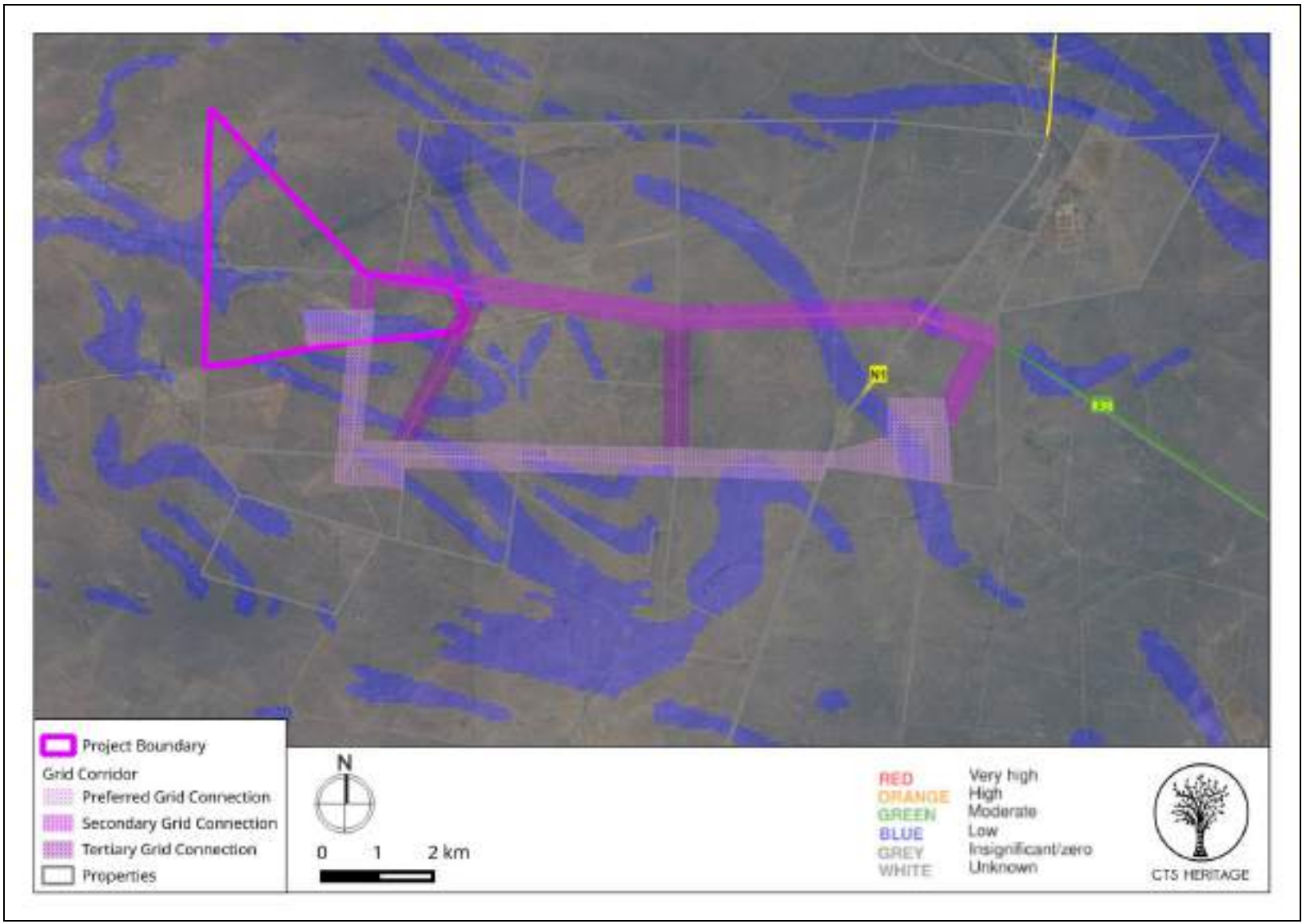

Figure 4: Palaeontological sensitivity of the proposed development area

4. IDENTIFICATION OF HERITAGE RESOURCES

4.1 Summary of Findings of Specialist Reports

4.1.1 Archaeology (Appendix 1)

The most significant findings were made on the granite outcrops at Bethel/Makoppa and near the grid connection route through Klipput. Later Stone Age fine line paintings have not been recorded in great numbers in the immediate area and the site found in the small granite outcrop is similar to sites further north in the Soutpansberg. The other granite outcrop at Klipput is much larger and a number of modern chalets and historical stone kraals have been built right up against the outcrop. A small shelter containing hundreds of Iron Age pottery sherds was found and isolated stone tool flakes and more sherds can be found all over the outcrop. Another Iron Age find was made at Langgedacht in the grid connection route which consisted of isolated pottery sherds and quartz flakes.

The majority of the farm werfs date to the late 19th and early 20th century with several alterations and newer buildings present. Historical graveyards related to the families at Draailoop and Klipput were recorded with separate graves and ruined dwellings at Bethel and Klipput for farmworkers and their relatives. It was surprising to see relatively low artefact counts but later checks through the historical satellite imagery showed the large number of previously ploughed fields in the PV areas which are now fallow for the game farming and hunting businesses. This explains the highly disturbed and unnaturally level ground present across much of the PV areas.

4.2 Heritage Resources Identified

In terms of the heritage resources identified in the archaeological field assessment, see Table 2 below and Appendix 1 for full descriptions and images.

Table 2: Artefacts identified during the field assessment development area

POINT ID	Description	Density	Type	Period	Co-ordinates		Grading	Mitigation
9	Grave, recently formalised with palisade fencing and headstone, 1871-1959. Mathedimosa Motatanye	n/a	Graves/ Burial Grounds	Historic	-23,385478	29,68764	IIIA	100m Buffer
11	Upper grindstone, granite, on granite outcrop, quartz flakes. Rock art on overhanging surface 2x1m. At least 3 faded human figures, holding hunting bags	10 to 30	Artefacts, Rock Art	LSA	-23,38966	29,68092	IIIA	50m Buffer
12	Thin walled LSA pottery and quartz core on top of outcrop. Ochre burnish	0 to 5	Artefacts	LSA	-23,389924	29,68069	IIIC	20m Buffer
25	Haasbroek family graves. 9 graves 1950s to 1990s.	n/a	Graves/ Burial Grounds	Modern	-23,34813	29,669737	IIIA	100m Buffer
36	Quartz core, flakes, IA pottery	5 to 10	Artefacts	LSA, Iron Age	-23,347638	29,820919	IIIC	20m Buffer
37	Mathoko graves, 2. 2012 and 2013 surrounded by fence and near ruins. IA pottery MSA quartzite flakes	10 to 30	Artefacts, Graves	MSA, Iron Age, Modern	-23,361102	29,708584	IIIA	100m Buffer
38	2 farmers graves, 1929, Venter family, fenced	n/a	Graves/ Burial Grounds	Historic	-23,365774	29,716675	IIIA	100m Buffer
41	Klipput stone walled kraals, large stones in rectangular walls, historical	n/a	Ruin	Historic	-23,36267	29,71548	IIIB	100m Buffer
44	Little shelter with deposit and lots of IA pottery sherds	30+	Artefacts	Iron Age	-23,361959	29,715563	IIIA	50m Buffer
45	Tropic of Capricorn monument	n/a	Monument	Modern	-23,437303	29,745109	IIIC	20m Buffer
46	Roadside monument marking Simon Matime, 2018	n/a	Memorial	Modern	-23,44253	29,74376	IIIC	20m Buffer

4.3 Mapping and Spatialisation of Heritage Resources

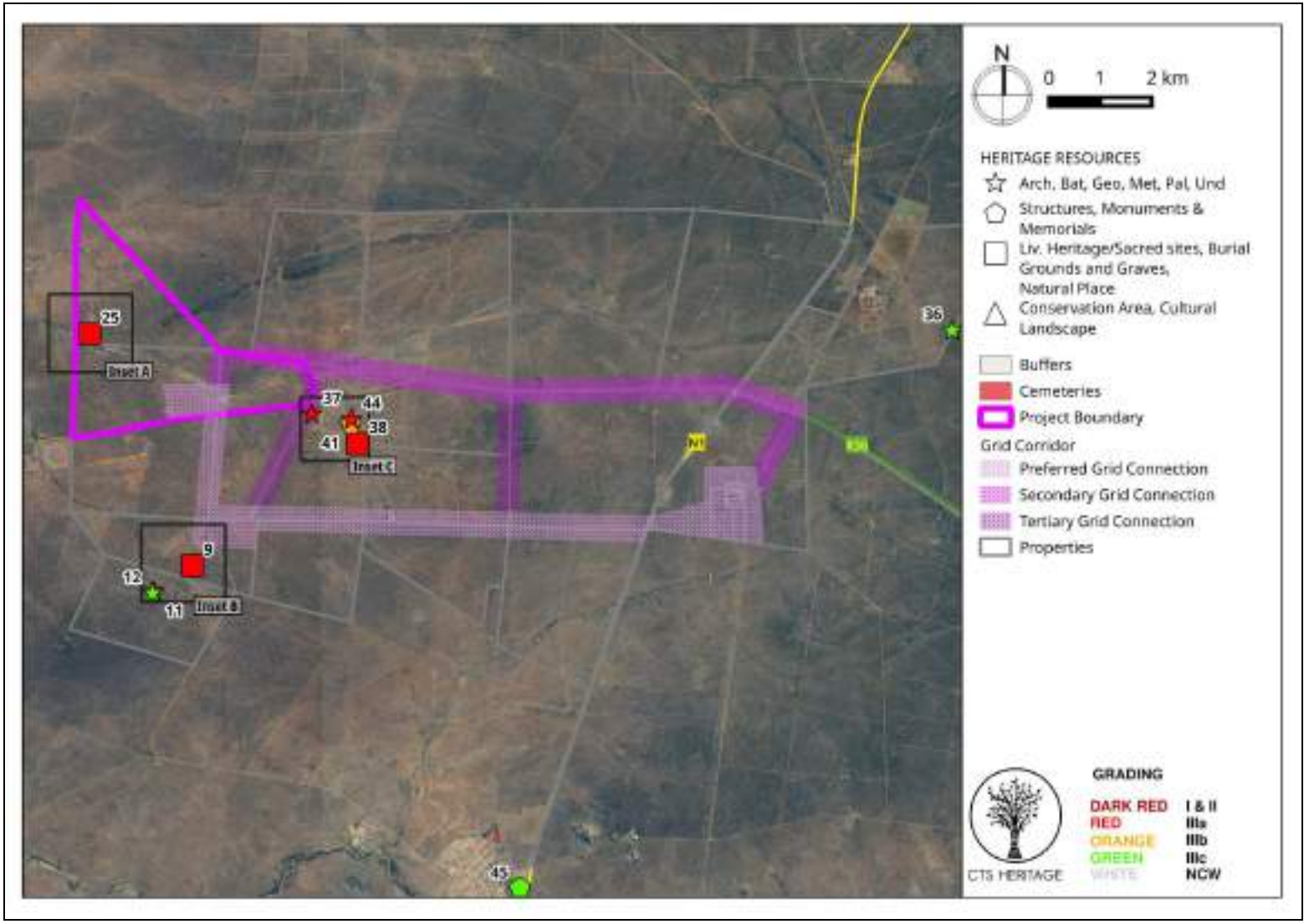

Figure 5.1: All heritage resources within proximity to the development area

Figure 5.2: Inset Map A of heritage resources identified within the PV development area

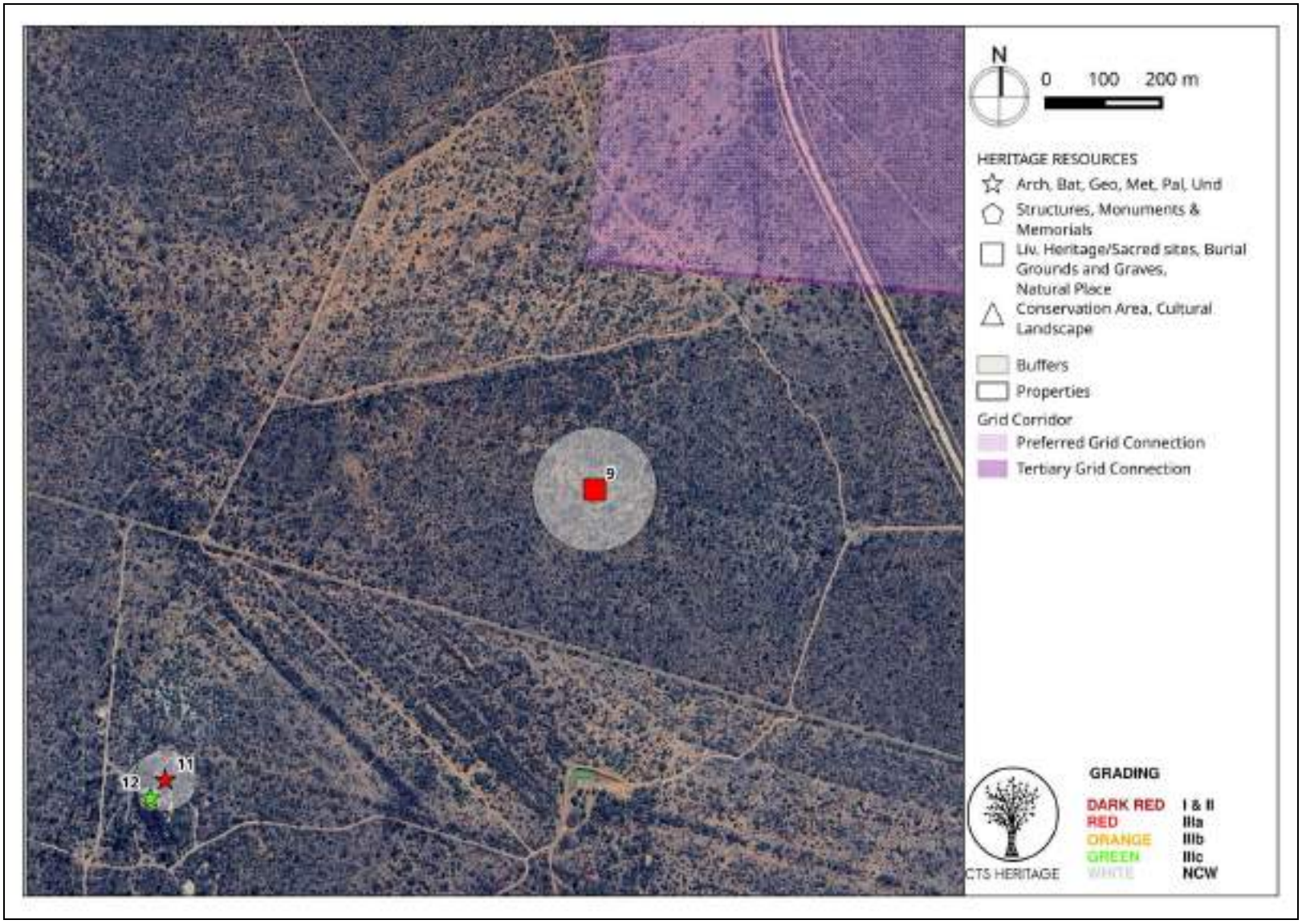

Figure 5.3: Inset Map B of heritage resources identified within the PV development area

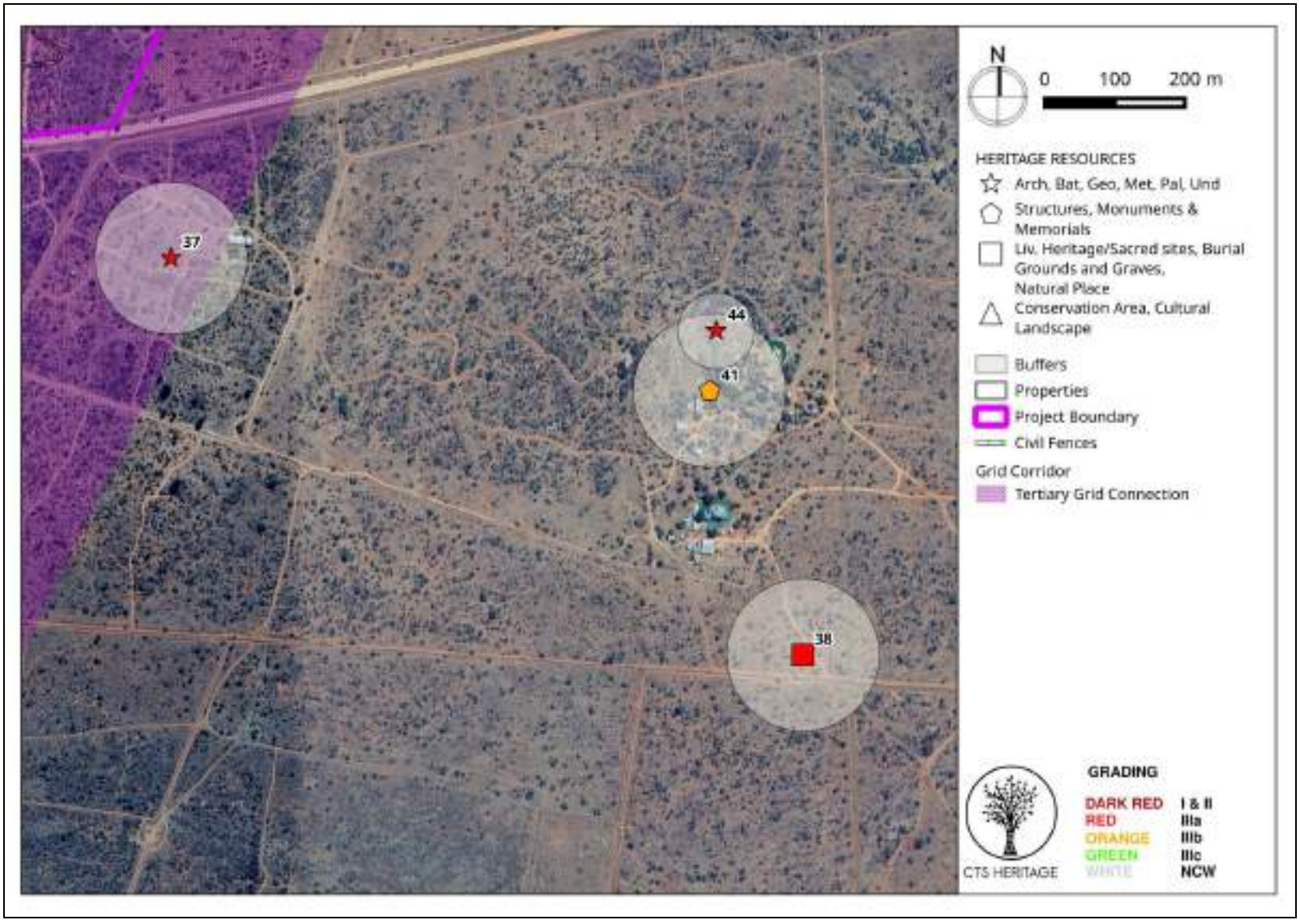

Figure 5.4: Inset Map C of heritage resources identified within the PV development area

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, OPERATIONAL and DECOMMISSIONING phases of the project. Potential impacts to the cultural landscape throughout the OPERATIONAL phase are discussed in the section below that deals with Cumulative Impacts. The impacts discussed here pertain to the CONSTRUCTION phase of the project.

5.1.1 Cultural Landscape and VIA

A Visual SSVR was completed for the proposed development, the results of which are summarised below.

Sense of place refers to a unique experience of an environment by a user, based on his or her cognitive experience of the place. Visual criteria, specifically the visual character of an area (informed by a combination of aspects such as topography, level of development, vegetation, noteworthy features, cultural / historical features, etc.), plays a significant role.

An impact on the sense of place is one that alters the visual landscape to such an extent that the user experiences the environment differently, and more specifically, in a less appealing or less positive light.

The Visual SSVR determines that the Scenic Quality of the development area is rated as Medium to High. The undulating bushveld landscape does have value due to its extensive coverage without development or transformation by agriculture or human settlement. The terrain is primarily gently undulating, with a small ridgeline in the northern areas and a rocky outcrop in the southern portion of the property. The landscape maintains its value largely because it remains undeveloped by agriculture or settlements. Aside from the Eskom OHPL corridor, which shows some signs of landscape degradation, structural developments are characterized as rural, agricultural, or game farm-related, and are non-imposing.

The Visual SSVR concludes that the majority of the property is suitable for PV development and with the incorporation of the recommended setbacks and No-Go areas, would not result in degradation of significant landscape / visual resources. As such, the project is not defined as a Fatal Flaw. The visual impacts of the proposed development are more thoroughly assessed in the VIA.

5.1.2 Archaeology

The field assessment proceeded with limited constraints and the area was satisfactorily surveyed for impacts to archaeological heritage resources. The area proposed for development has been subject to cultivation and agricultural practices for a significant amount of time and as such, most of the recorded observations consist of modern farming buildings and associated infrastructure. These observations have no cultural value from a heritage perspective and as such, are determined to be Not Conservation-Worthy. These are not considered further here.

As is expected in such rural areas, a number of burial grounds and graves were identified (Sites 009, 025, 037 and 038). These burials range from historic to recent and are all located outside of municipal cemeteries. Due to their high levels of local social and spiritual significance, burials have high levels of local cultural value and are graded IIIA. It is recommended that a no development buffer of 100m is implemented around such burials in order to retain their sense of place as well as to ensure that no associated unmarked human remains are accidentally impacted by development activities.

Interestingly, the field assessment identified rock art and Iron age resources within the development area. These observations include rock shelters with associated buried archaeological deposit and rock art (Site 011 and 044, graded IIIA) as well as scatters of Iron Age pottery shards (Sites 012 and 016, Graded IIIC). The field assessment also identified one historic stone-walled kraal (Site 041). This site has been graded IIIB.

These significant archaeological observations are indicative of the potential for additional associated buried archaeology located in close proximity to these sites. Due to their scientific value, these sites may not be negatively impacted by the proposed development and appropriate no development buffers for these sites are recommended in the table above.

PV Facilities

Site 025 falls within the proposed PV area. This site reflects a burial ground. It is recommended that this burial and its recommended buffer is excluded from the development footprint. Additionally, it is recommended that access to this burial is guaranteed for the duration of the life of the PV facility.

It is recommended that the conservation of the burials be managed for the duration of the life of the PV facilities through the drafting of a Conservation Management Plan that is submitted to SAHRA for approval.

The final layout of the proposed Draailoop PV facility and its associated grid alignment adhere to the mitigation measures outlined in this report and as such, no significant impact is anticipated.

Table 3.1 Impacts of the proposed development to archaeological resources

NATURE: The construction phase of the project will require excavation, which may impact on archaeological heritage resources if present.				
		Without Mitigation		**With Mitigation**
MAGNITUDE	**H (8)**	Archaeological heritage resources of significance were identified within the development footprint	**L (1)**	Archaeological heritage resources of significance were identified within the development footprint
DURATION	**H (5)**	Where an impact to a resource occurs, the impact will be permanent.	**H (5)**	Where an impact to resources occurs, the impact will be permanent.
EXTENT	**L (1)**	Localised within the site boundary	**L (1)**	Localised within the site boundary
PROBABILITY	**M (3)**	It is possible that significant heritage resources will be impacted if the layout provided is followed	**L (1)**	It is unlikely that significant heritage resources will be impacted if the layout provided is followed
SIGNIFICANCE	**L**	(8+5+1)x3=42	**L**	(1+5+1)x1=7
STATUS		Neutral		Neutral
REVERSIBILITY	**L**	Any impacts to heritage resources that do occur are irreversible	**L**	Any impacts to heritage resources that do occur are irreversible
IRREPLACEABLE LOSS OF RESOURCES?	**M**	Possible	**L**	Unlikely
CAN IMPACTS BE MITIGATED		Yes		Yes
MITIGATION: - The mitigation measures recommended in Table 2 are implemented - The conservation of these sites into the future must be ensured. This can be managed through the development of a Heritage Management Plan to be implemented for the duration of the project. - Should any buried archaeological resources or human remains or burials be uncovered during the course of development activities, work must cease in the vicinity of these finds. The South African Heritage Resources Agency (SAHRA) must be contacted immediately in order to determine an appropriate way forward.				
RESIDUAL RISK: Should any significant resources be impacted (however unlikely) residual impacts may occur, including a negative impact due to the loss of potentially scientific cultural resources.				

5.1.3 Palaeontology

According to the SAHRIS Palaeosensitivity Map the development sites are underlain by sediments of very LOW fossil sensitivity (Figure 4). The proposed development is underlain with **Matok Granite** (Coarse-grained, porphyritic, pink and grey biotite granite, in places hornblende granite), and **Goudplaats-Hout River Gneiss** (Leucocratic, strongly migmatised biotite gneiss and greyish, weakly migmatised biotite gneiss; minor leucogneiss and dark grey biotite gneiss). Both these formations have **Insignificant or Zero** Palaeontological sensitivity.

The third formation that is present in the study area is the **Bandelierkop Formation** (Predominantly volcanic igneous rocks, plus some igneous intrusions, minor sediments such as banded iron formation, chert, quartzite, conglomerate, and schists) which has **Low** Palaeontological Sensitivity. According to the Palaeotechnic report for Limpopo (Groenewald & Groenewald, 2014) this formation is known for "*Archaean microfossils and microbial trace fossils (bacterial borings) which have been recorded from cherts and volcanic glasses in similar-aged greenstone belts elsewhere in RSA (e.g. Fig Tree Group & Onverwacht Group of Barberton Greenstone Belt, Mpumalanga & Swaziland). "Fly speck carbon" in sedimentary Uitkyk Fm of the Pietersburg Greenstone Belt, Limpopo, may be fossilised microbes,or alternatively of inorganic origin (e.g. an inorganic precipitate induced by radioactive irradiation)."*

It is unlikely that the proposed development will have a significant impact on palaeontological resources and no further assessments are required.

Table 3.2: Impacts of the proposed development of the PV facilities to palaeontological resources

NATURE: The construction phase of the project will require excavation, which may impact on palaeontological heritage resources if present.				
		Without Mitigation		**With Mitigation**
MAGNITUDE	**L (1)**	The area proposed for development is underlain by sediments of LOW palaeontological sensitivity	**L (1)**	The area proposed for development is underlain by sediments of LOW palaeontological sensitivity
DURATION	**H (5)**	Where an impact to resources occurs, the impact will be permanent.	**H (5)**	Where an impact to resources occurs, the impact will be permanent.
EXTENT	**L (1)**	Localised within the site boundary	**L (1)**	Localised within the site boundary
PROBABILITY	**L (1)**	The potential impact to fossil heritage resources is extremely low	**L (1)**	The potential impact to fossil heritage resources is extremely low
SIGNIFICANCE	**H**	(8+5+1)x1=14	**H**	(8+5+1)x1=14
STATUS		Negative		Positive
REVERSIBILITY	**L**	Any impacts to heritage resources that do occur are irreversible	**L**	Any impacts to heritage resources that do occur are irreversible
IRREPLACEABLE LOSS OF RESOURCES?	**H**	Possible	**H**	Possible
CAN IMPACTS BE MITIGATED		Yes		Yes
MITIGATION: - The attached Chance Fossil Finds Procedure must be implemented				
RESIDUAL RISK: Should any significant resources be impacted (however unlikely) residual impacts may occur, including a negative impact due to the loss of potentially scientific cultural resources.				

5.2 Sustainable Social and Economic Benefit

Based on the findings of the Scoping SIA the proposed Draailoop Solar PV and associated infrastructure, including the BESS, will create several social and socio-economic benefits, including creation of employment and business opportunities during both the construction and operational phases. The project will also create economic development opportunities for the local community. The proposed development also represents an investment in clean, renewable energy infrastructure, which, given the negative environmental and socio-economic impacts associated with a coal-based energy economy and the challenges created by climate change, represents a significant positive social benefit for society. The Renewable Energy Independent Power Producers Procurement Programme (REIPPPP) has resulted in significant socio-economic benefits, both at a national level and at a local, community level. These benefits are linked to Direct Foreign Investment, local employment and procurement and investment in local community initiatives.

The findings also indicate that the land uses in the vicinity of the site do not appear to be socially sensitive. Based on experience from other solar energy projects, the potential negative impacts associated with both the construction and operational phase can also be effectively mitigated. The proposed development is therefore supported by the findings of the Scoping SIA.

Based on the outcomes of this heritage assessment, the anticipated socio-economic benefits to be derived from the project outweigh any anticipated negative impacts to heritage resources.

5.3 Proposed Development Alternatives

Draailoop Solar PV will consist of a PV project and associated infrastructure net generation (contracted) capacity of up to 240MWAC. It will furthermore include DC and/or AC coupled BESS components. In terms of the guidelines on consideration of alternatives, alternatives can include:

- Site Alternatives
- Technology Alternatives
- Layout Alternatives (discussed below)
- In compliance with the regulations, as a minimum, the No-Go Alternative will be considered and assessed.

Layout Alternatives

The following layout alternatives have been considered thus far in this environmental process. Further refinement of the Study Area (Layout Alternative 2) will take place during the Environmental Impact Reporting Phase of the environmental process and the preferred alternative (Layout Alternative 3) will be determined for each of the projects.

Alternative 1 - Initial site: Farm 431 and the Remainder of Farm 466 located South of Louis Trichardt in the Makhado Local Municipality, was selected as the preferred site for the Development of the Draailoop Solar PV.

The initial site consisted of the entire extent of these properties. The initial site did not consider any environmental sensitive areas and was driven primarily by other factors

Alternative 2 – Study Area. Following the identification of the initial site, the study area was determined by excluding all obvious constraints and physical attributes such as main roads.

Following the identification study area, the following specialists undertook Site sensitivity verifications of this area. These participating specialists undertook a site sensitivity analysis of the extent of the study area. This site sensitivity analysis along with the outcome of the initial public participation process will be used to inform the preferred mitigated alternative that will be presented during the environmental impact assessment phase of this environmental process.

The EGI (Eskom component) for Draailoop Solar PV is being assessed as part of this environmental impact assessment process. Three alternative grid connection alternatives are under consideration. These alternatives are mapped throughout this report.

The preferred grid connection is also preferred from a heritage perspective. The tertiary grid connection is not preferred due to possible impacts to Site 037.

Access Road Alternatives

The proposed access intends to utilise the existing access point from the North via the existing S129 between Louis Trichardt or from the South via S560 or S132. Unless the Traffic Impact Assessment or relevant transport authorities raise concerns with the existing access, no alternatives will be considered (as the utilisation and upgrading of existing road infrastructure will have a significantly lower physical impact than the development of new infrastructure). The details of the internal road network will also be finalised once Layout Alternative 3 (preferred layout) is developed.

The no-go alternative

The no-go Alternative (or status quo) proposes that Draailoop Solar PV does not go ahead and that the area in proximity to the existing Eskom Tabor Substation and within the Strategic EGI corridor will remain undeveloped as it is currently. The land on which the Draailoop Solar PV is proposed is currently vacant and used for limited game and livestock grazing activities, however due to a combination of factors, it has little potential for irrigated crop cultivation (this has been confirmed by the Agricultural Specialist). The solar-power generation potential of the Makhado Municipal area, particularly in proximity to the existing Tabor substation and within the strategic EGI is significant and will persist should the no-go alternative occur.

The no-go alternative will limit the potential associated with the land and the area as a whole for ensuring energy security locally, as well as the meeting of renewable energy targets on a provincial and national scale. Should the no-go alternative be approved, the positive impacts associated with Draailoop Solar PV (increased revenue for the farmer, economic investment, local employment and generation of electricity from a renewable resource) will not be realised. The no-go alternative will be used as a baseline from which to determine the level and significance of potential impacts associated with the proposed Draailoop Solar PV.

5.4 Site Verification Statement

PV facilities

According to the DFFE Screening Tool analysis for the PV Facility, the development area has MEDIUM 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 has medium significance in terms of its living heritage (MEDIUM)
- Significant archaeological resources were identified in the broader development area (MEDIUM)
- The geology underlying the development area has zero sensitivity 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 for archaeology and cultural heritage - this should be MEDIUM. This evidence is provided in the body of this report.

Grid Alignment

According to the DFFE Screening Tool analysis for the Grid Alignment, the development area has MEDIUM levels of sensitivity for impacts to palaeontological heritage and HIGH 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 has medium significance in terms of its living heritage (MEDIUM)
- Significant archaeological resources were identified in the broader development area (MEDIUM)
- The geology underlying the development area has zero sensitivity 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 for archaeology and cultural heritage - this should be MEDIUM. This evidence is provided in the body of this report.

5.5 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.

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 renewable energy development and its associated grid connection infrastructure, constitutes an additional layer onto the cultural landscape which must be acceptable in REDZ areas and in Strategic Transmission Corridors. The primary risk in terms of negative impact to the cultural landscape resulting from renewable energy 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 area proposed for development is presently dominated by agricultural activities and as such, the pattern of settlement within this landscape reflects this. At this stage, there is the potential for the cumulative impact of proposed renewable energy facilities and its associated grid infrastructure to negatively impact the cultural landscape due to a change in the landscape character from rural to semi-industrial. That being said, the area proposed for development has insufficient value to warrant formal protection.

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 no major constraints and limitations, and the project area was comprehensively surveyed for heritage resources. Some significant archaeological material remains were documented within the grid area and the proposed PV facilities. The archaeological observations are somewhat expected here due to the number of Iron Age Sites known from the broader vicinity of the development area. These archaeological resources are associated with granite koppies in the area. A number of granite koppies are known from the southern portion of the grid alignment and these koppies should be considered to be archaeologically sensitive. It is recommended that no development take place within or on the koppies.

A number of significant archaeological resources and burial grounds were identified within the area proposed for development. Recommendations regarding appropriate buffer areas for these significant resources are outlined in the table above.

The final layout of the proposed Draailoop PV facility and its associated grid alignment adhere to the mitigation measures outlined in this report and as such, no significant impact is anticipated.

8. RECOMMENDATIONS

Based on the outcomes of this report, it is not anticipated that the proposed development of the solar energy facility and grid connection infrastructure will negatively impact on significant heritage resources on condition that:

- The mitigation measures outlined in Table 2 above are implemented. This is adhered to in the layout provided
- The granite koppies within the development area are considered to be sensitive and are excluded from the development footprint. This is adhered to in the layout provided
- A Conservation Management Plan is drafted for the ongoing conservation of the significant archaeological sites and burials identified within the area proposed for development
- Although all possible care has been taken to identify sites of cultural importance during the investigation of the study area, it is always possible that hidden or subsurface sites could be overlooked during the assessment. If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils, burials or other categories of heritage resources are found during the proposed development, work must cease in the vicinity of the find and SAHRA must be alerted immediately to determine an appropriate way forward.

9. REFERENCES

Heritage Impact Assessments				
NID	**Author(s)**	**Date**	**Type**	**Title**
6243	**Frans Roodt**	**01/09/2001**	**AIA Phase 1**	**Archaeological Impact Assessment: Proposed New 132 kV Eskom Overhead Powerline Bandelierkop**
7266	**Liesl Stegmann, Frans Roodt, Frans Roodt**	**01/09/2008**	**AIA Phase 1**	**Phase 1 Heritage Resources Scoping Report Demarcation of 500 Residential Erven in Makgato, Limpopo**
8026	Johnny Van Schalkwyk	16/04/2007	AIA Phase 1	Heritage Impact Assessment for the Planned Tabor-Witkop Power Line, Limpopo Province
523228	Anton Pelser	31/03/2019	AIA Desktop	DESKTOP HIA REPORT FOR THE BANDELIERKOP PRA LOCATED ON VARIOUS FARMS IN THE VHEMBE DISTRICT OF THE LIMPOPO PROVINCE

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APPENDICES

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APPENDIX 1: Archaeological Assessment (2024)

ARCHAEOLOGICAL SPECIALIST STUDY

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

Proposed Development of the Tabor Solar Cluster (Approx 630MW) near Banderlierkop in the Limpopo Province

Prepared by

CTS HERITAGE

Jenna Lavin
Nic Wiltshire
Mabeth Crafford

In Association with

Mulilo

August 2024

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EXECUTIVE SUMMARY

Cape EAPrac has been appointed by Mulilo Renewable Project Developments (Mulilo) to facilitate the Full Scoping & Impact Assessment process for the proposed Tabor Solar Cluster (approximately 630MW) near Bandelierkop, Limpopo South Africa.

This Solar Cluster is to be divided into four (4x) PV projects (average 160MW each), with each project to obtain a standalone Environmental Authorisation. Each solar project will have its own grid connection i.e. four (4x) grid connections, although routing may be similar for parts of the grid lines, to also obtain its own standalone Environmental Authorisation.

The survey proceeded with no major constraints and limitations, and the project area was comprehensively surveyed for heritage resources. Some significant archaeological material remains were documented within the grid area and the proposed PV facilities. The archaeological observations are somewhat expected here due to the number of Iron Age Sites known from the broader vicinity of the development area. These archaeological resources are associated with granite koppies in the area. A number of granite koppies are known from the southern portion of the grid alignment and these koppies should be considered to be archaeologically sensitive. It is recommended that no development take place within or on the koppies.

A number of significant archaeological resources and burial grounds were identified within the area proposed for development. Recommendations regarding appropriate buffer areas for these significant resources are outlined in the table above.

Recommendations

Based on the outcomes of this report, it is not anticipated that the proposed development of the solar energy facility and grid connection infrastructure will negatively impact on significant archaeological heritage on condition that:

- The mitigation measures outlined in Table 1 above are implemented
- The granite koppies within the development area are considered to be sensitive and are excluded from the development footprint
- A Conservation Management Plan is drafted for the ongoing conservation of the significant archaeological sites and burials identified within the area proposed for development
- 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.

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CONTENTS

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1. INTRODUCTION

1.1 Background Information on Project

Cape EAPrac has been appointed by Mulilo Renewable Project Developments (Mulilo) to facilitate the Full Scoping & Impact Assessment process for the proposed Tabor Solar Cluster (approximately 630MW) near Bandelierkop, Limpopo South Africa.

This Solar Cluster is to be divided into four (4x) PV projects (average 160MW each), with each project to obtain a standalone Environmental Authorisation. Each solar project will have its own grid connection i.e. four (4x) grid connections, although routing may be similar for parts of the grid lines, to also obtain its own standalone Environmental Authorisation.

Solar Field

- Solar Arrays: PV modules
- Single axis tracking technology maximum height of 5m (aligned north-south);
- Solar module mounting structures comprised of galvanised steel and aluminium;
- Foundations which will likely be drilled and concreted into the ground; and
- Solar measurement and weather stations.
- Central/string Inverters and MV transformers in in field
- DC coupled Battery Energy Storage system (BESS) containers distributed through PV field located adjacent to inverters
    - Lithium Ion battery Cells, Modules, Racks and containers,
    - Power Conversion Equipment
    - Battery Management System
    - Energy Management System

Associated Infrastructure

- Medium Voltage (MV =22/33 kV) overhead powerlines and underground cables;
- MV Collector stations
- Access road;
- Internal gravel roads;
- Fencing;
- General maintenance area;
- Storm water channels and berms;
- Water storage tanks and pipelines;
- Temporary work area during the construction phase (i.e. laydown area).
- O&M buildings, store

Project IPP Substation

- 132kV substation 200m x 200m
- HV transformer

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- Substation Control Building
- HV metering, Scada and protection building
- MV collector switchgear buildings
- Compensation equipment (Filters capacitors reactors statcoms)

AC coupled BESS installation (400m x 400m) at project substation and laydown area

- Solid Sate Battery technology - either Lithium-Ion or Sodium Sulphide (NaS)
- Battery Cells, Modules, Racks and containers
- Power Conversion Equipment
- Battery Management System
- Energy Management System
- MV transformers
- MV cabling and collector stations
- Fencing
- Offices, workshop
- Fire Protection systems

The four (4x) grid connection corridors for each project (which will be handed over to Eskom post-construction, may include:

- Onsite Switching Station (SS), adjacent to the IPP Substation.
- 132kV Overhead Power Line (OHPL) – 30m height from the switching station to the existing Eskom Tabor Substation.
- Access Road to SS
- Maintenance access road below or adjacent to the power line.

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1.2 Description of Property and Affected Environment

The proposed Tabor Solar project lies about 12km southwest of Bandelierkop in Limpopo. The N1 highway linking Louis Trichardt to Polokwane runs along much of the grid connection routes that terminate at the Eskom Tabor substation. The PV areas are located on three farms, namely Draailoop, Bethel and Makoppa and the various grid routes link the PV areas to Tabor substation over several farms adjacent to the N1 highway.

The area has several cattle ranches and game farms that are used for tourism and hunting. Wild buffalo are present within the PV areas and surveying has to be carried out with a staff escort. Besides buffalo, there are giraffes, eland, kudu and various smaller antelope species within the game farms. A series of modern cattle kraals and feeding areas are ubiquitous in the area and are linked via grid-form internal gravel roads and fenced enclosures. The game farms typically have lodges, staff accommodation and various facilities related to the hunting and tourism business such as lapas, chalets and viewing hides.

The terrain is generally flat in the PV areas with more hilly ground east of the N1 highway on Langgedacht farm where a proposed grid connection route is planned. Several granite outcrops dot the area with the largest and most prominent one located at the Tropic of Capricorn monument in Ga-Phasha. The veld consists of bushveld dominated by acacia trees and grassland.

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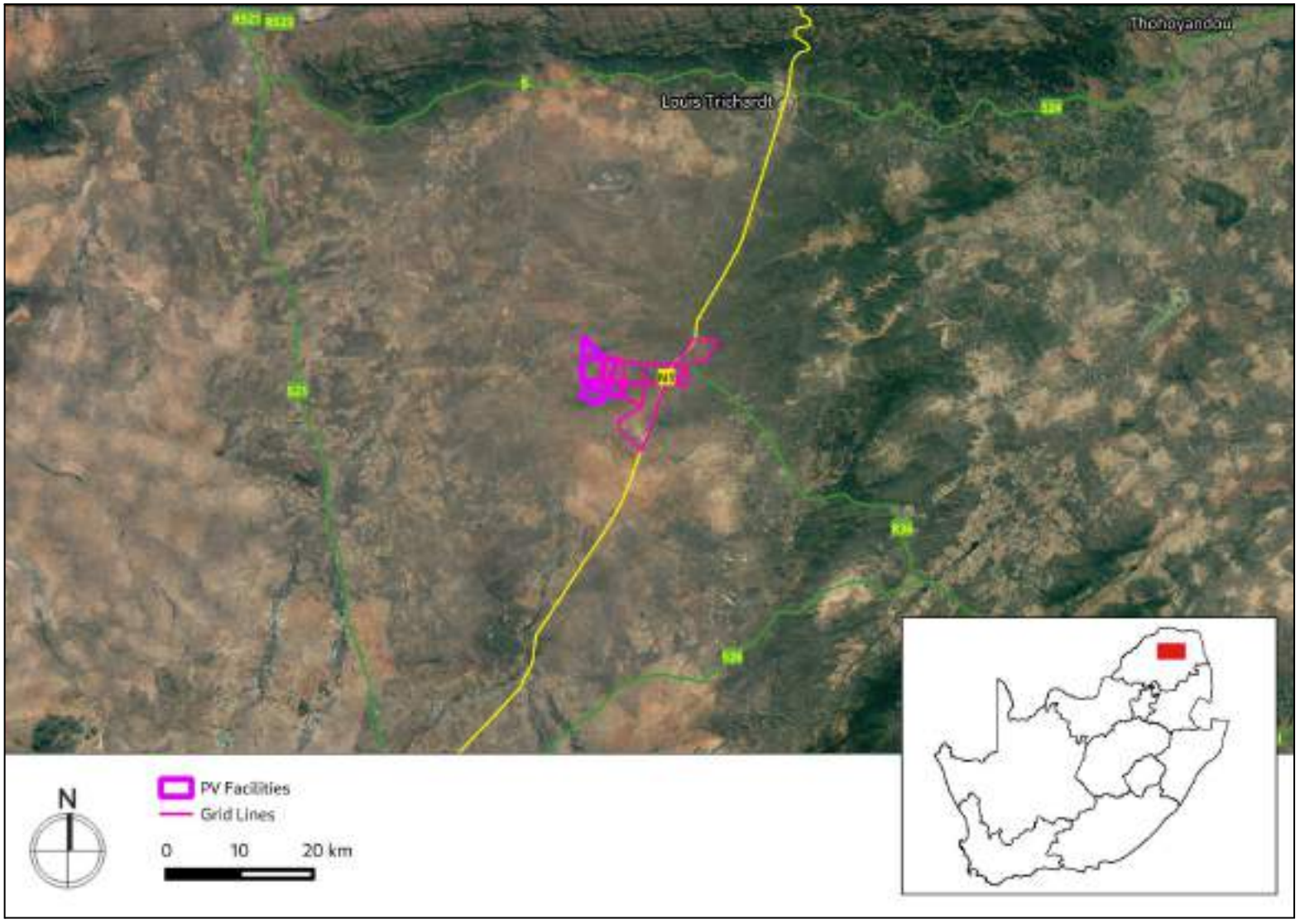

Figure 1.1: Satellite image indicating proposed location of development

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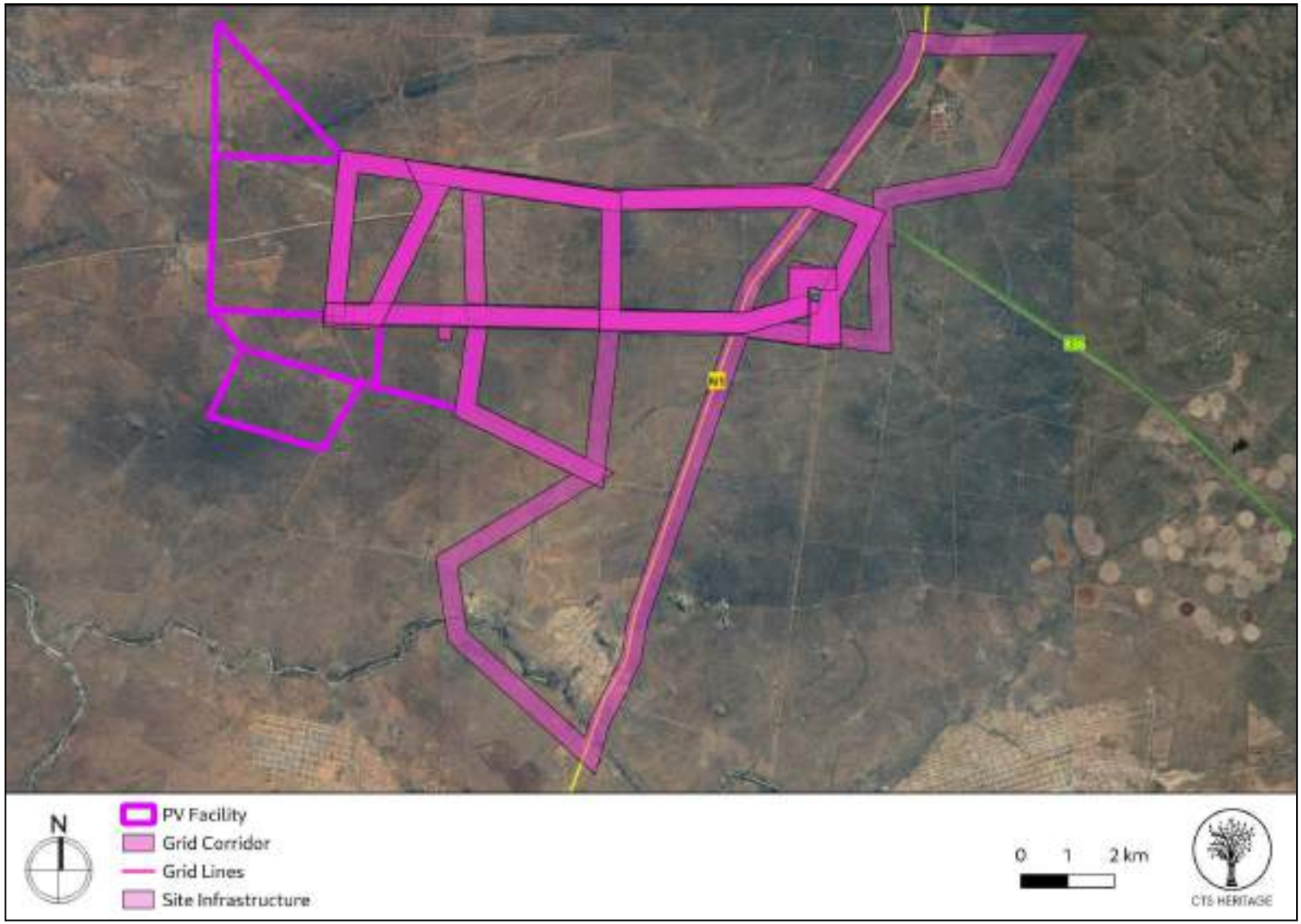

Figure 1.2: Proposed project boundary

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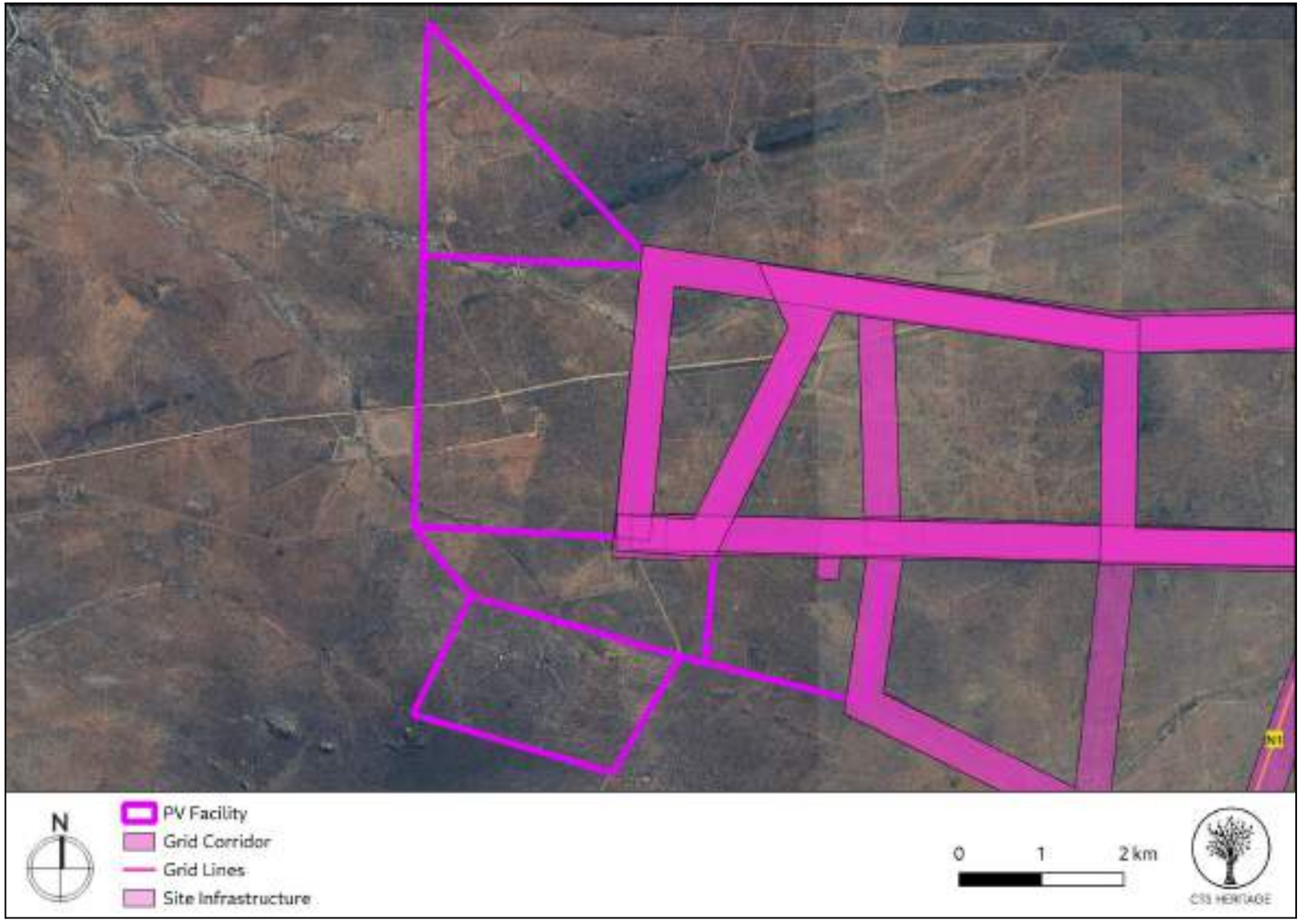

Figure 1.3: Proposed project boundary

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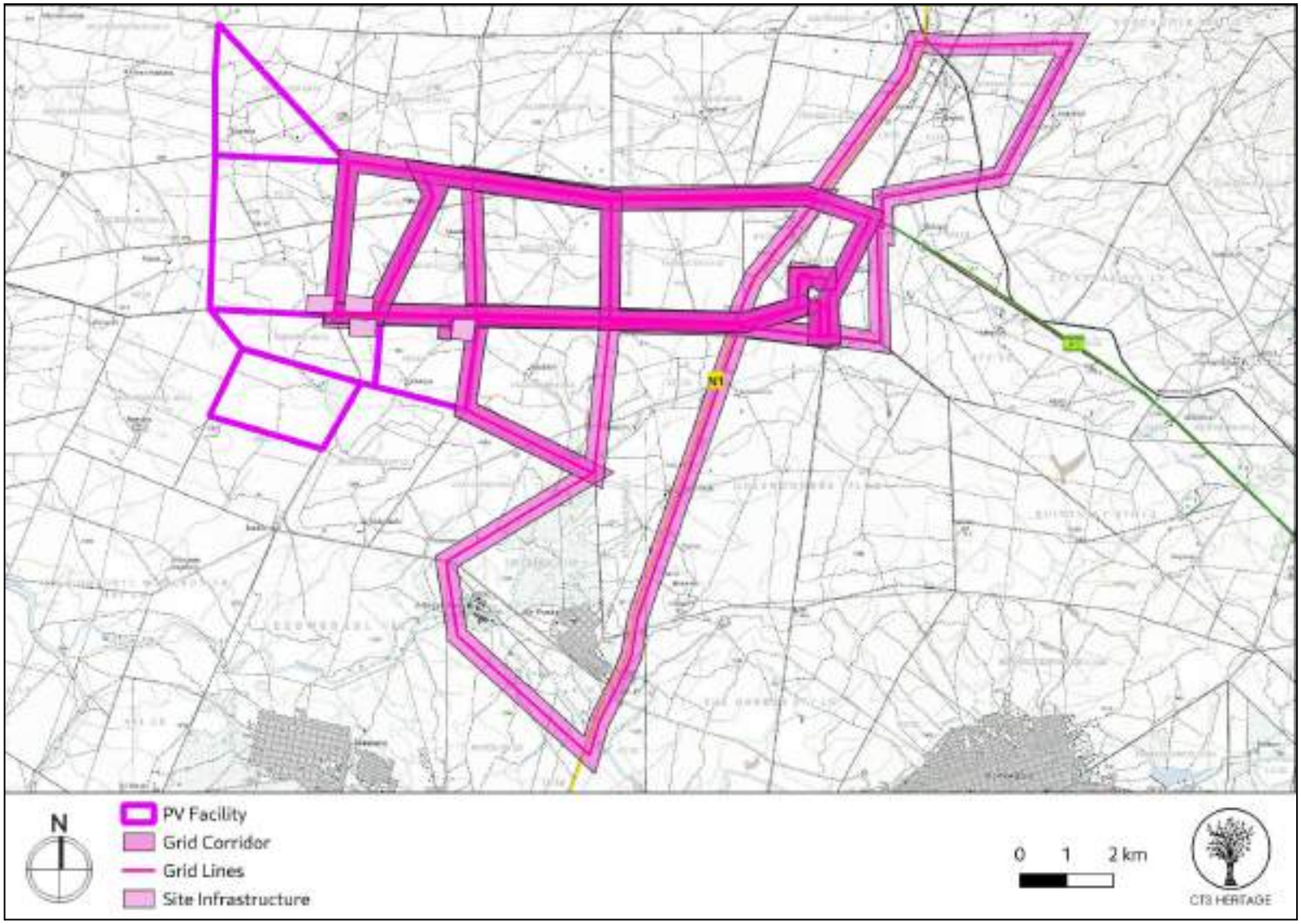

Figure 1.4: Proposed project boundary indicated on the 1:50 000 Topo Map

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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 24 to 27 July 2024 to determine what archaeological resources are likely to be impacted by the proposed development of the PV facility and grid connection.
- 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 presence of wild buffalo on certain areas of the PV farms required a staff escort and it was not possible to roam freely on foot throughout these sections. The grid connections, for the most part, did not have dangerous game animals and these were easily navigated using the existing jeep tracks within the farms and connecting roads before completing smaller sections on foot where no tracks exist. The vegetation cover ranges from thick to light and a number of older ploughed fields can be seen on the historical satellite imagery which accounts for the cleared areas observed during the survey as well as the generally low artefact counts in the previously ploughed fields. The highest sensitivities were located at the granite outcrops and these have not been heavily disturbed as the agricultural fields were established around them.

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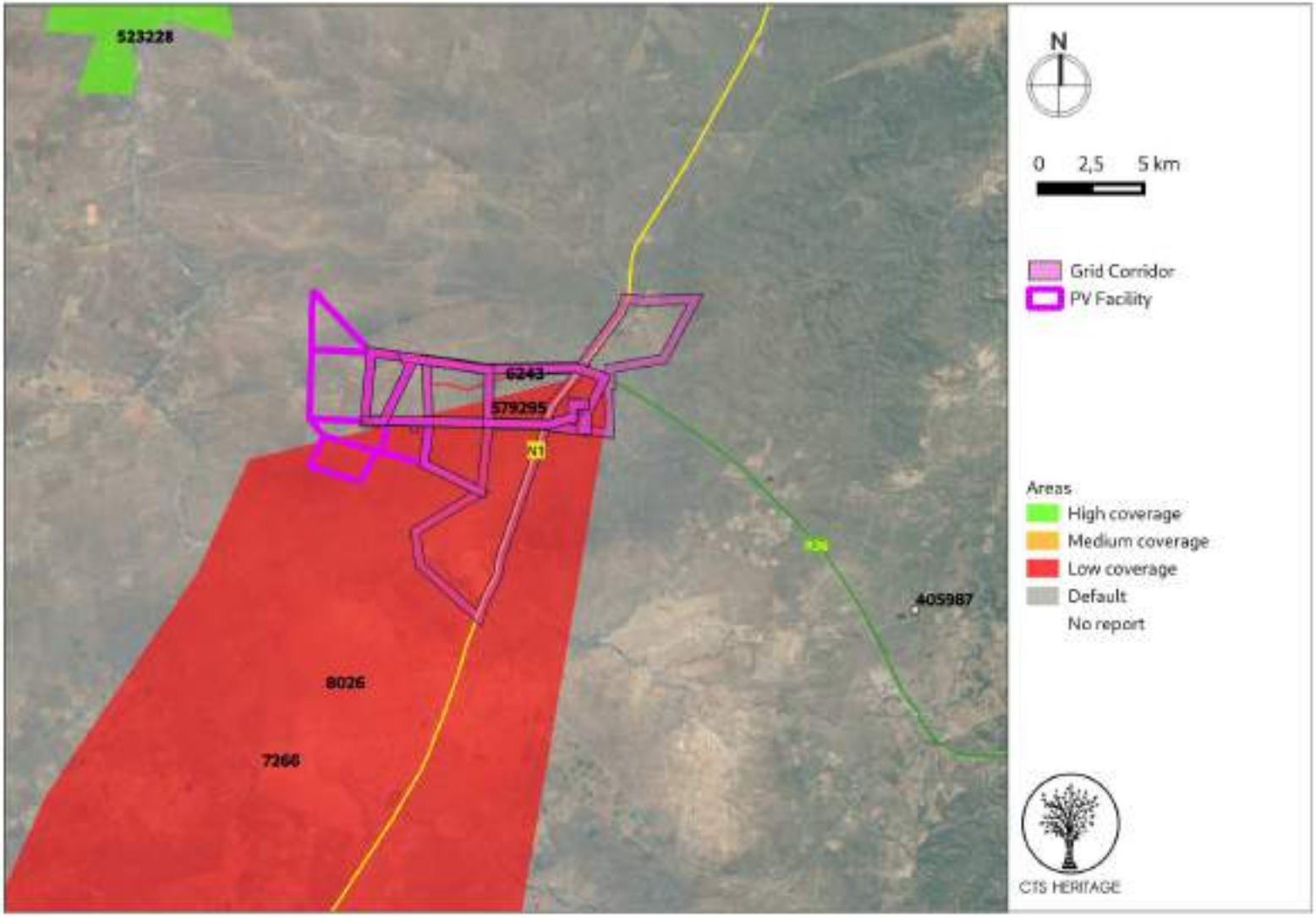

Figure 2: Close up satellite image indicating proposed location of development in relation to heritage studies previously conducted

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3. HISTORY AND EVOLUTION OF THE SITE AND CONTEXT

3.1 Background

This application is for the proposed development of a PV facility cluster located near Bandelierkop, south of Louis Trichardt, in the Limpopo Province. According to Raper et al (2018) in the Dictionary of Southern African Place Names, Bandolierskop is a "*Village some 35 km south-west of Louis Trichardt, on the route from Pietersburg to Beit Bridge. Afrikaans for 'bandolier hill"; said to have been named after an incident in which a burgher, Jan du Preez, was sent back to fetch the bandolier he had left behind when the commando struck camp."*

3.2 History, Background, Archaeology and Built Heritage

Van Schalkwyk (2007, SAHRIS NID 8026) provides a very detailed background and history of the surrounding area. Only the relevant points are summarised here:

Stone Age

- Early Stone Age and Middle Stone Age tools in the area are often found near rivers and outcrops, but these surface finds are of low significance. The study area falls in a relatively flat area, with three smaller koppies around the edges (Molemole and Maokgwe in Figure 3.4).
- The Late Stone Age saw recurring occupations in rock shelters and caves, particularly in areas like Soutpansberg and the Limpopo River.
- Evidence includes ostrich eggshell beads, bone arrowheads, small stones, and wood fragments.
- Rock art from this period indicates complex religious beliefs.

Iron Age

- Iron Age settlements start appearing around AD 300, with notable sites like Silver Leaves near Tzaneen.
- By AD 800, villages in the Limpopo River valley expanded due to East Coast trade.
- Climate changes and trade shifts by AD 1250 led to the abandonment of some areas.
- Large-scale occupation occurred in the 16th century, with farmers moving into previously unsuitable areas due to warmer and wetter climates.
- Defensive stone-walled settlements were built on hilltops near water and arable land.

Historic Period

- European settlers arrived in the early 19th century as hunters, traders, and missionaries, followed by settlers. " *The first European group to pass close by the area were that of Coenraad de Buys in 1821 and 1825, followed by groups of Voortrekkers after 1844 (Bergh 1999: 12-14). "* (Pelser 2019, SAHRIS NID 523228).
- Schoemansdal was one of the first European settlements. "*Schoemansdal (originally Zoutpansbergdorp) was established in 1848, and finally abandoned as a result of conflict with local groups in July 1867 (Bergh 1999: 131; 187). The town of Louis Trichardt was formally established in February 1899 (Bergh 1999: 147)."* (Pelser 2019, SAHRIS NID 523228)
- Gold discovery at Eersteling spurred mining activity.
- The region saw skirmishes during the Anglo-Boer War, such as at Rhenosterpoort and Fort Marabastad,l but

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none of these skirmishes appear to have taken place in the study area. Pelser (2019, SAHRIS NID 523228) mentions "*During the Anglo-Boer war (1899- 1902) there was a skirmish between British and Boer forces at Fort Edward near Louis Trichardt between 20 and 28 March 1902 (Bergh 1999: 54).*" Elim is located approximately 30km from the study area in a northeasterly direction.

Ethno-Historical Sequence

- The northern section of Van Schalkwyk's study area (2007) was predominantly inhabited by Tlokwa people, originally from Tlokweng near Potchefstroom, who moved north before 1700.
- The southern section of Van Schalkwyk's study area (2007) was notably diverse, with Ndebele and Sotho-speaking groups from various origins.
- The Berlin Mission Society established schools and hospitals from the mid-1800s, contributing to the social and political development of the Sotho-speakers and documenting their early colonial history. Their activity continued until 1962.

Archaeological sites spanning the Earlier, Middle and Later Stone Age have been found in the region despite the limited amount of impact assessments in the near vicinity. In 2001, Roodt conducted an HIA that partially intersects with the study area (SAHRIS NID 6243). Roodt described the environment as "*arid bushveld which is generally in a good condition, although the area on the Farm Joppa has been encroached by Dichrostachys (sickle bush), indicating recent over-exploitation.*" During the field survey, two Iron Age sites were identified (SAHRIS ID 36961 and 36962). Site 1 consists of a single potsherd, but it was noted that the full extent could not be determined due to the limited scope of the survey. Site 2 consists of an ash midden with associated pottery and dung deposits. The sites as well as mitigations suggested by Roodt are discussed in Table 1 below. Roodt also noted that neither sites warrant specific protection status. In another AIA by Stegman and Roodt (2008, SAHRIS NID 7266) located approximately 10km south of the study area, no archaeological resources were noted.

Table 1: Known sites from SAHRIS located within the study area (Roodt 2001, SAHRIS NID 6243)

SAHRIS ID	Site no and Full Site Name	Description	Grade	Mitigation
36961	BAN001, Banderlierkop 001	Site 1: This site contained only one decorated potsherd. Decoration is limited, with the result that the cultural identity could not be identified positively. The extent of this site could not be established within the scope of this scoping exercise.	IIIb	Site 1 is to be re-evaluated during the construction phase when the clearing of bush and earthworks has commenced. This will allow for an informed decision on whether or not mitigation for cultural, resource management measures is required.
36962	BAN002, Banderlierkop 002	Site 2: This site contains clear deposits of grayish ash deposits with pottery as well as possible dung deposits. Previous damage had been done to the Site by the existing road and access road for the existing powerline. A preliminary identification of the pottery would suggest it being of a variant of	IIIb	A phase two assessment of Site 2 to be mitigated before construction work commences.

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		the Moloko type pottery (early Sotho/Tswana), which could date to the 15" century.		
135469	Tropic of Capricorn, Tropic of Capricorn, Mphakane 1, Ga-Phasha	• On the face of it, the huge rock outcrop on which the needle marking the Tropic of Capricorn is situated resembles the many huge rock outcrops that can be found all over the Capricorn District Municipality, especially in the Botlokwa and Moletjie areas.[1] • Most of the details on the Inscriptions are not visible as its damaged beyond recognition. The Tropic of Capricorn is one of the five major circles of latitude marked on maps of Earth.	n/a	n/a
136466	DC35/NAMM/0045, Tropic of Capricorn, Mphakane 1, Ga phasha		n/a	n/a

There are several historical werfs located within the study area, such as Klipput and Draailoop. These werfs are likely to have heritage value and may conserve small farm graveyards, which need further inspection. There is also Ga-Phasha cemetery located just north of Ga-Pasha (Figure 3.4). All burials are considered to have high levels of local social and spiritual significance and as such, are graded IIIA. Due to this high level of significance, it is recommended that a no-development buffer of 100m is implemented around these sites. Often, informal burials can be located on the outskirts of formal cemetery areas. As such, this buffer is recommended to ensure the retention of the sense of place for this burial site, and to ensure that no hidden and unmarked burials are unintentionally impacted by the proposed development.

[1] https://www.sabcnews.com/sabcnews/sas-abandoned-tropic-of-capricorn/

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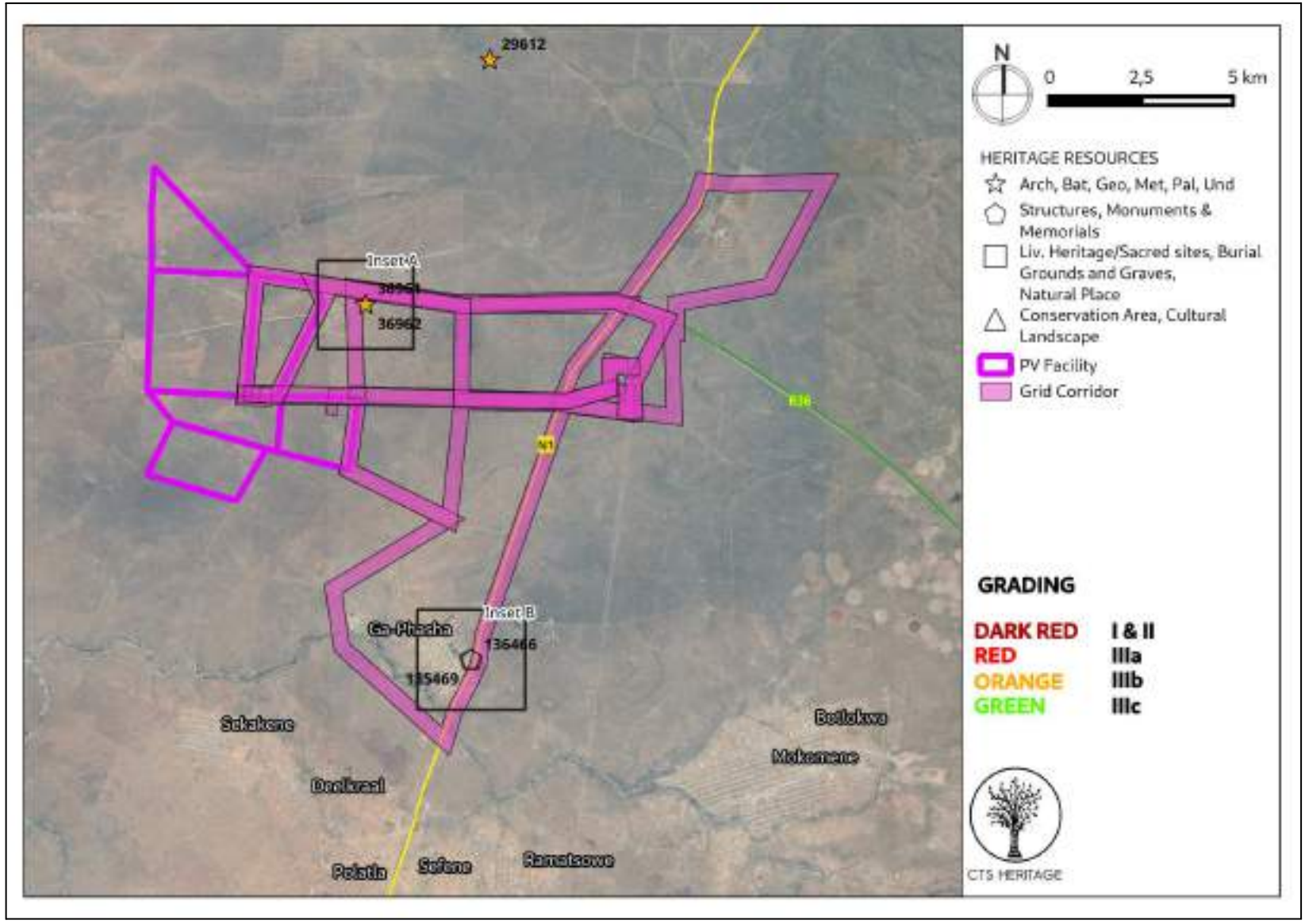

Figure 3.1 Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated.

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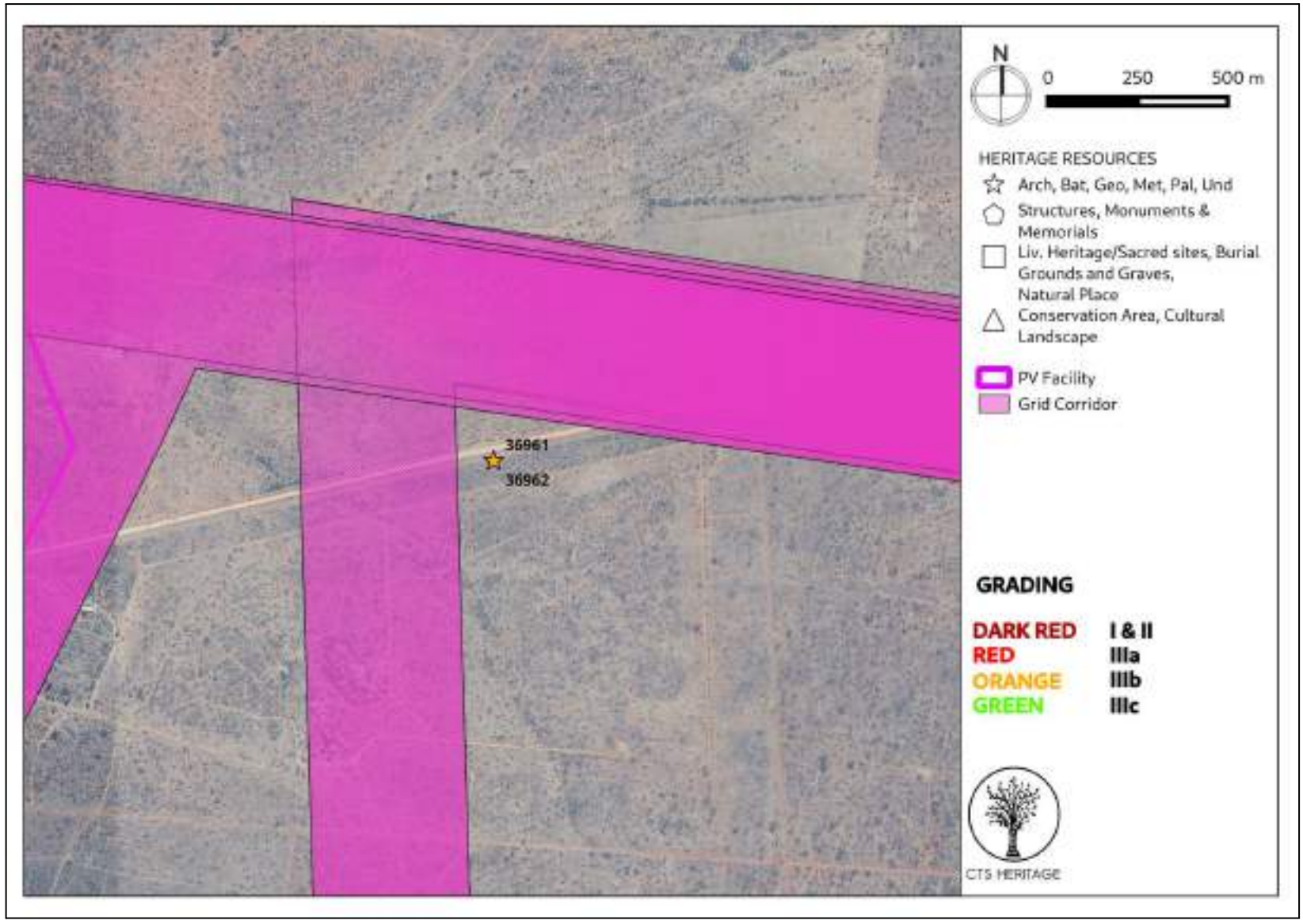

Figure 3.2 Heritage Resources Inset Map A. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated.

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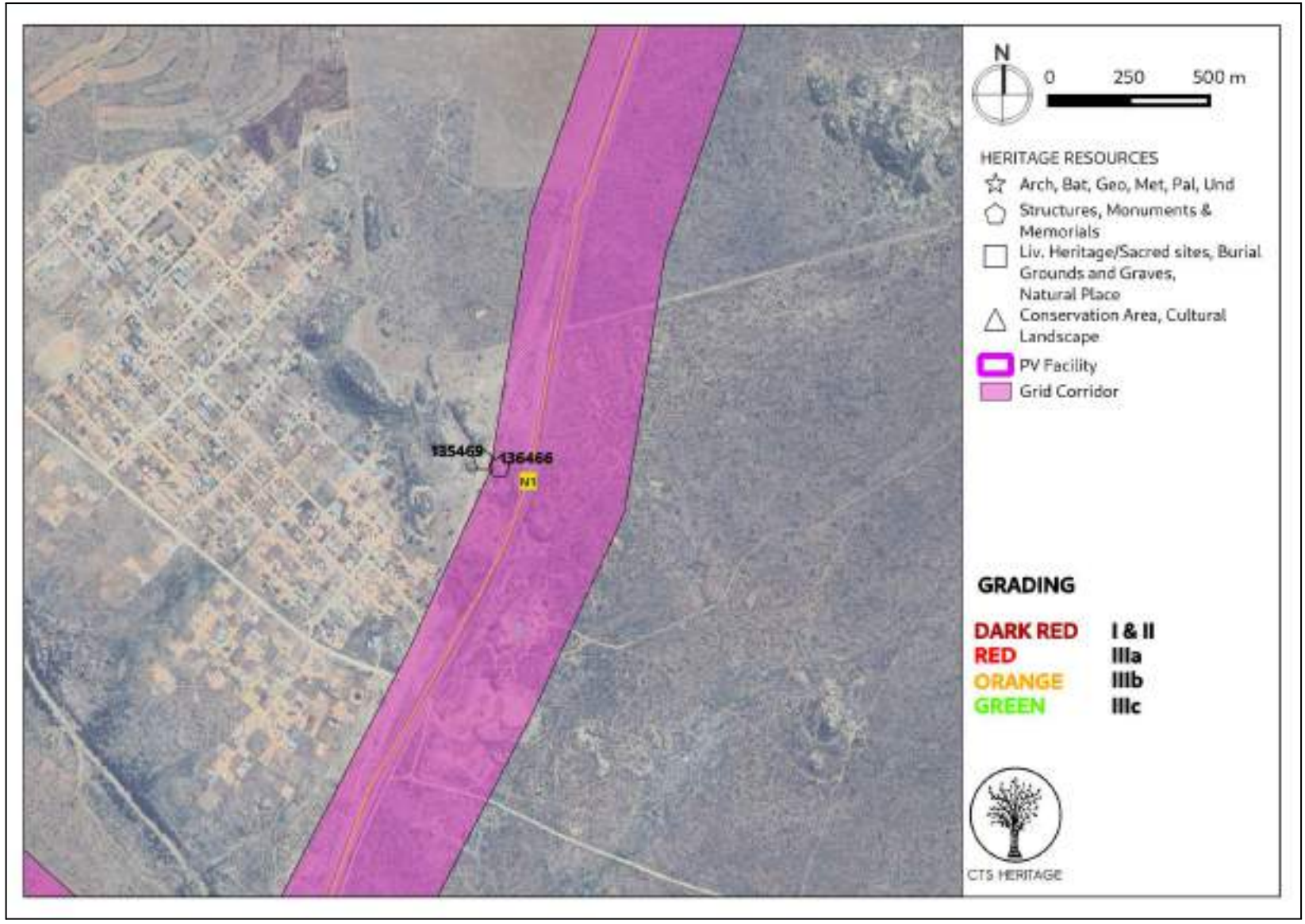

Figure 3.3 Heritage Resources Inset Map B. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated.

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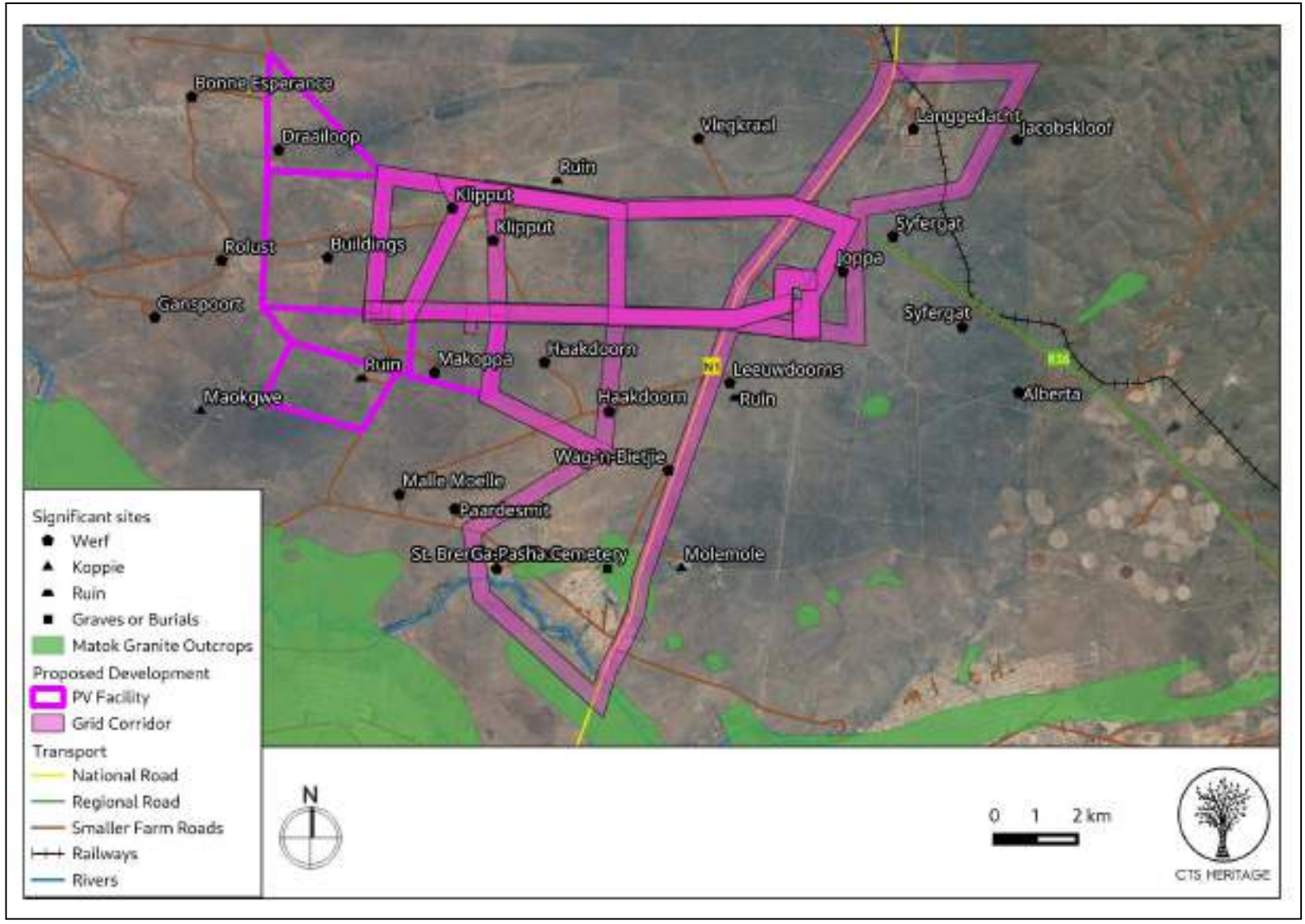

Figure 3.4 Cultural Landscape Map. Map indication sensitive receptors near the proposed development, extracted from the Topo 1:50 000 map.

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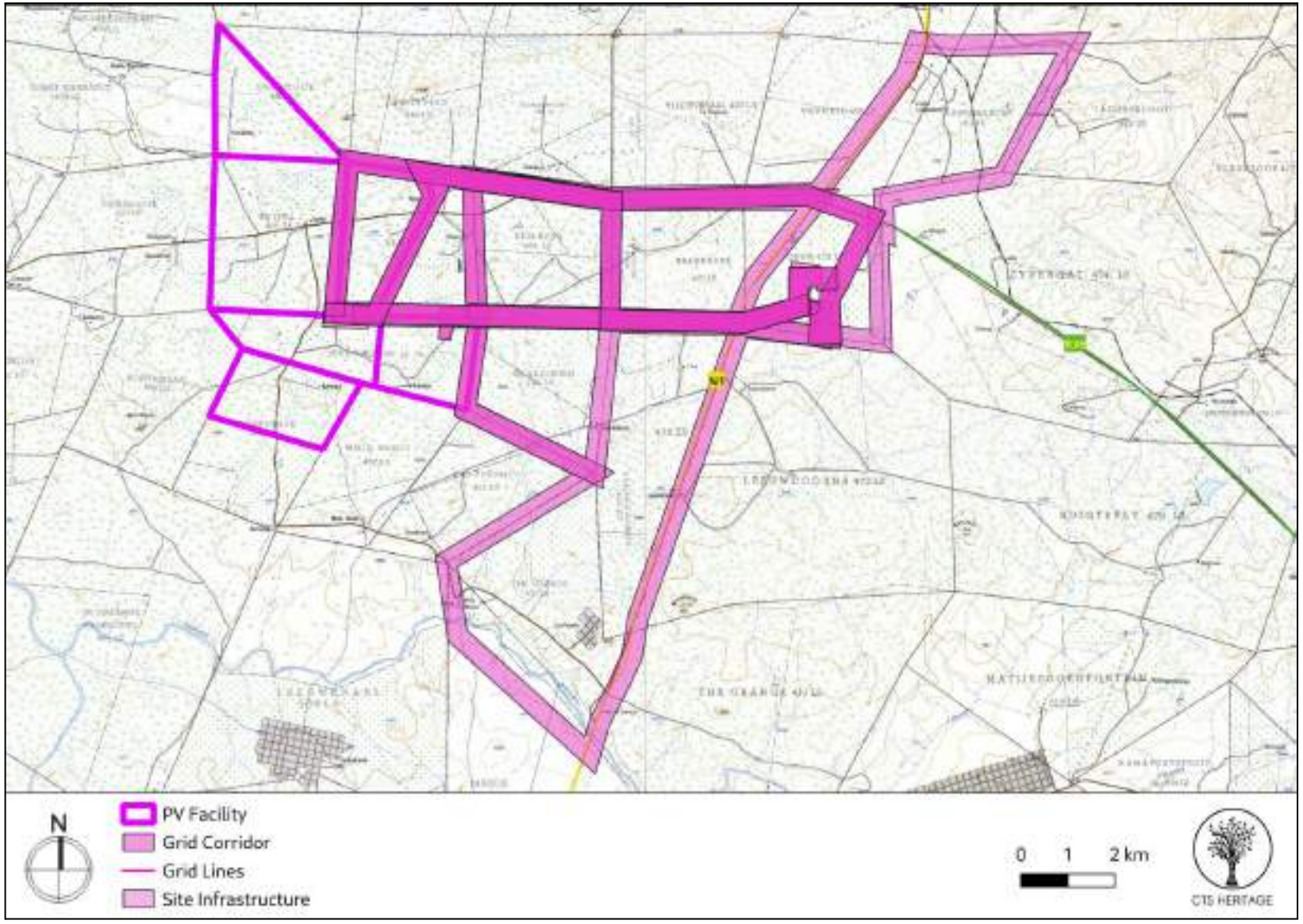

Figure 3.5 First Edition Topo Map. First Edition Topo Map indicating historical farm werfs that still exist

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4. IDENTIFICATION OF HERITAGE RESOURCES

4.1 Field Assessment

The most significant findings were made on the granite outcrops at Bethel/Makoppa and near the grid connection route through Klipput. Later Stone Age fine line paintings have not been recorded in great numbers in the immediate area and the site found in the small granite outcrop is similar to sites further north in the Soutpansberg. The other granite outcrop at Klipput is much larger and a number of modern chalets and historical stone kraals have been built right up against the outcrop. A small shelter containing hundreds of Iron Age pottery sherds was found and isolated stone tool flakes and more sherds can be found all over the outcrop. Another Iron Age find was made at Langgedacht in the grid connection route which consisted of isolated pottery sherds and quartz flakes.

The majority of the farm werfs date to the late 19th and early 20th century with several alterations and newer buildings present. Historical graveyards related to the families at Draailoop and Klipput were recorded with separate graves and ruined dwellings at Bethel and Klipput for farmworkers and their relatives. It was surprising to see relatively low artefact counts but later checks through the historical satellite imagery showed the large number of previously ploughed fields in the PV areas which are now fallow for the game farming and hunting businesses. This explains the highly disturbed and unnaturally level ground present across much of the PV areas.

Figure 4.1: View of the grid connection route in the southern area north of Matoks and south of Ga-Phasha.

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Figure 4.2: View from a small granite outcrop south of the Mononono River.

Figure 4.3: View along the N1 highway.

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Figure 4.4: Typical view along the grid connection routes - gravel roads and game fences.

Figure 4.5: View along the grid connection route.

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Figure 4.6: View from granite outcrop with the rock art site in Bethel farm.

Figure 4.7: View across the bushveld in the PV areas.

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Figure 4.8: View in the grid connection route at Makoppa.

Figure 4.9: View of euphorbia and acacia trees.

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Figure 4.10: View down one of the grid connection routes.

Figure 4.11: View near the N1 highway at Brandhoek.

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Figure 4.12: Tabor substation.

Figure 4.13: View of the bushveld at Langgedacht in overgrazed areas.

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Figure 4.14: Maize fields at Langgedacht in the grid connection routes.

Figure 4.15: View of more hilly ground near some granite outcrops on Langgedacht.

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Figure 4.16: Granite outcrop at Langgedacht along the grid connection route.

Figure 4.17: View from granite outcrop at Langgedacht along the grid connection route.

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Figure 4.18: View along the grid connection route at Klipput.

Figure 4.19: View of the Klipput granite outcrop with the Iron Age site.

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Figure 4.20: View from Klipput granite outcrop looking down on the modern chalets.

Figure 4.21: View of Tabor substation.

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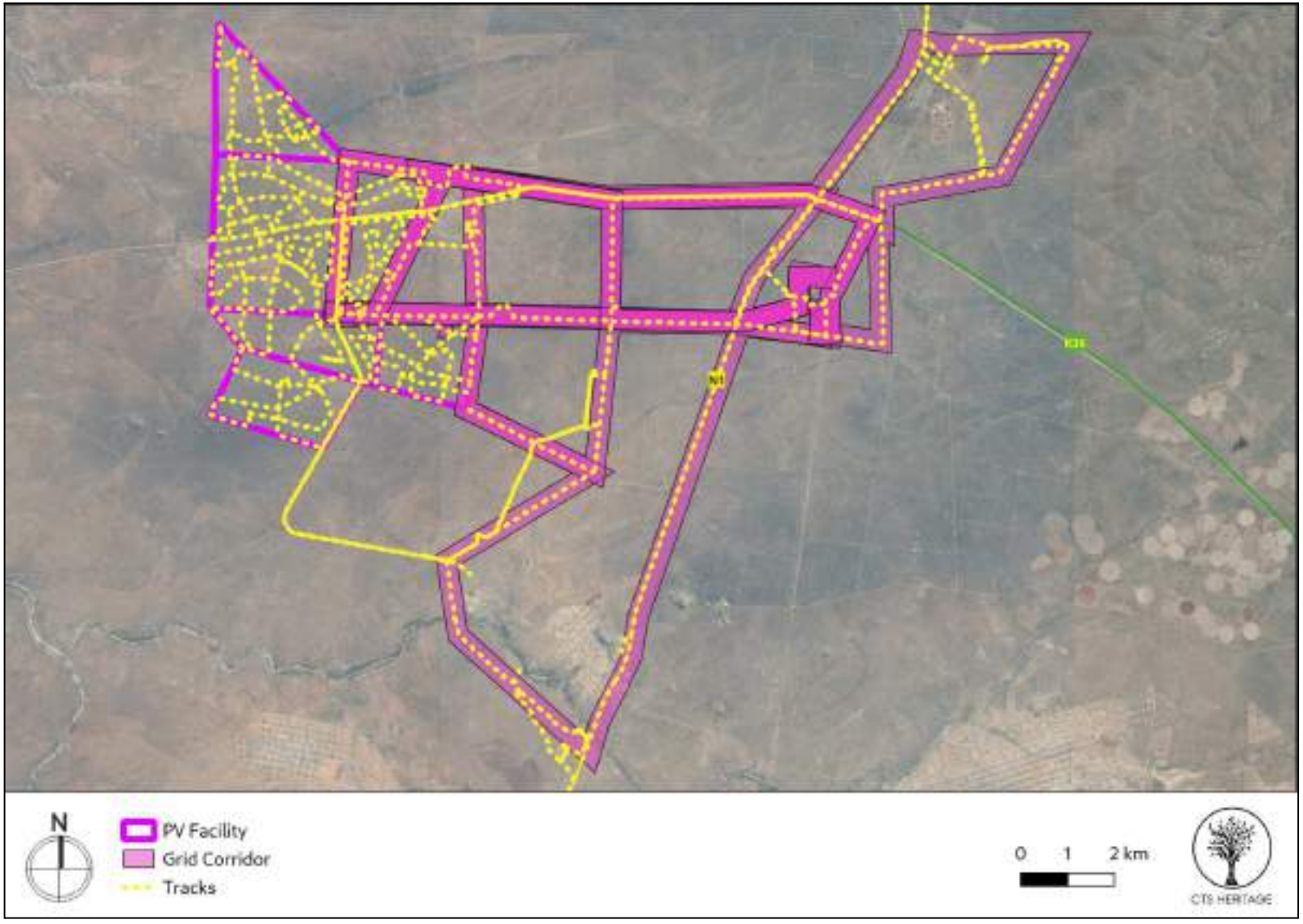

Figure 5. Track paths of archaeological field assessment

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4.2 Archaeological Resources Identified

Table 1: Observations noted during the field assessment

POINT ID	Description	Density	Type	Period	Co-ordinates		Grading	Mitigation
1	Modern homesteads linked to small modern stock kraals	n/a	Structure	Modern	-23,454587	29,734555	NCW	n/a
1	Modern homesteads linked to small modern stock kraals	n/a	Structure	Modern	-23,453889	29,736164	NCW	n/a
1	Modern homesteads linked to small modern stock kraals	n/a	Structure	Modern	-23,455059	29,736694	NCW	n/a
1	Modern homesteads linked to small modern stock kraals	n/a	Structure	Modern	-23,454471	29,73525	NCW	n/a
2	Odern buildings, house and factory buildings near brickmaking business	n/a	Structure	Modern	-23,453287	29,737543	NCW	n/a
2	Odern buildings, house and factory buildings near brickmaking business	n/a	Structure	Modern	-23,452394	29,737957	NCW	n/a
3	Modern concrete block buildings	n/a	Structure	Modern	-23,452022	29,730464	NCW	n/a
3	Modern concrete block buildings	n/a	Structure	Modern	-23,452465	29,730752	NCW	n/a
4	Quartz core near granite outcrop	0 to 5	Artefacts	LSA	-23,444218	29,725283	NCW	n/a
5	Half built modern farm building	n/a	Structure	Modern	-23,440769	29,725698	NCW	n/a
6	Bethel hunting camp, modern chalets	n/a	Structure	Modern	-23,366833	29,679938	NCW	n/a
7	Ruin, concrete plaster, brick foundations, early 20th c.	n/a	Ruin	Modern	-23,378553	29,686901	NCW	n/a
8	Concrete block building, modern	n/a	Structure	Modern	-23,386147	29,691458	NCW	n/a
9	Grave, recently formalised with palisade fencing and headstone, 1871-1959. Mathedimosa Motatanye	n/a	Graves/ Burial Grounds	Historic	-23,385478	29,68764	IIIA	100m Buffer
10	Bricks and stones, ruined kraals	n/a	Ruin	Modern	-23,385634	29,687749	NCW	n/a
11	Upper grindstone, granite, on granite outcrop, quartz flakes. Rock art on overhanging surface 2x1m. At least 3 faded human figures, holding hunting bags	10 to 30	Artefacts, Rock Art	LSA	-23,38966	29,68092	IIIA	50m Buffer
12	Thin walled LSA pottery and quartz core on top of outcrop. Ochre burnish	0 to 5	Artefacts	LSA	-23,389924	29,68069	IIIC	20m Buffer
13	Ruined kraal	n/a	Ruin	Modern	-23,391219	29,687129	NCW	n/a
14	Modern building for pump	n/a	Structure	Modern	-23,389326	29,685808	NCW	n/a
15	Hunting hide and concrete dam	n/a	Structure	Modern	-23,386063	29,697894	NCW	n/a
15	Hunting hide and concrete dam	n/a	Structure	Modern	-23,386007	29,698189	NCW	n/a

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16	Makoppa werf, lodge, kraals, farm buildings, 20th c.	n/a	Structure	Modern	-23,389953	29,704329	NCW	n/a
16	Makoppa werf, lodge, kraals, farm buildings, 20th c.	n/a	Structure	Modern	-23,389021	29,702887	NCW	n/a
16	Makoppa werf, lodge, kraals, farm buildings, 20th c.	n/a	Structure	Modern	-23,389507	29,703213	NCW	n/a
16	Makoppa werf, lodge, kraals, farm buildings, 20th c.	n/a	Structure	Modern	-23,389669	29,70468	NCW	n/a
17	Stone lined foundations of kraal	n/a	Ruin	Historic	-23,391516	29,713923	NCW	n/a
18	Radial core, quartz, in jeep track	0 to 5	Artefacts	MSA	-23,391717	29,715893	NCW	n/a
19	Klipput werf, modern buildings	n/a	Structure	Modern	-23,357507	29,707808	NCW	n/a
20	Quartz core, siltstone flake	0 to 5	Artefacts	MSA	-23,350861	29,692594	NCW	n/a
21	Modern lapa and viewing spot	n/a	Structure	Modern	-23,346417	29,682921	NCW	n/a
22	Quartzite flakes	0 to 5	Artefacts	MSA	-23,346214	29,681962	NCW	n/a
23	Concrete dam and modern hut	n/a	Structure	Modern	-23,347036	29,675491	NCW	n/a
23	Concrete dam and modern hut	n/a	Structure	Modern	-23,347564	29,675418	NCW	n/a
24	Draailoop werf, modern buildings	n/a	Structure	Modern	-23,346189	29,669899	NCW	n/a
24	Draailoop werf, modern buildings	n/a	Structure	Modern	-23,345343	29,670522	NCW	n/a
24	Draailoop werf, modern buildings	n/a	Structure	Modern	-23,344982	29,669968	NCW	n/a
25	Haasbroek family graves. 9 graves 1950s to 1990s.	n/a	Graves/ Burial Grounds	Modern	-23,34813	29,669737	IIIA	100m Buffer
26	Klipput school	n/a	Ruin	Modern	-23,360904	29,709404	NCW	n/a
27	Klipput modern ruins	n/a	Ruin	Modern	-23,360954	29,708227	NCW	n/a
27	Klipput modern ruins	n/a	Ruin	Modern	-23,361584	29,707916	NCW	n/a
27	Klipput modern ruins	n/a	Ruin	Modern	-23,361227	29,707321	NCW	n/a
27	Klipput modern ruins	n/a	Ruin	Modern	-23,361939	29,707421	NCW	n/a
28	Ruins of modern building	n/a	Ruin	Modern	-23,41785	29,717395	NCW	n/a
28	Ruins of modern building	n/a	Ruin	Modern	-23,417208	29,71751	NCW	n/a
29	Modern ruins, 20th c.	n/a	Ruin	Modern	-23,398344	29,739195	NCW	n/a
29	Modern ruins, 20th c.	n/a	Ruin	Modern	-23,400024	29,740046	NCW	n/a
30	Haakdoorn. Mid 20th c house, corrugated iron roof.	n/a	Ruin	Modern	-23,39767	29,740959	NCW	n/a
31	Quartz source, debitage	5 to 10	Artefacts	MSA	-23,379224	29,743185	NCW	n/a

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32	St Brendan's mission school	n/a	Structure	Modern	-23,428711	29,717598	NCW	n/a
33	Brandhoek red painted buildings, corrugated iron roofs, ruin	n/a	Ruin	Modern	-23,376791	29,743956	NCW	n/a
34	Quartz point in jeep track	0 to 5	Artefacts	LSA	-23,379174	29,752151	NCW	n/a
35	Makgale game lodge buildings, modern	n/a	Structure	Modern	-23,330681	29,831191	NCW	n/a
36	Quartz core, flakes, IA pottery	5 to 10	Artefacts	LSA, Iron Age	-23,347638	29,820919	IIIC	20m Buffer
37	Mathoko graves, 2. 2012 and 2013 surrounded by fence and near ruins. IA pottery MSA quartzite flakes	10 to 30	Artefacts, Graves	MSA, Iron Age, Modern	-23,361102	29,708584	IIIA	100m Buffer
38	2 farmers graves, 1929, Venter family, fenced	n/a	Graves/ Burial Grounds	Historic	-23,365774	29,716675	IIIA	100m Buffer
39	Klipput werf, mostly modern buildings	n/a	Structure	Modern, Historic	-23,364273	29,715467	NCW	n/a
40	Klipput lodge, modern chalets	n/a	Structure	Modern	-23,362637	29,716199	NCW	n/a
41	Klipput stone walled kraals, large stones in rectangular walls, historical	n/a	Ruin	Historic	-23,36267	29,71548	IIIB	100m Buffer
42	Quartz flakes on granite outcrop	0 to 5	Artefacts	LSA	-23,361927	29,716063	NCW	n/a
43	Large IA pottery sherd	0 to 5	Artefacts	Iron Age	-23,361759	29,71568	NCW	n/a
44	Little shelter with deposit and lots of IA pottery sherds	30+	Artefacts	Iron Age	-23,361959	29,715563	IIIA	50m Buffer
45	Tropic of Capricorn monument	n/a	Monument	Modern	-23,437303	29,745109	IIIC	20m Buffer
46	Roadside monument marking Simon Matime, 2018	n/a	Memorial	Modern	-23,44253	29,74376	IIIC	20m Buffer
47	Quartz core	0 to 5	Artefacts	MSA	-23,365087	29,696401	NCW	n/a
48	Quartz flakes, cores	0 to 5	Artefacts	LSA	-23,35859	29,681766	NCW	n/a
49	Quartz points and flakes	0 to 5	Artefacts	LSA	-23,381078	29,784511	NCW	n/a
50	Microlith and core, quartz	0 to 5	Artefacts	LSA	-23,373565	29,668838	NCW	n/a
51	MSA point, quartz	0 to 5	Artefacts	MSA	-23,355514	29,803042	NCW	n/a

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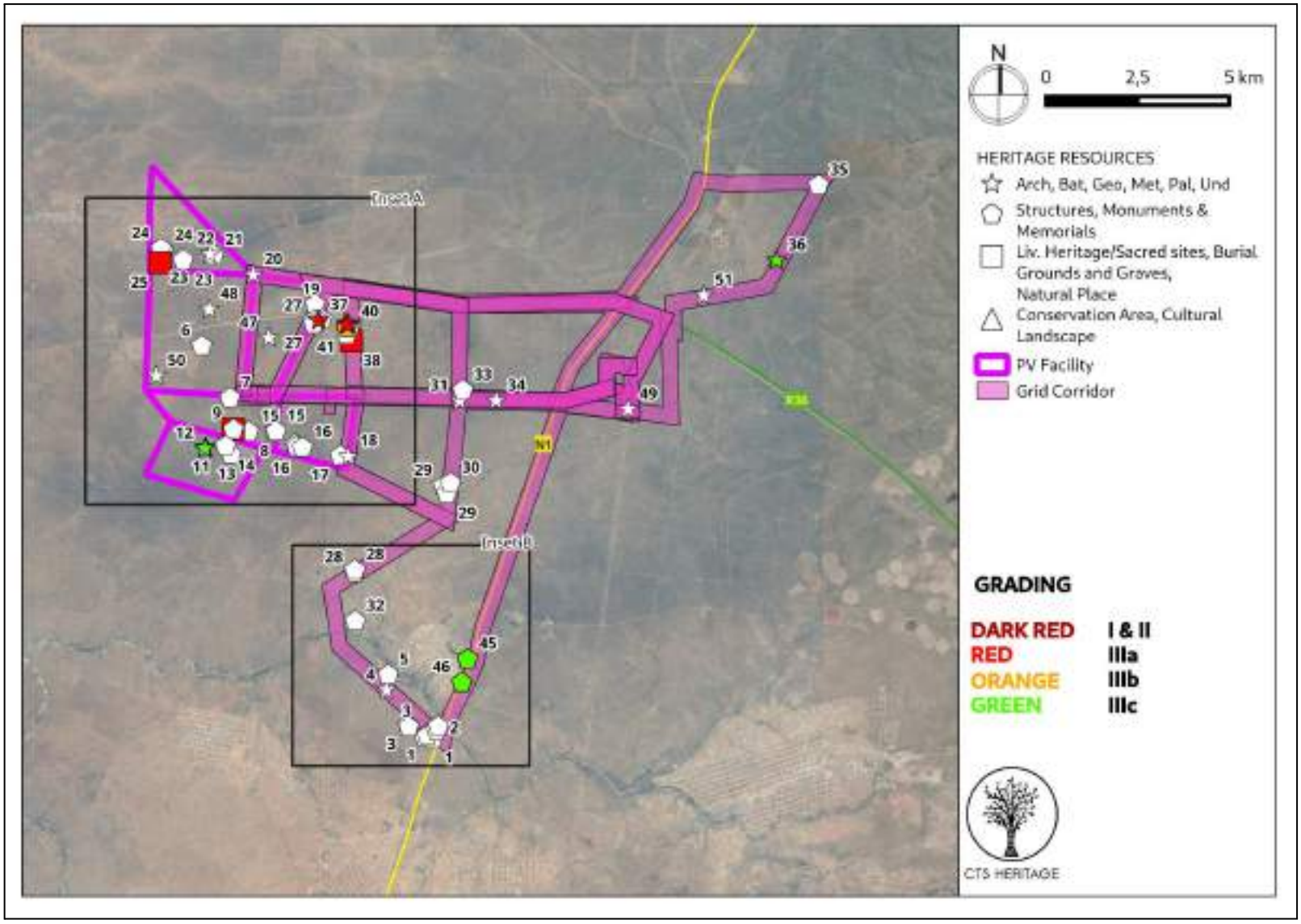

Figure 6.1: Map of all sites and observations noted within the development area

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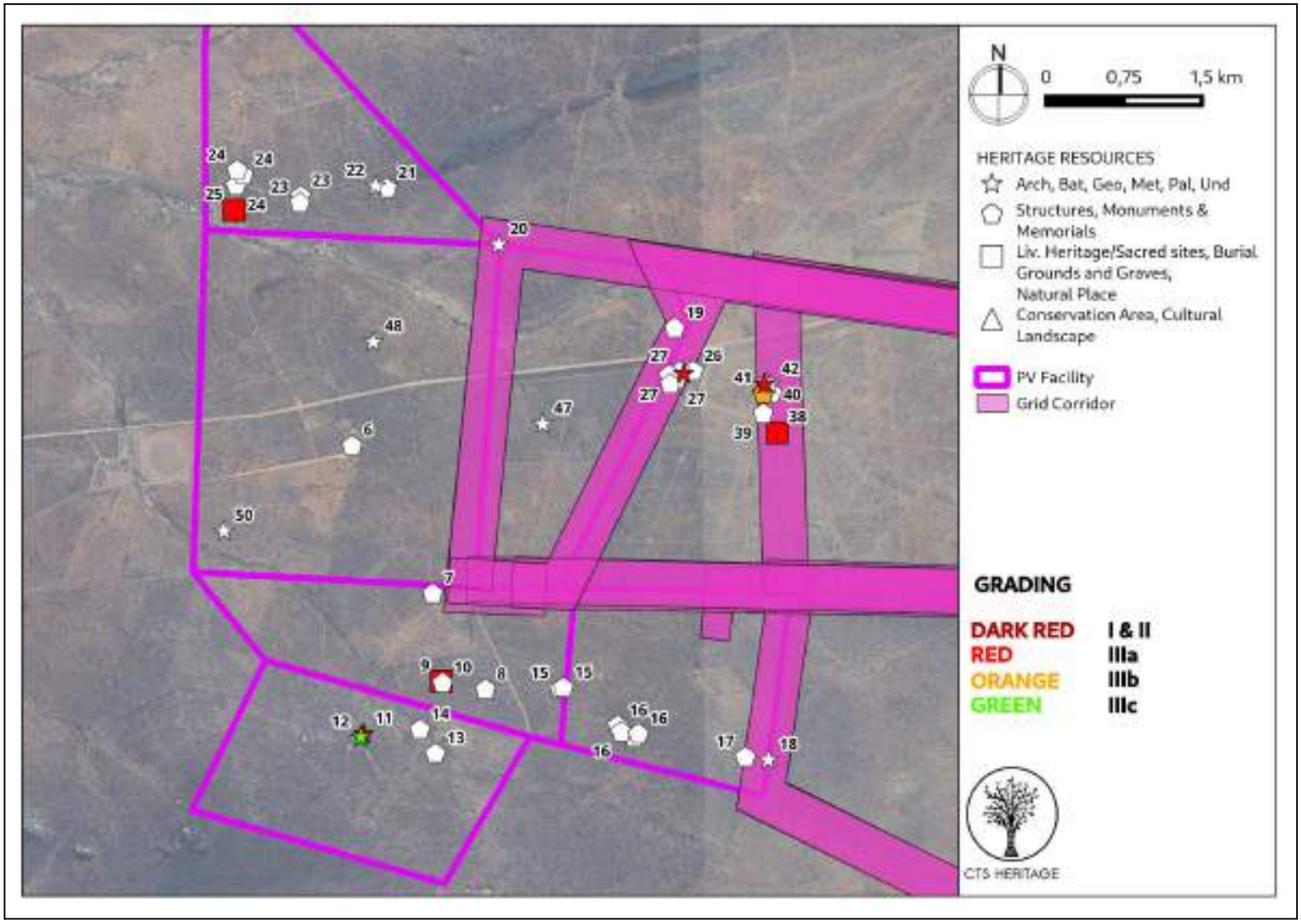

Figure 6.2: Inset Map A of all sites and observations noted within the development area

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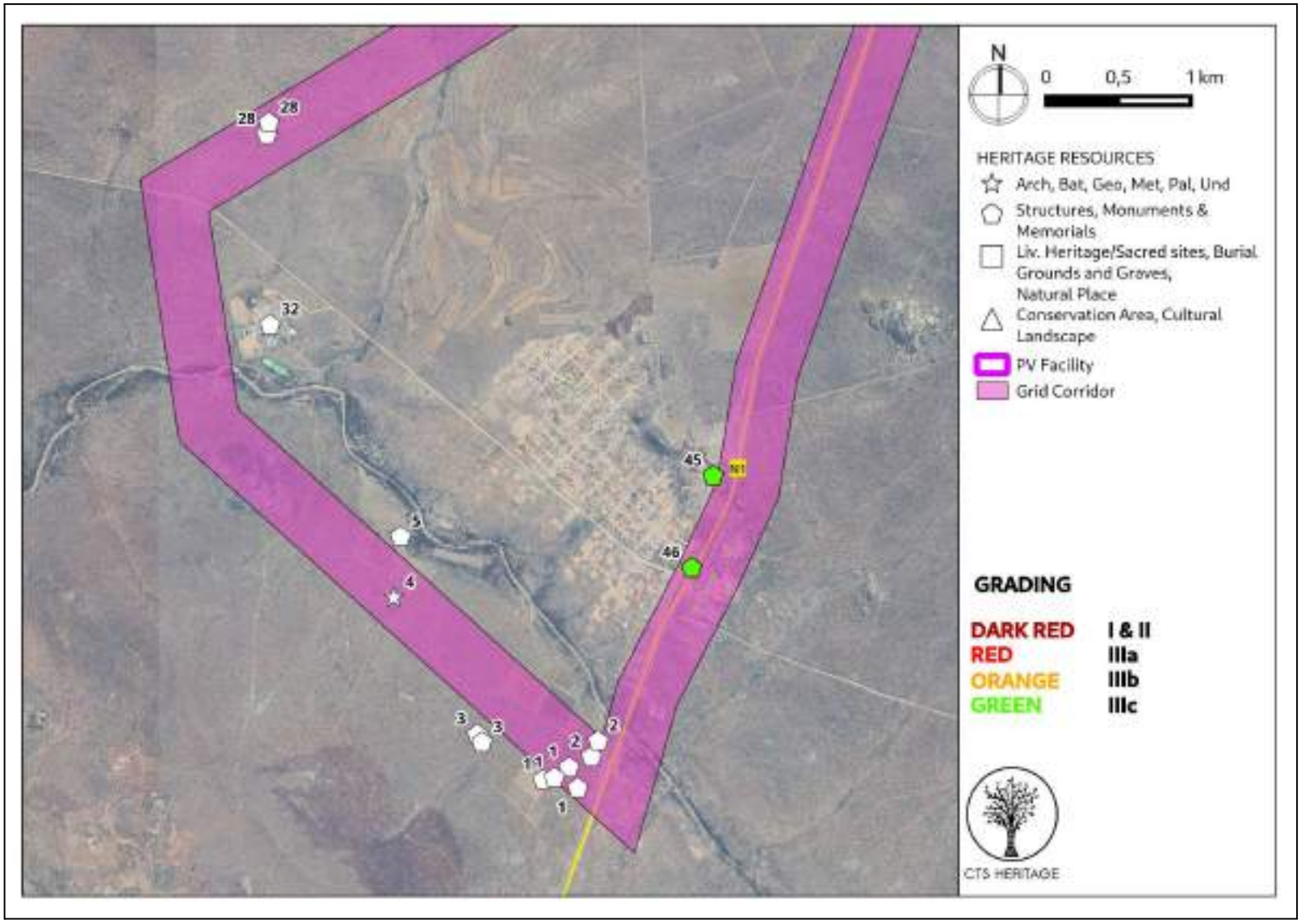

Figure 6.3: Inset Map B of all sites and observations noted within the development area

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4.3 Selected photographic record

(a full photographic record is available upon request)

Figure 7.1: Observation 001 and 002

Figure 7.2: Observation 003 and 004

Figure 7.3: Observation 007 and 008

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Figure 7.4: Observation 009

Figure 7.5: Observation 011

Figure 7.6: Observation 012

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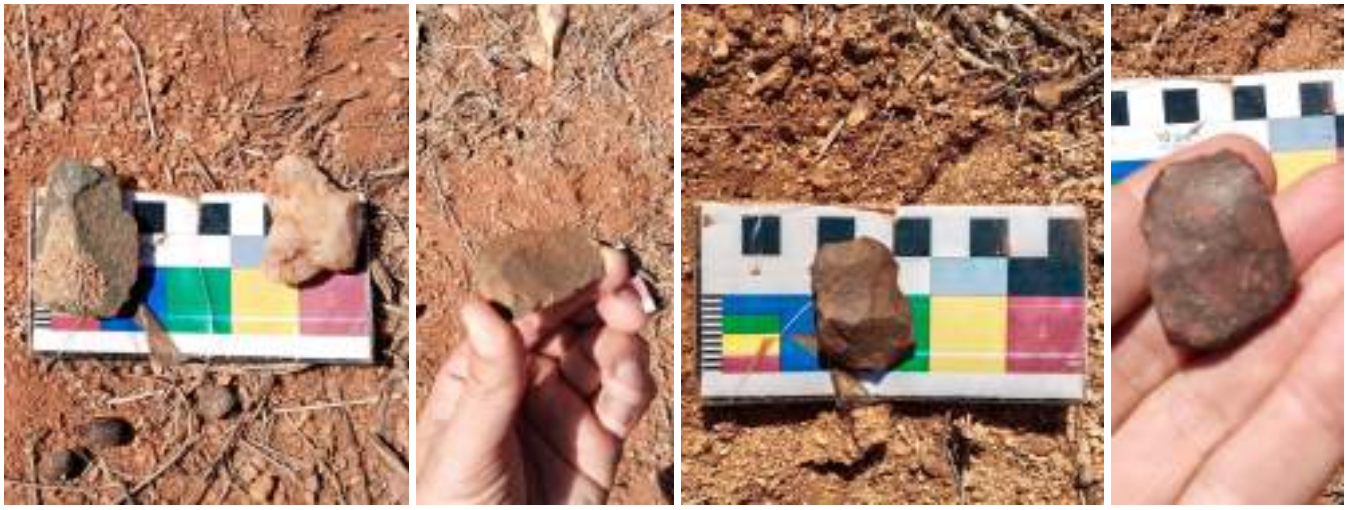

Figure 7.7: Observation 020 and 022

Figure 7.8: Observation 025

Figure 7.9: Observation 036

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Figure 7.10: Observation 037

Figure 7.11: Observation 038

Figure 7.12: Observation 041

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Figure 7.13: Observation 044

Figure 7.14: Observation 045

Figure 7.15: Observation 046

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5. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT

5.1 Assessment of Impact to Archaeological Resources

The field assessment proceeded with limited constraints and the area was satisfactorily surveyed for impacts to archaeological heritage resources. The area proposed for development has been subject to cultivation and agricultural practices for a significant amount of time and as such, most of the recorded observations consist of modern farming buildings and associated infrastructure. These observations have no cultural value from a heritage perspective and as such, are determined to be Not Conservation-Worthy. These are not considered further here.

As is expected in such rural areas, a number of burial grounds and graves were identified (Sites 009, 025, 037 and 038). These burials range from historic to recent and are all located outside of municipal cemeteries. Due to their high levels of local social and spiritual significance, burials have high levels of local cultural value and are graded IIIA. It is recommended that a no development buffer of 100m is implemented around such burials in order to retain their sense of place as well as to ensure that no associated unmarked human remains are accidentally impacted by development activities.

Interestingly, the field assessment identified rock art and Iron age resources within the development area. These observations include rock shelters with associated buried archaeological deposit and rock art (Site 011 and 044, graded IIIA) as well as scatters of Iron Age pottery shards (Sites 012 and 016, Graded IIIC). The field assessment also identified one historic stone-walled kraal (Site 041). This site has been graded IIIB.

These significant archaeological observations are indicative of the potential for additional associated buried archaeology located in close proximity to these sites. Due to their scientific value, these sites may not be negatively impacted by the proposed development and appropriate no development buffers for these sites are recommended in the table above.

PV Facilities

Sites 009, 011, 012, 025 and 037 fall within the proposed PV areas. These sites include a number of burial grounds (both recent and historic). It is recommended that these burials and their recommended buffers are excluded from the development footprint. Additionally, it is recommended that access to these burials is guaranteed for the duration of the life of the PV facility.

The archaeological observations include rock shelters with associated buried archaeological deposit and rock art (Site 011, graded IIIA) as well as scatters of Iron Age pottery shards (Sites 012, Graded IIIC). These significant archaeological observations are indicative of the potential for additional associated buried archaeology located in close proximity to these sites. Due to their scientific value, these sites may not be negatively impacted by the proposed development and appropriate no development buffers for these sites are recommended in the table above.

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It is recommended that the conservation of both the burials and the archaeological sites be managed for the duration of the life of the PV facilities through the drafting of a Conservation Management Plan that is submitted to SAHRA for approval.

Grid Alignment

Sites 037, 038, 041, 044, 045 and 046 fall within the proposed grid alignment. These sites include a number of burial grounds (both recent and historic). Impact to these sites can be avoided through careful placement of pylon footings to avoid impact within the recommended buffer areas.

These archaeological resources are associated with granite koppies in the area. A number of granite koppies are known from the southern portion of the grid alignment and these koppies should be considered to be archaeologically sensitive. It is recommended that no development take place within or on the koppies.

Two roadside monuments were also identified within the grid corridor (Sites 045 and 046). It is recommended that these observations not be impacted by the proposed grid alignment.

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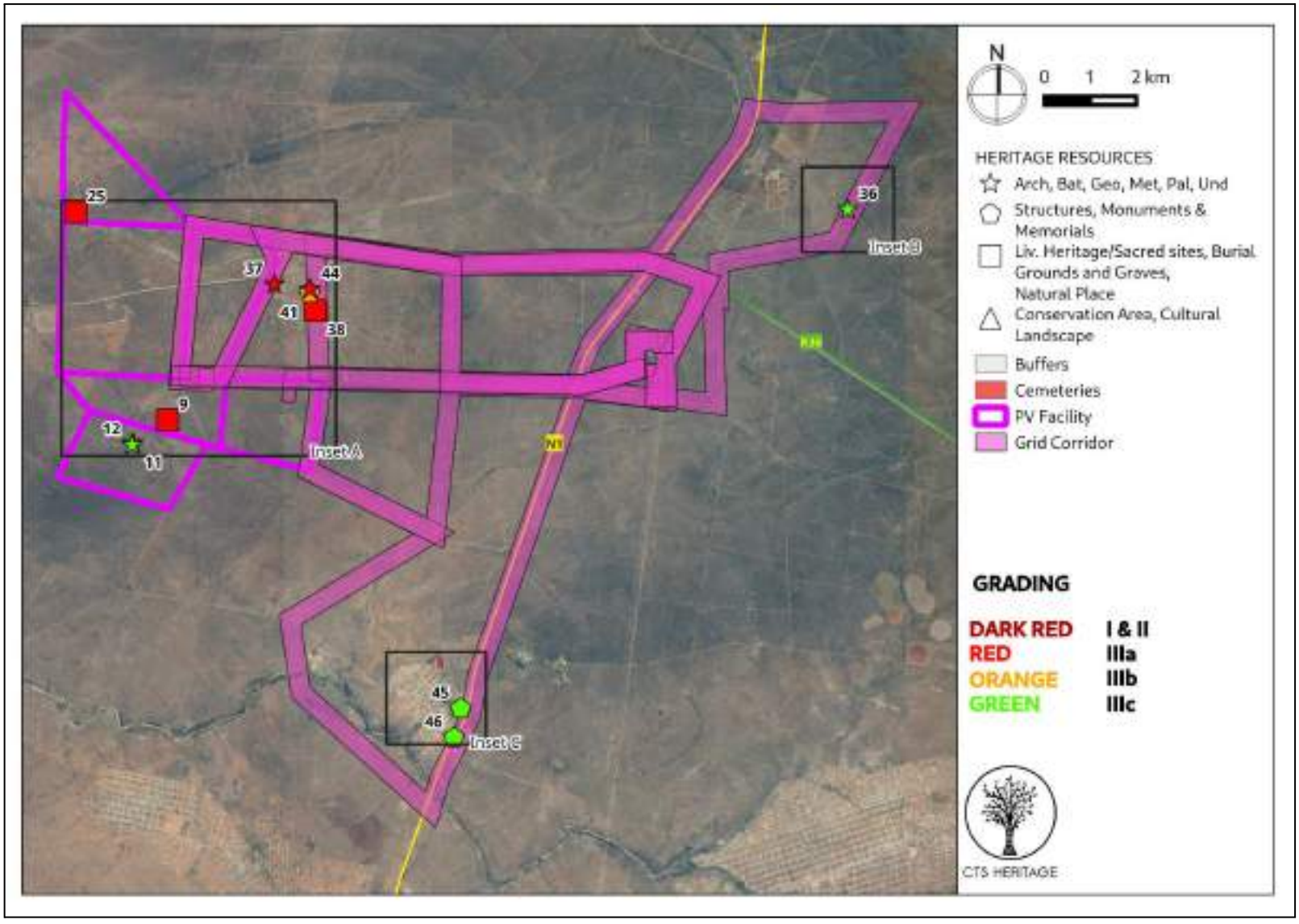

Figure 8.1: Map of all sites and observations noted within the development area as well as proposed mitigation measures

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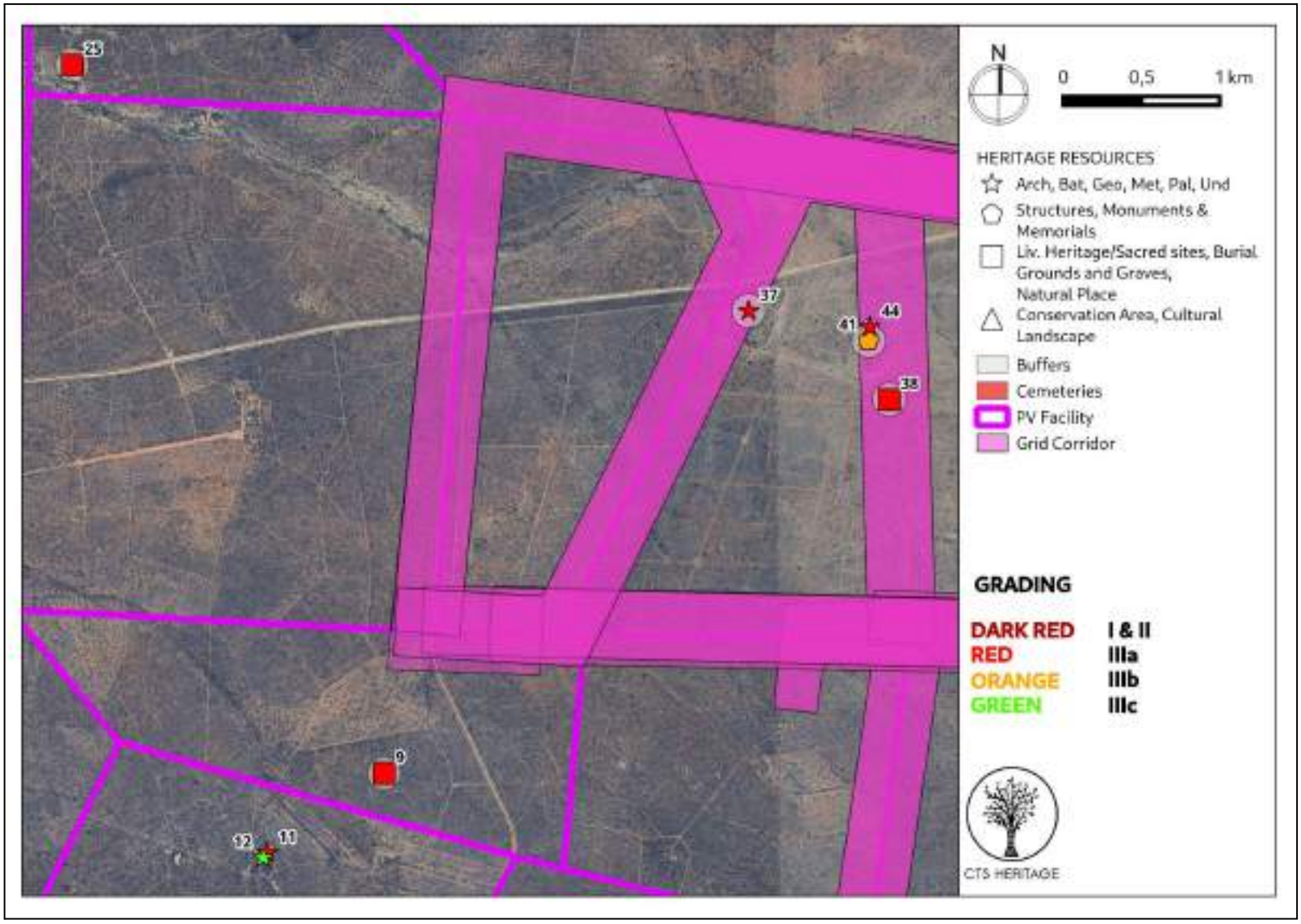

Figure 8.2: Inset Map A of all sites and observations noted within the development area as well as proposed mitigation measures

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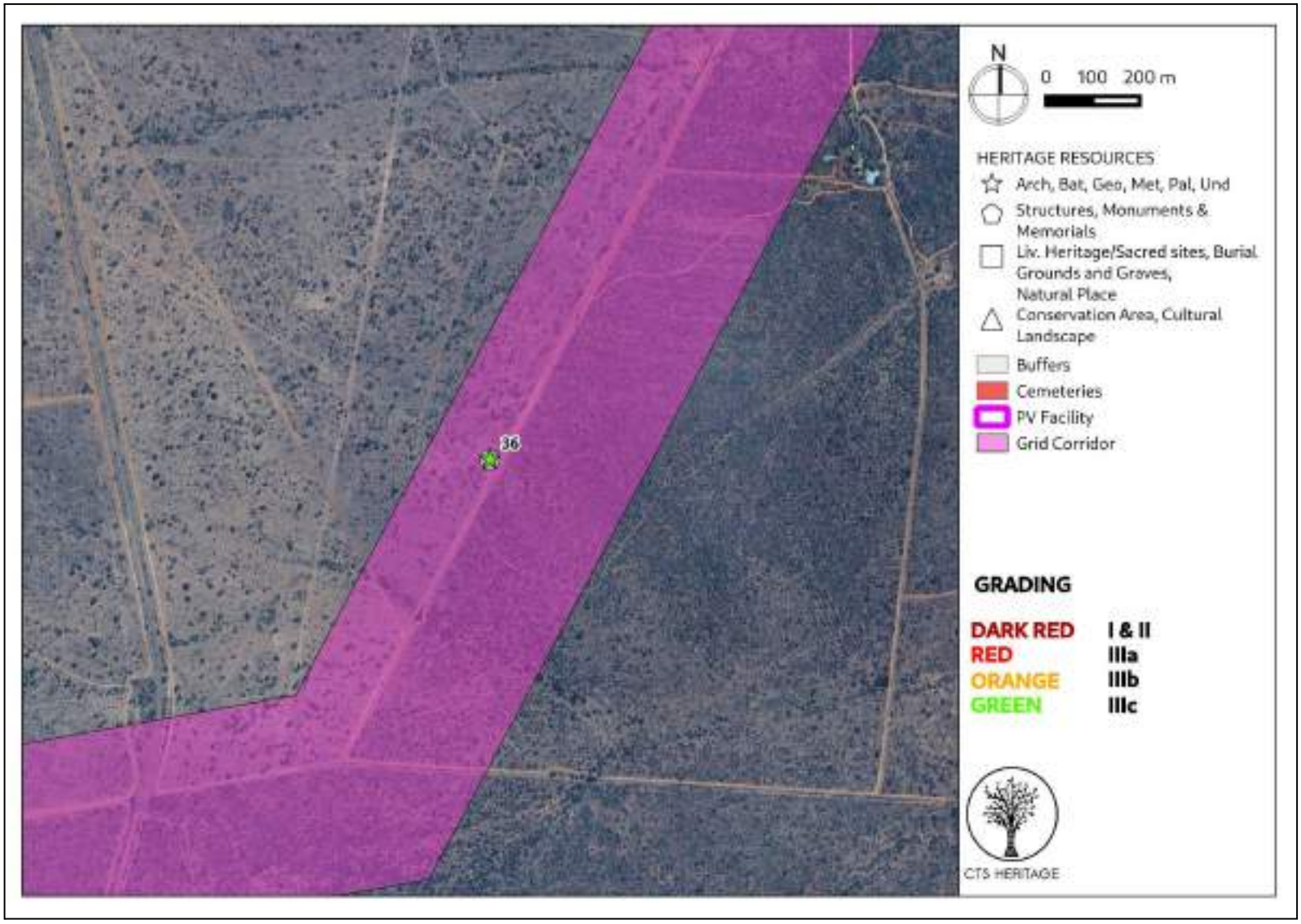

Figure 8.3: Inset Map B of all sites and observations noted within the development area as well as proposed mitigation measures

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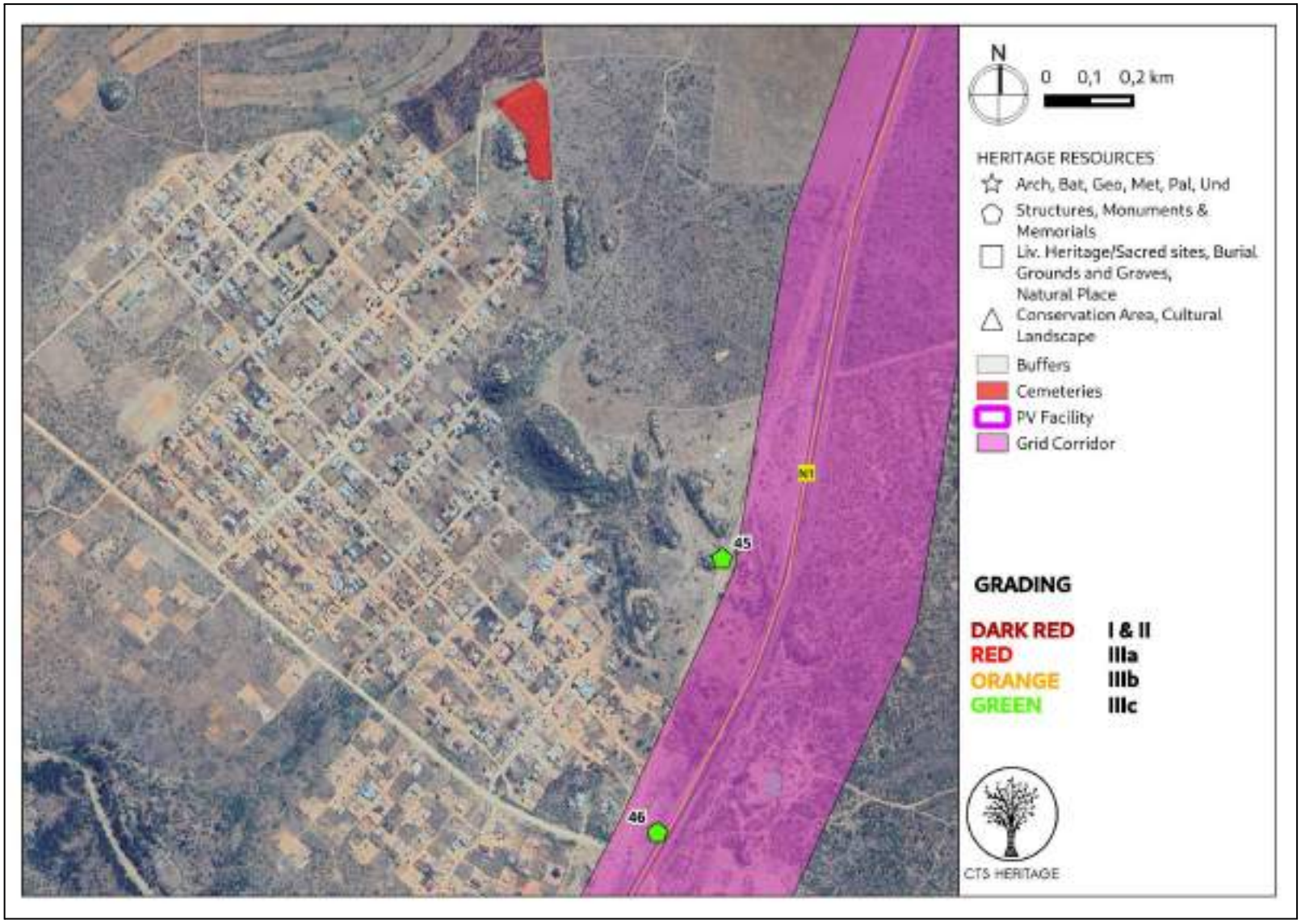

Figure 8.4: Inset Map C of all sites and observations noted within the development area as well as proposed mitigation measures

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6. CONCLUSION AND RECOMMENDATIONS

The survey proceeded with no major constraints and limitations, and the project area was comprehensively surveyed for heritage resources. Some significant archaeological material remains were documented within the grid area and the proposed PV facilities. The archaeological observations are somewhat expected here due to the number of Iron Age Sites known from the broader vicinity of the development area. These archaeological resources are associated with granite koppies in the area. A number of granite koppies are known from the southern portion of the grid alignment and these koppies should be considered to be archaeologically sensitive. It is recommended that no development take place within or on the koppies.

A number of significant archaeological resources and burial grounds were identified within the area proposed for development. Recommendations regarding appropriate buffer areas for these significant resources are outlined in the table above.

Recommendations

Based on the outcomes of this report, it is not anticipated that the proposed development of the solar energy facility and grid connection infrastructure will negatively impact on significant archaeological heritage on condition that:

- The mitigation measures outlined in Table 1 above are implemented
- The granite koppies within the development area are considered to be sensitive and are excluded from the development footprint
- A Conservation Management Plan is drafted for the ongoing conservation of the significant archaeological sites and burials identified within the area proposed for development
- 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.

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7. REFERENCES

Heritage Impact Assessments				
Nid	**Author/s**	**Date**	**Report Type**	**Title**
6243	**Frans Roodt**	**01/09/2001**	**AIA Phase 1**	**Archaeological Impact Assessment: Proposed New 132 kV Eskom Overhead Powerline Bandelierkop**
7266	**Liesl Stegmann, Frans Roodt, Frans Roodt**	**01/09/2008**	**AIA Phase 1**	**Phase 1 Heritage Resources Scoping Report Demarcation of 500 Residential Erven in Makgato, Limpopo**
8026	Johnny Van Schalkwyk	16/04/2007	AIA Phase 1	Heritage Impact Assessment for the Planned Tabor-Witkop Power Line, Limpopo Province
523228	Anton Pelser	31/03/2019	AIA Desktop	DESKTOP HIA REPORT FOR THE BANDELIERKOP PRA LOCATED ON VARIOUS FARMS IN THE VHEMBE DISTRICT OF THE LIMPOPO PROVINCE

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