CTS HERITAGE

HERITAGE SCREENER

CTS Reference Number:	**CTS18_158**
SAHRA Case No:	
Client:	**Savannah Environmental**
Date:	**17 September 2018**
Author:	**Jenna Lavin**
Title:	**Proposed development of Allepad PV Four, a solar PV facility and associated infrastructure on a site near Upington, in the Northern Cape Province.**

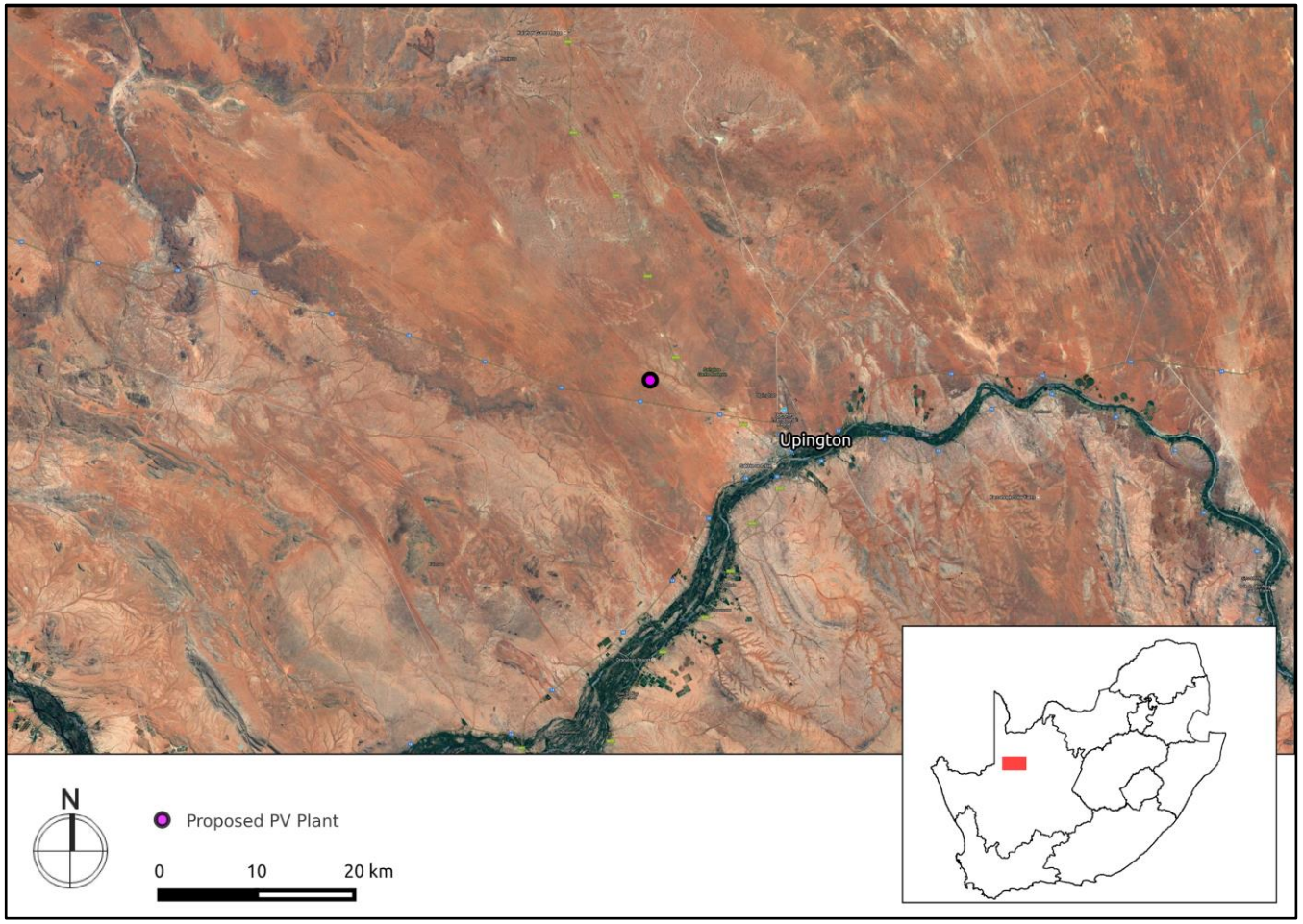

Figure 1a. Satellite map indicating the location of the proposed development in the Northern Cape Province

Recommendation by CTS Heritage Specialists	**RECOMMENDATION:** **The heritage resources in the area proposed for development are not sufficiently recorded.** **Based on the available information, including the scale and nature of the proposed development, it is likely that significant heritage resources will be impacted by the proposed development and as such it is recommended that an archaeological field assessment be conducted to inform a full Heritage Impact Assessment (see section 8 for details)**

CTS Heritage
34 Harries Street, Plumstead, Cape Town, 7800
Tel: +27 (0)87 073 5739 **Email:** info@ctsheritage.com **Web:** www.ctsheritage.com

CTS HERITAGE

1. Proposed Development Summary

Allepad PV Four, a commercial solar PV energy generation facility and associated infrastructure, is proposed on a site near Upington, in the Northern Cape Province. The project is intended to be bid into the Department of Energy's (DoE's) Renewable Energy Independent Power Producer Procurement (REIPPP) Programme, with the aim of evacuating power generated by the project into the Eskom national electricity grid. The project is proposed on a portion of the Remaining Extent of Erf 5315, located approximately 11km north-west of Upington. The area under investigation is approximately 3 889ha in extent and comprises a single agricultural property. The project site can be accessed directly via the N10 national road which borders the southern boundary of the site.

Photovoltaic (PV) technology is proposed for the generation of electricity. The solar energy facility will have a contracted capacity of up to 100MW, and will make use of either fixed-tilt, single-axis tracking, or double axis tracking PV technology. The solar energy facility will comprise the following key infrastructure components:
» Arrays of PV panels with a generation capacity of up to 100MW.
» Mounting structures to support the PV panels.
» Combiner boxes, on-site inverters (to convert the power from Direct Current (DC) to Alternating Current (AC)), and power transformers.
» An on-site substation up to 1ha in extent to facilitate the connection between the solar energy facility and the Eskom electricity grid.
» A new 132kV power line approximately 5km in length, between the on-site substation and Eskom grid connection point.
» Cabling between the project's components (to be laid underground where practical).
» Meteorological measurement station.
» Energy storage area of up to 2ha in extent.
» Access road and internal access road network.
» On-site buildings and structures, including a control building and office, ablutions and guard house.
» Perimeter security fencing, access gates and lighting.
» Temporary construction equipment camp up to 1ha in extent, including temporary site offices, parking and chemical ablution facilities.
» Temporary laydown area up to 1ha in extent, for the storage of materials during the construction.

Electricity generated by the project will feed into Eskom's national electricity grid via a new 132kV power line which will connect the on-site substation to the upgraded 132kV double circuit power line running between the new Upington Main Transmission Substation (MTS) (currently under construction approximately 15km south of the project site), and the Gardonia Distribution Substation (located in Upington town). The point of connection is located approximately 5km east of the project site, and will make use of a loop-in and loop-out configuration. The proposed power line required for the project will be constructed within a 300m wide power line corridor which has been identified immediately north of, and which runs parallel to, the N10 national road. The full extent of the project site (i.e. 3 889ha) is being assessed as part of the EIA process, of which an area of approximately 250ha (equivalent to 6.4% of the total project area) would be required for the development of the solar energy facility and associated infrastructure.

2. Application References

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

3. Property Information

Latitude / Longitude	28°23'8.36"S 21° 7'6.22"E
Erf number / Farm number	Erf 5315
Local Municipality	Dawid Kruiper
District Municipality	ZF Mgcawu
Previous Magisterial District	Gordonia
Province	Northern Cape
Current Use	None
Current Zoning	Agriculture
Total Extent	3889ha

4. Nature of the Proposed Development

Total Surface Area	250ha
Depth of excavation (m)	3m
Height of development (m)	3m
Expected years of operation before decommission	NA

CTS HERITAGE

5. Category of Development

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

6. Additional Infrastructure Required for this Development

It is proposed that the project connects to the upgraded 132kV double circuit line which runs approximately 5km east of the project site, between the new Upington MTS (currently under construction approximately 15km south of the project site) and the Gordonia Distribution substation (located in Upington town). Grid connection will make use of a “loop in-and-loop out” configuration. The shortest route is along the N10 in a 300m wide corridor, that connects all four projects.

7. Mapping (please see Appendix 3 and 4 for a full description of our methodology and map legends)

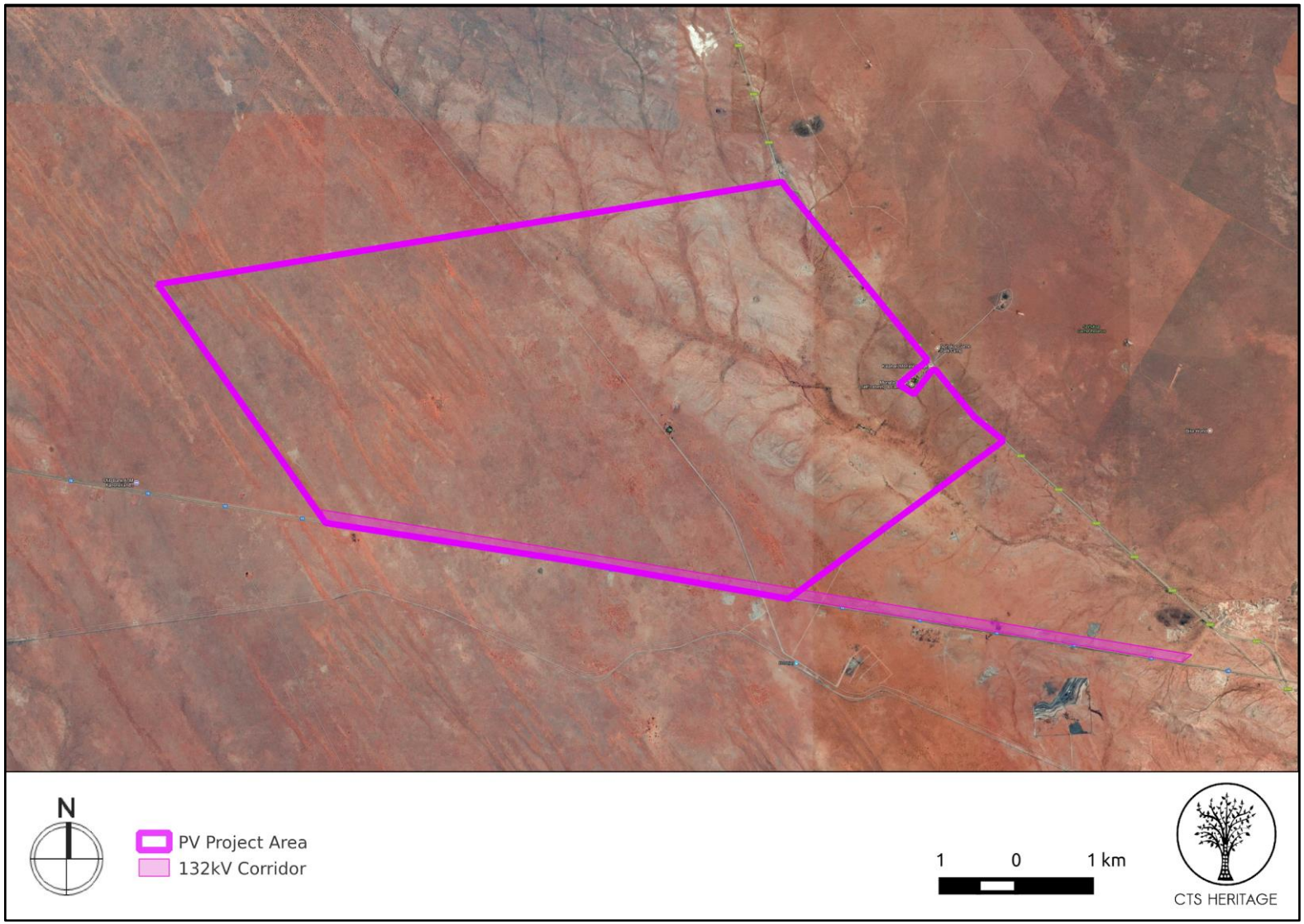

Figure 1b. Overview Map. Satellite image (2017) indicating the proposed development area at closer range.

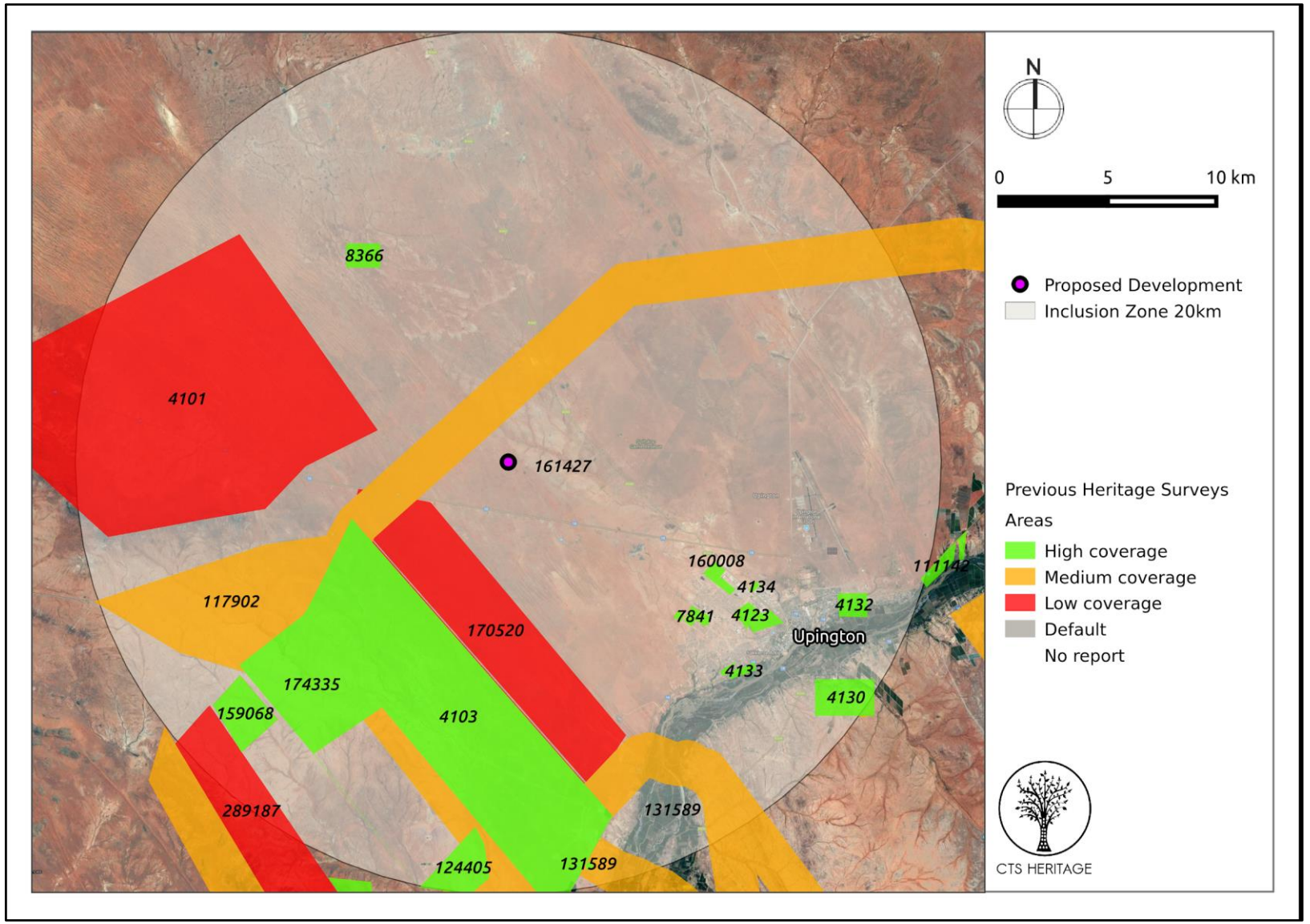

Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments surrounding the proposed development area within 5km, with SAHRIS NIDS indicated. Please see Appendix 2 for full reference list.

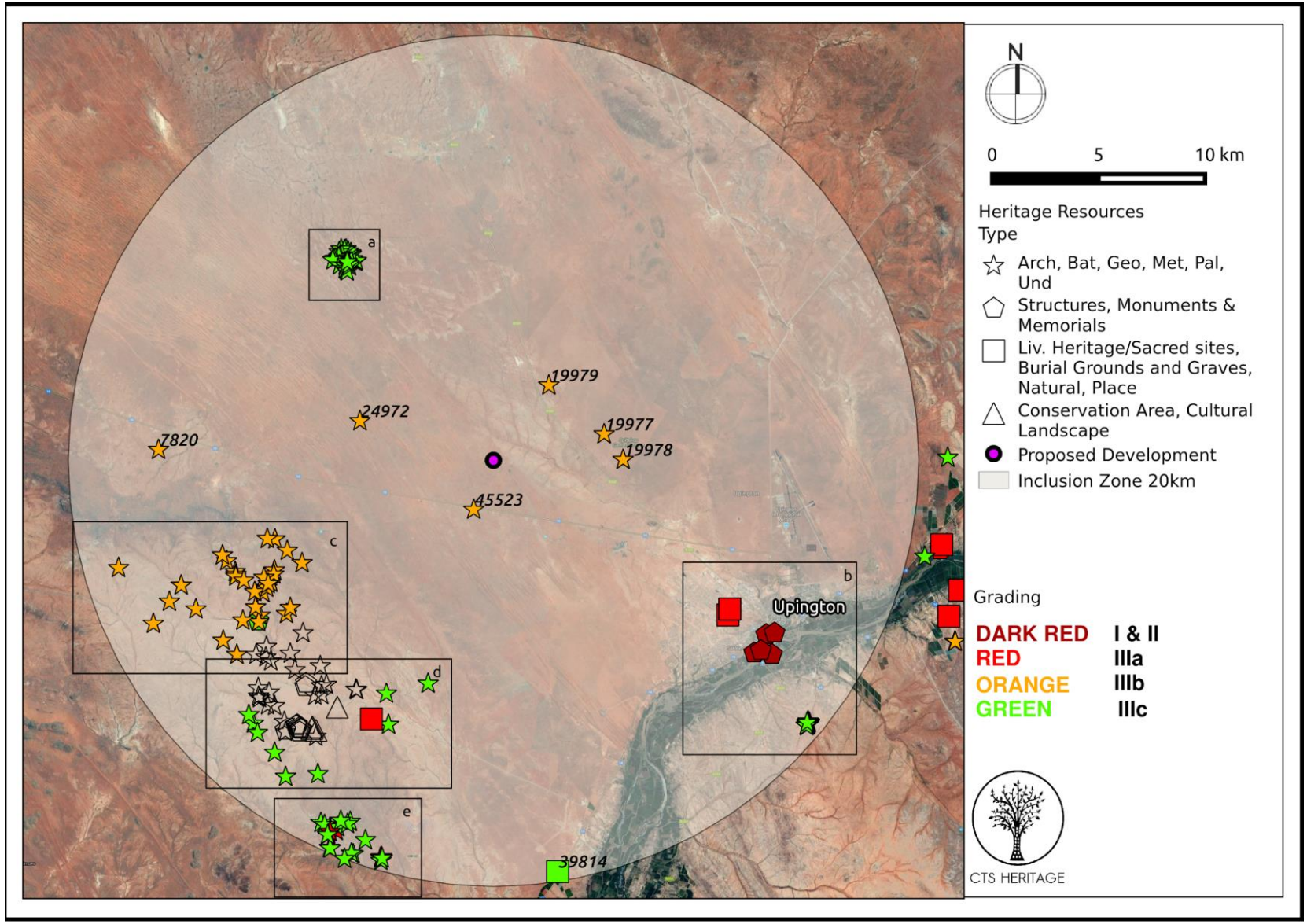

Figure 3. Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated (see Figure 3a for inset). Please See Appendix 4 for full description of heritage resource types.

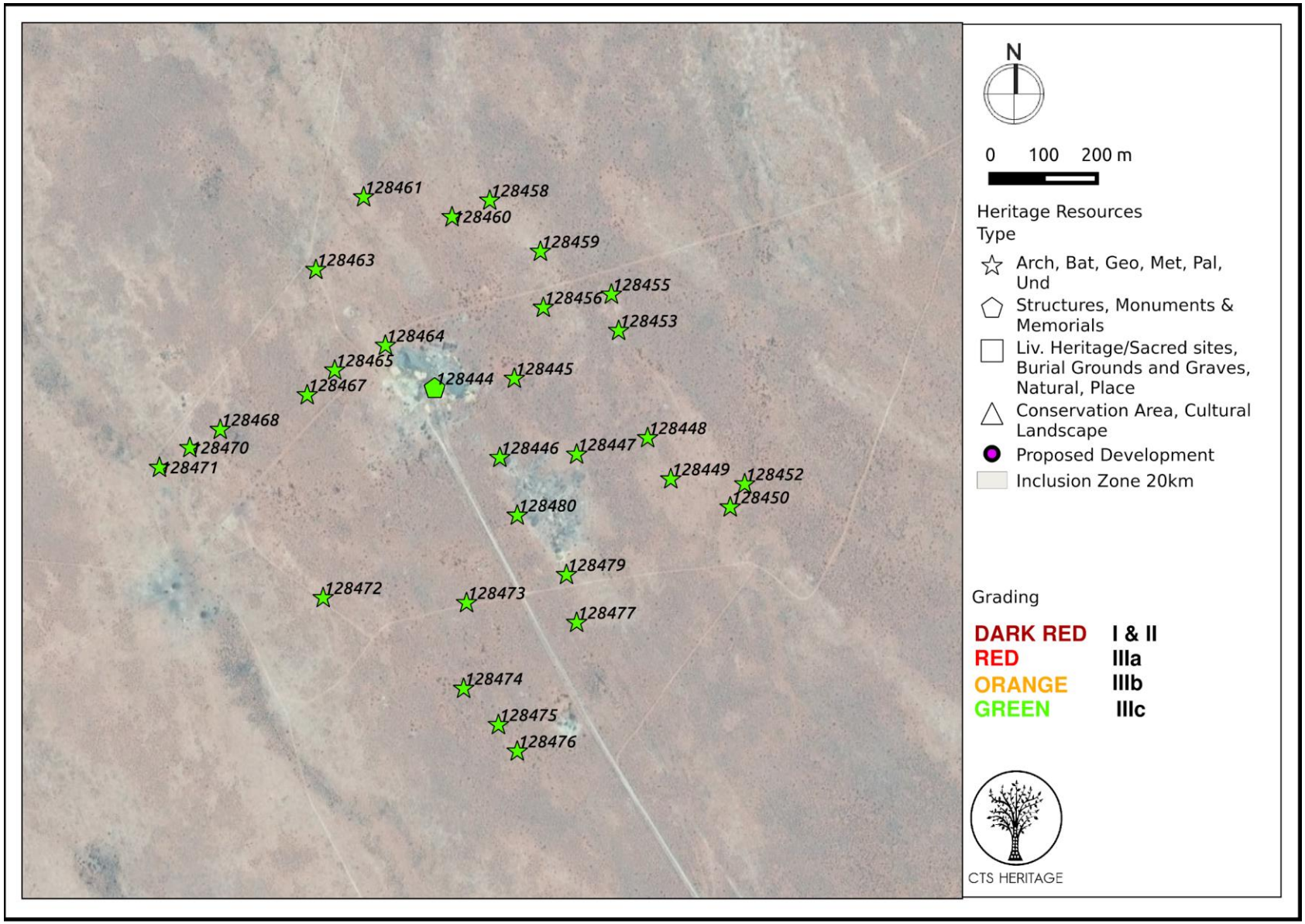

Figure 3a. Heritage Resources Map.

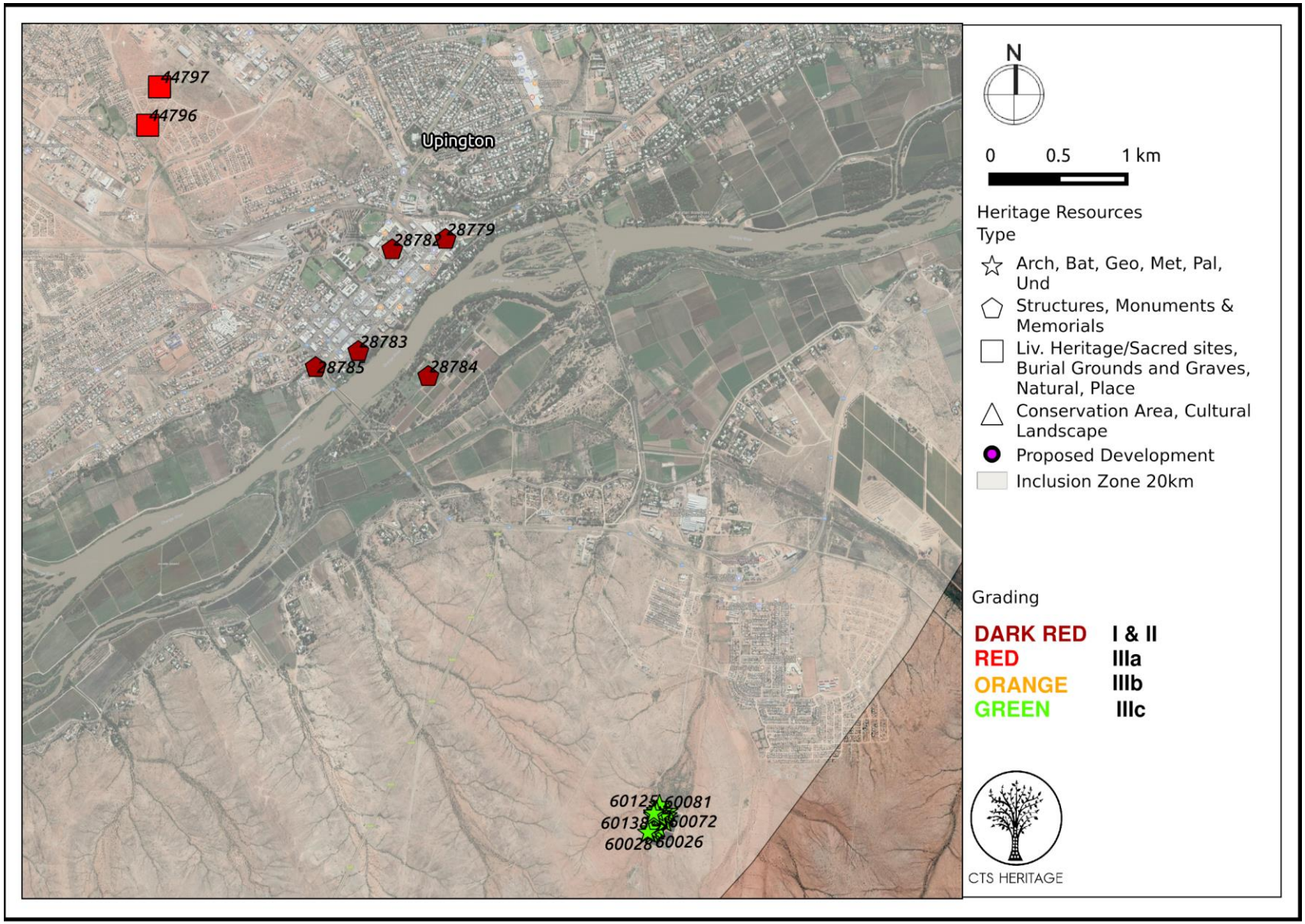

Figure 3b. Heritage Resources Map.

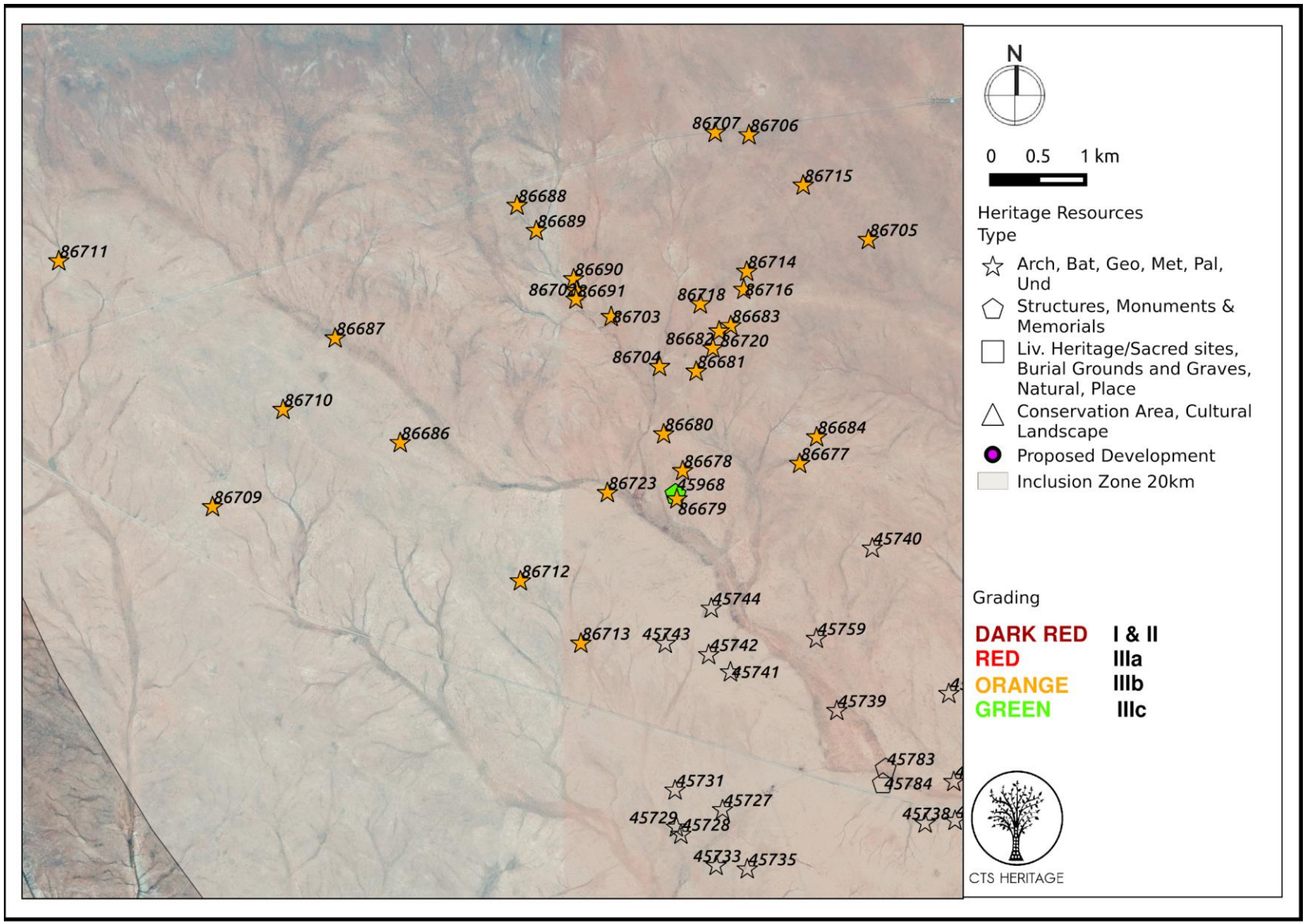

Figure 3c. Heritage Resources Map.

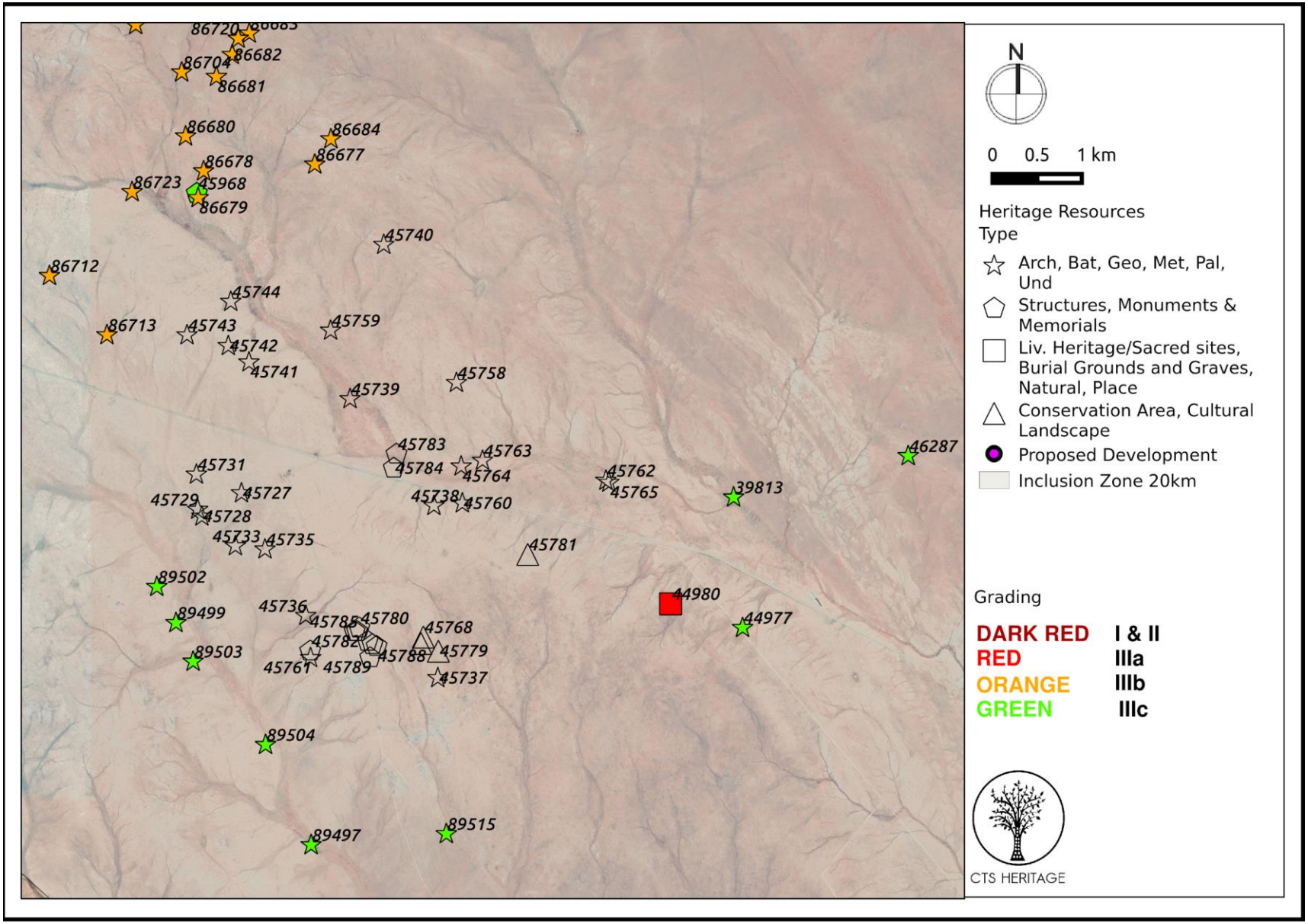

Figure 3d. Heritage Resources Map.

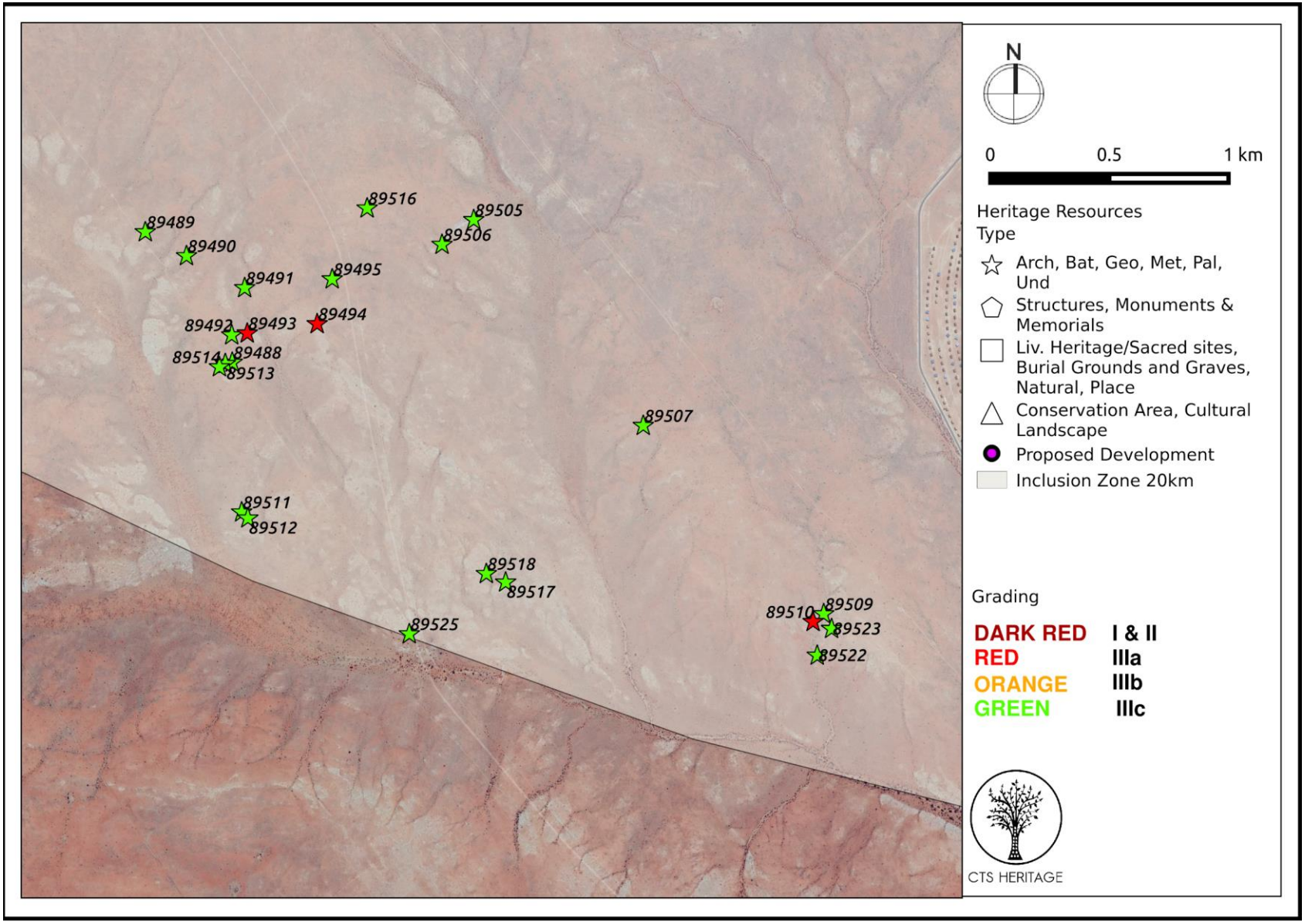

Figure 3e. Heritage Resources Map.

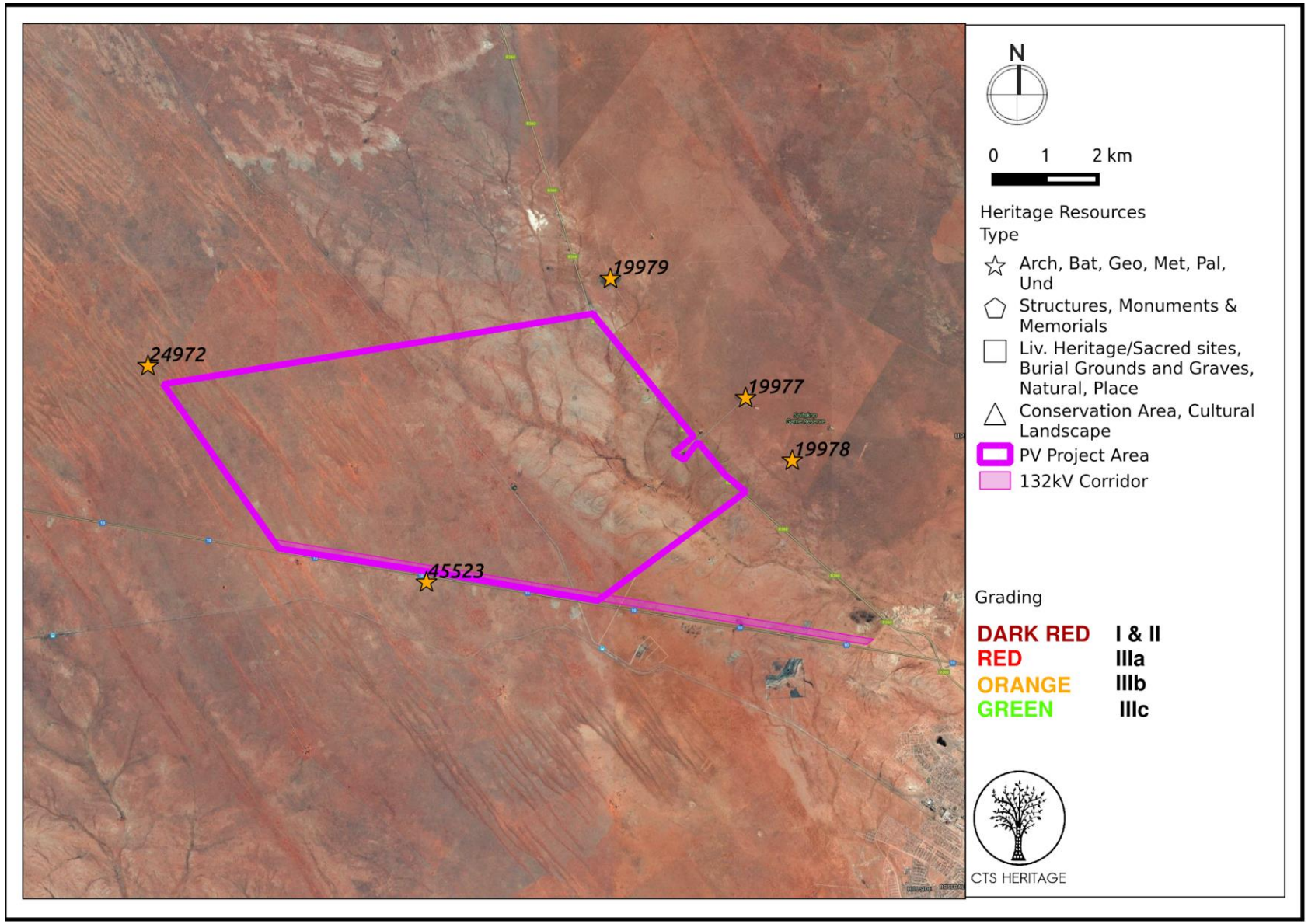

Figure 3f. Heritage Resources Map.

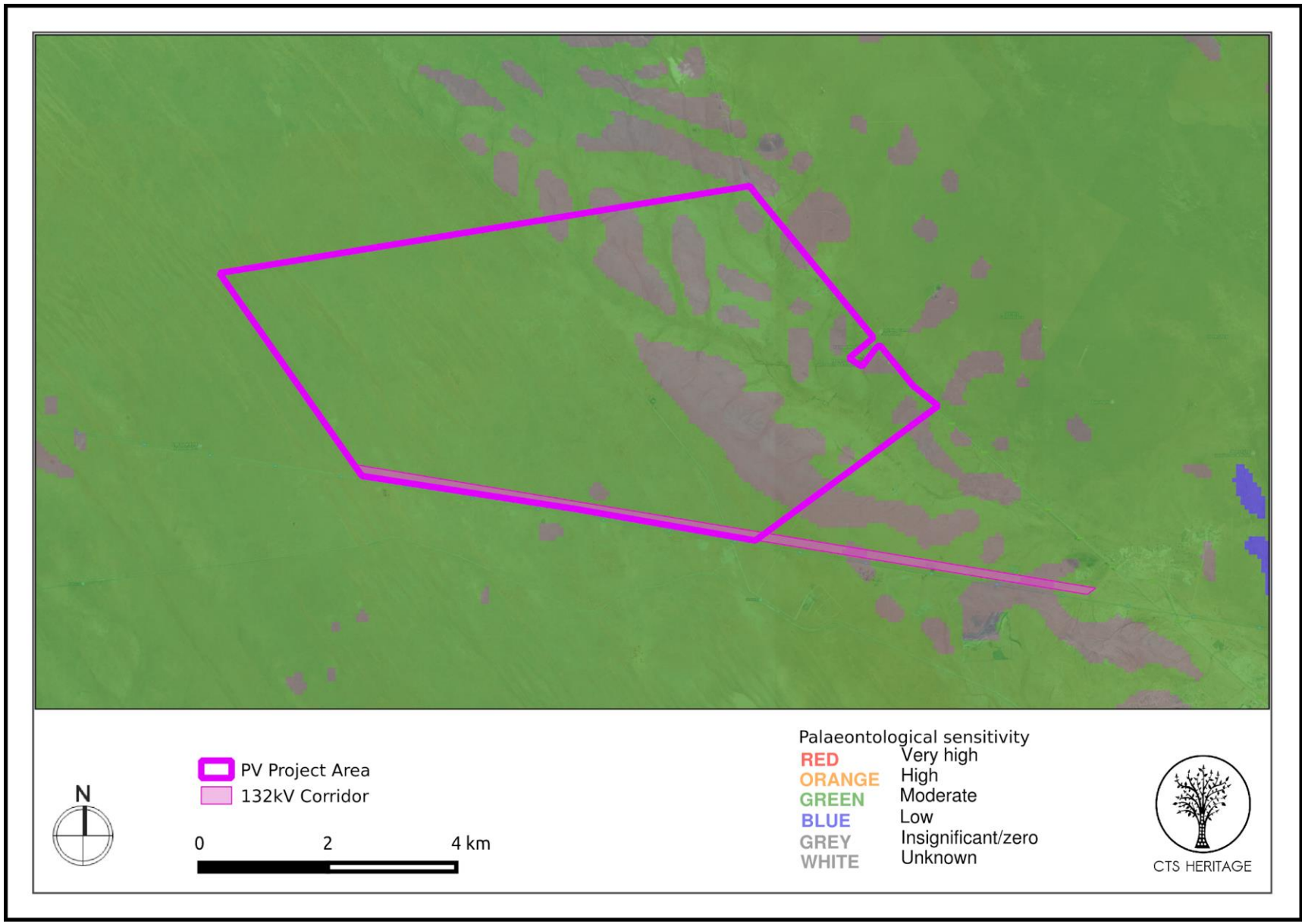

Figure 4. Palaeosensitivity Map. Indicating varied fossil sensitivity underlying the study area. Please See Appendix 3 for full guide to the legend.

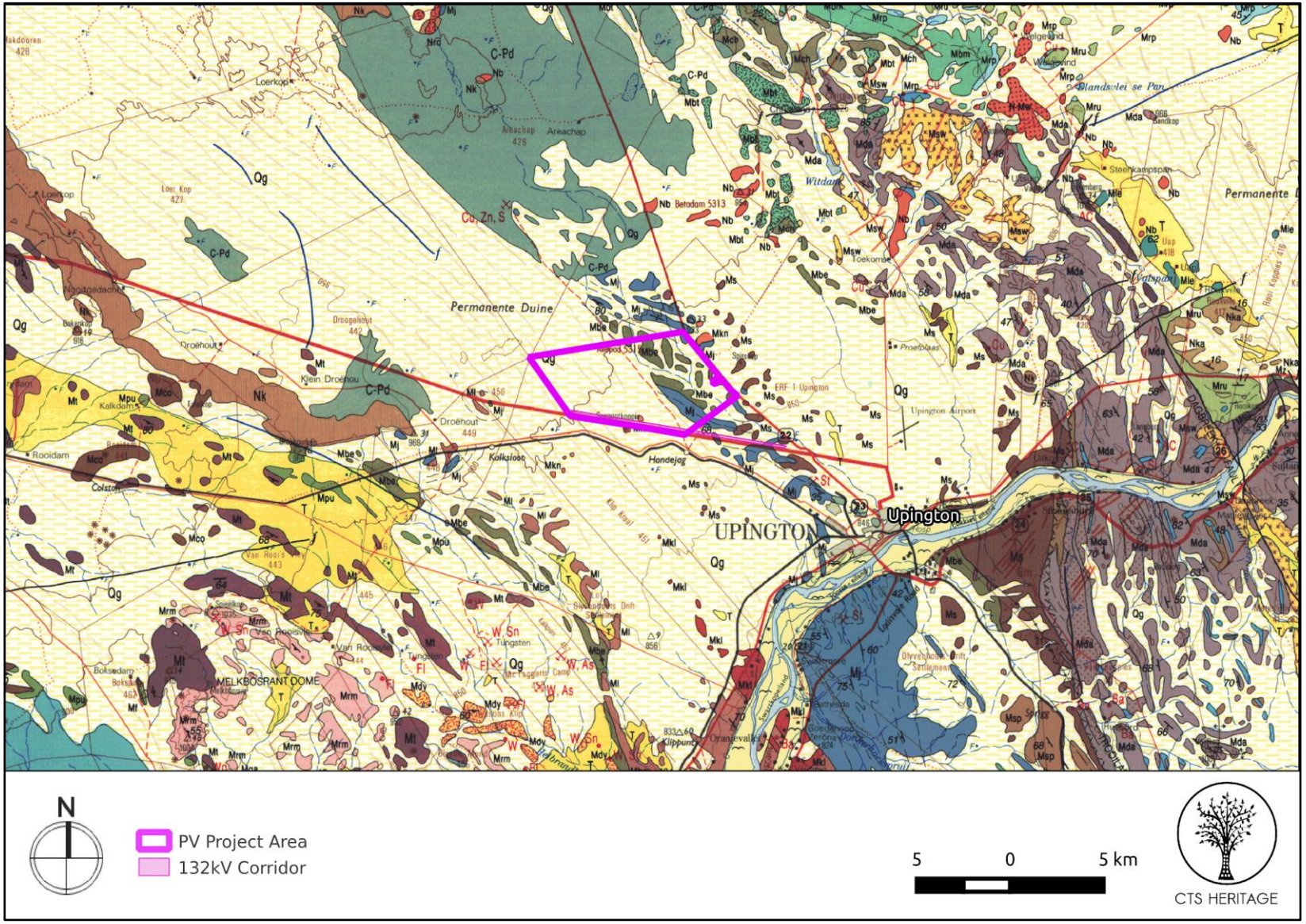

Figure 5.1 Extract from the 1:50 000 Geological Map of South Africa: Council of GeoScience Map 2820

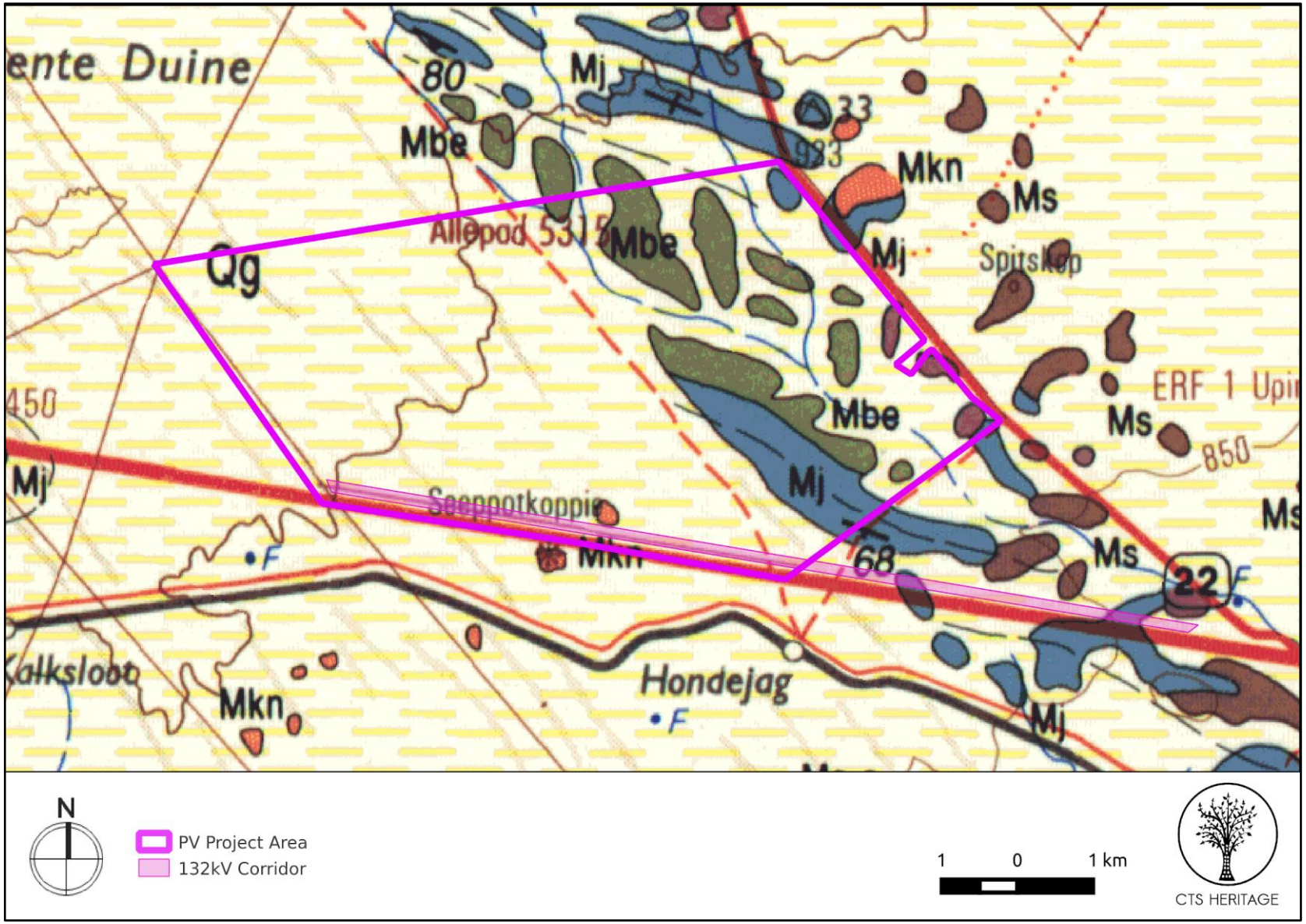

Figure 5.2 Extract from the 1:50 000 Geological Map of South Africa: Council of GeoScience Map 2820 Zoomed in. [Qg: Gordonia Formation (Quarternary coversands) Mbe: Bethesda Formation Mj: Jannelsepan Formation Mkn: Keimoes Formation Ms: Straussburg Granite]

8. Heritage statement and character of the area

Allepad PV Four, a commercial solar PV energy generation facility and associated infrastructure, is proposed on a site near Upington, in the Northern Cape Province. The project is proposed on a portion of the Remaining Extent of Erf 5315, located approximately 11km north-west of Upington. The area under investigation is approximately 3 889ha in extent and comprises a single agricultural property. The project site can be accessed directly via the N10 national road which borders the southern boundary of the site. The purpose of this Scoping Report is to determine the main issues and potential impacts of the proposed project during the Scoping phase at a desktop level based on existing information.

Cultural Landscape
According to Van Schalkwyk (2014 SAHRIS NID 170520), "The cultural landscape qualities of the region essentially consist of two components. The first is a rural area in which the human occupation is made up of a pre-colonial (stone age) component and a later colonial (farmer) component. This rural landscape has always been sparsely populated. The second component is an urban one, consisting of a number of smaller towns, most of which developed during the last 150 years or less." According to Von Vollenhoven (2012 SAHRIS NID 117902), "the environment of the area is mostly undisturbed although it is being used for sheep farming... The natural topography… is reasonably flat, but in the north-west a hill dominates the area resulting in an even slope up to the crest. This area also is very rocky. The stones here are dark in colour and may be of a basaltic origin. However in the flat areas adjacent to the hill the rocks are white coloured and most likely are soft calcrete, which would not have been suitable for the manufacture of stone tools. Different non-perennial streams run through the area…" According to Fourie's assessment of the impacts of similar infrastructure in this area (2014), due to the landscape's topography the solar park infrastructure will be prominent in the landscape and alter the rural appearance. Due to the remoteness of the area the impact on the experience of the cultural landscape is not foreseen to be significant.

Archaeology and the Built Environment
Many farm portions in the immediate vicinity of the area proposed for development have been assessed in terms of impacts to heritage resources (Figure 2). It has been found that the area surrounding Upington has a rich historical and archaeological past (Fourie, 2014 SAHRIS NID 174335). Based on the outcomes of these assessments, it is noted that most of the heritage resources identified are stone age artefact scatters of varying significance. In Fourie's assessment (2014), the field work identified numerous areas where low density scatters of Middle and Later Stone Age lithics were found. As no context and *in situ* preservation were identified these sites were graded as having low heritage significance. In addition, one possible herder site was identified during the survey. No other material or deposits were identified but does not exclude the possibility of subsurface material. The ruins of old mining infrastructure were also identified. In Von Vollenhoven's assessment (2012 SAHRIS NID 117902), he identified a number of very interesting and significant rock art engravings depicting various animals including giraffes and an aardvark. In addition, he identified a significant historical site known as the "Rebellion Tree" as well as graves associated with farmers in this area.

Five sites of moderate local significance are located just beyond the border of the proposed development area (Figure 3f). These sites are highlighted in orange in Appendix 1. Site 24972 is linked to Von Vollenhoven's (2012) report and may well be the location of the rock art engravings described above. Site 45523 is described as consisting of ostrich egg shell fragments and stone flakes scattered around the base of a hill in low densities. Flakes are micro lithic supporting an ascription to the LSA utilising quartzite as raw material. A lead sealed bully beef can was also found here dated to the late 1800's or early 1900's. Sites 19977 to 19979 describe Middle Stone Age artefact scatter sites. In addition, there is a historical structure located within the development area of unknown heritage significance.

Based on the available information, it is likely that the proposed development will impact on significant archaeological resources such as Stone Age artefact scatters, burial grounds and graves, historical artefacts, historical structures and rock art engravings through destruction during the development phase and disturbance during the operational phase. (see impact tables below).

Palaeontology

According to the SAHRIS Palaeosensitivity Map (Figure 4), the extract from the CGS Sheet 2820 Figure 5.1 and 5.2) , this area is underlain by the Gordonia Formation (Quarternary coversands of moderate palaeontological sensitivity), the Bethesda Formation, the Jannelsepan Formation, the Keimoes Formation and the Straussburg Granite, all of which have zero palaeontological sensitivity. The primary risk associated with impacts to palaeontological heritage is related to impacting fossils preserved within the Quarternary coversands of the Gordonia Formation (wind-blown alluvial sands). According to Almond's assessment for similar infrastructure development in this area (2011 SAHRIS NID 174335), "overall impact significance of the proposed solar park development is likely to be LOW because: Most of the study area is underlain by unfossiliferous igneous and metamorphic basement rocks (granites, gneisses etc.) or mantled by superficial sediments (wind-blown sands, alluvium etc.) of low palaeontological sensitivity; Extensive, deep excavations are unlikely to be involved in this sort of solar park project. Significant negative impacts on local fossil heritage are therefore unlikely to result from the proposed solar park development and in the author's opinion no further specialist palaeontological studies for this project are necessary."

As such, and for the same reasons, it is anticipated that the proposed development will not impact on significant palaeontological heritage and therefore no further assessment of impacts to palaeontological heritage is recommended.

Cumulative Impacts

Of the 29 Heritage Assessments conducted within 20km of the proposed development area (Appendix 2), 8 are for Solar Energy/PV Facilities and 3 are for electrical infrastructure. The remaining assessments relate to mining infrastructure and residential township developments. At this stage, there is the potential for the cumulative impact of proposed solar energy facilities to negatively impact the cultural landscape due to a change in the landscape character from natural wilderness to semi-industrial, however, due to the remoteness of the area the impact on the experience of the cultural landscape is not foreseen to be significant.

RECOMMENDATION:

The heritage resources in the area proposed for development are not sufficiently recorded.

Based on the available information, including the scale and nature of the proposed development, it is likely that significant heritage resources will be impacted by the proposed development and as such it is recommended that an archaeological field assessment be conducted to inform a full Heritage Impact Assessment.

9. Scoping Assessment Impact Table

Impact

- Impact to archaeological and built environment resources
- Impact to palaeontological resources
- Impact to Cultural Landscape
- Cumulative Impact

Desktop Sensitivity Analysis of the Site

- Impact to significant archaeological resources such as Stone Age artefact scatters, burial grounds and graves, historical artefacts, historical structures and rock art engravings through destruction during the development phase and disturbance during the operational phase.
- Impacts to palaeontological resources are unlikely.
- There is the potential for the cumulative impact of proposed solar energy facilities to negatively impact the cultural landscape due to a change in the landscape character from natural wilderness to semi-industrial, however, due to the remoteness of the area the impact on the experience of the cultural landscape is not foreseen to be significant.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Impact to significant archaeological resources such as Stone Age artefact scatters, burial grounds and graves, historical artefacts, historical structures and rock art engravings through destruction during the development phase and disturbance during the operational phase.	Destruction of significant archaeological and other heritage resources resources	Local scale with broader impacts to scientific knowledge	To be identified through the field assessment.

Gaps in knowledge & recommendations for further study

The heritage resources in the area proposed for development are not sufficiently recorded.

Based on the available information, including the scale and nature of the proposed development, it is likely that significant heritage resources will be impacted by the proposed development and as such it is recommended that an **archaeological field assessment** be conducted to inform a full Heritage Impact Assessment. This field assessment will identify all heritage resources of significance within the development footprint, map them and grade them in terms of their significance. This will inform the Heritage Impact Assessment which will clarify the impacts anticipated and provide mitigation measures, recommendations and possible no-go zones, as well as an assessment of the proposed alternatives.

CTS HERITAGE

APPENDIX 1

List of heritage resources within the 20km Inclusion Zone

Site ID	Site no	Full Site Name	Site Type	Grading
89491	DYA004	DYASON'S KLIP 454/004	Artefacts	Grade IIIc
89492	DYA005	DYASON'S KLIP 454/005	Artefacts	Grade IIIc
89494	DYA007	DYASON'S KLIP 454/007	Artefacts	Grade IIIa
89495	DYA008	DYASON'S KLIP 454/008	Artefacts	Grade IIIc
89499	DYA010	DYASON'S KLIP 454/010	Artefacts	Grade IIIc
89502	DYA011	DYASON'S KLIP 454/011	Artefacts	Grade IIIc
89503	DYA012	DYASON'S KLIP 454/012	Artefacts	Grade IIIc
89504	DYA013	DYASON'S KLIP 454/013	Artefacts	Grade IIIc
89505	DYA014	DYASON'S KLIP 454/014	Artefacts	Grade IIIc
89506	DYA015	DYASON'S KLIP 454/015	Artefacts	Grade IIIc
89507	DYA016	DYASON'S KLIP 454/016	Artefacts	Grade IIIc
89509	DYA018	DYASON'S KLIP 454/018	Artefacts	Grade IIIc
89510	DYA019	DYASON'S KLIP 454/019	Artefacts	Grade IIIa
89511	DYA020	DYASON'S KLIP 454/020	Artefacts	Grade IIIc
89512	DYA021	DYASON'S KLIP 454/021	Artefacts	Grade IIIc
89514	DYA023	DYASON'S KLIP 454/023	Artefacts	Grade IIIc
89515	DYA024	DYASON'S KLIP 454/024	Artefacts	Grade IIIc
89516	DYA025	DYASON'S KLIP 454/025	Artefacts	Grade IIIc
89517	DYA026	DYASON'S KLIP 454/026	Artefacts	Grade IIIc
89518	DYA027	DYASON'S KLIP 454/027	Artefacts	Grade IIIc
89522	DYA031	DYASON'S KLIP 454/031	Artefacts	Grade IIIc
89488	DYA001	DYASON'S KLIP 454/001	Artefacts	Grade IIIc
89489	DYA002	DYASON'S KLIP 454/002	Artefacts	Grade IIIc

89490	DYA003	DYASON'S KLIP 454/003	Artefacts	Grade IIIc
89493	DYA006	DYASON'S KLIP 454/006	Artefacts	Grade IIIa
89497	DYA009	DYASON'S KLIP 454/009	Artefacts	Grade IIIc
89513	DYA022	DYASON'S KLIP 454/022	Artefacts	Grade IIIc
89523	DYA032	DYASON'S KLIP 454/032	Artefacts	Grade IIIc
128444	ACP001	Areachap 001	Structures	Grade IIIc
128445	ACP002	Areachap 002	Artefacts	Grade IIIc
128446	ACP003	Areachap 003	Artefacts	Grade IIIc
128447	ACP004	Areachap 004	Artefacts	Grade IIIc
128448	ACP005	Areachap 005	Artefacts	Grade IIIc
128449	ACP006	Areachap 006	Artefacts	Grade IIIc
128450	ACP007	Areachap 007	Artefacts	Grade IIIc
128452	ACP008	Areachap 008	Artefacts	Grade IIIc
128453	ACP009	Areachap 009	Artefacts	Grade IIIc
128455	ACP010	Areachap 010	Artefacts	Grade IIIc
128456	ACP011	Areachap 011	Artefacts	Grade IIIc
128458	ACP012	Areachap 012	Artefacts	Grade IIIc
128459	ACP013	Areachap 013	Artefacts	Grade IIIc
128460	ACP014	Areachap 014	Artefacts	Grade IIIc
128461	ACP015	Areachap 015	Artefacts	Grade IIIc
128463	ACP016	Areachap 016	Artefacts	Grade IIIc
128464	ACP017	Areachap 017	Artefacts	Grade IIIc
128465	ACP018	Areachap 018	Artefacts	Grade IIIc
128467	ACP019	Areachap 019	Artefacts	Grade IIIc
128468	ACP020	Areachap 020	Artefacts	Grade IIIc
128470	ACP021	Areachap 021	Artefacts	Grade IIIc

128471	ACP022	Areachap 022	Artefacts	Grade IIIc
128472	ACP023	Areachap 023	Artefacts	Grade IIIc
128473	ACP024	Areachap 024	Artefacts	Grade IIIc
128474	ACP025	Areachap 025	Artefacts	Grade IIIc
128475	ACP026	Areachap 026	Artefacts	Grade IIIc
128476	ACP027	Areachap 027	Artefacts	Grade IIIc
128477	ACP028	Areachap 028	Artefacts	Grade IIIc
128479	ACP029	Areachap 029	Artefacts	Grade IIIc
128480	ACP030	Areachap 030	Artefacts	Grade IIIc
86704	SASOL019	SASOL CSP 019	Artefacts	Grade IIIb
86705	SASOL020	SASOL CSP 020	Artefacts	Grade IIIb
86706	SASOL021	SASOL CSP 021	Artefacts	Grade IIIb
86707	SASOL022	SASOL CSP 022	Artefacts	Grade IIIb
86709	SASOL024	SASOL CSP 024	Artefacts	Grade IIIb
86710	SASOL025	SASOL CSP 025	Artefacts	Grade IIIb
86711	SASOL026	SASOL CSP 026	Artefacts	Grade IIIb
86712	SASOL027	SASOL CSP 027	Artefacts	Grade IIIb
28784	9/2/032/0015	Palm Tree Avenue, The Island, Upington	Building	Grade II
28785	9/2/032/0016	Old Watermill, Upington	Building	Grade II
28782	9/2/032/0017	Cathedral of St Augustine, Le Roux Street, Upington	Building	Grade II
28783	9/2/032/0018	Museum Complex, 4 Schroder Street, Upington	Building	Grade II
28779	9/2/032/0019	Dutch Reformed Church, Schroder Street, Upington	Building	Grade II
86713	SASOL028	SASOL CSP 028	Artefacts	Grade IIIb
86714	SASOL029	SASOL CSP 029	Artefacts	Grade IIIb
86715	SASOL030	SASOL CSP 030	Artefacts	Grade IIIb
86716	SASOL031	SASOL CSP 031	Artefacts	Grade IIIb

86718	SASOL032	SASOL CSP 032	Artefacts	Grade IIIb
86720	SASOL033	SASOL CSP 033	Artefacts	Grade IIIb
45727	ROOI001	Rooipunt 001	Artefacts	Grade IV
45728	ROOI002	Rooipunt 002	Artefacts	Grade IV
45729	ROOI003	Rooipunt 003	Artefacts	Grade IV
45731	ROOI004	Rooipunt 004	Artefacts	Grade IV
45733	ROOI005	Rooipunt 005	Artefacts	Grade IV
45735	ROOI006	Rooipunt 006	Artefacts	Grade IV
45736	ROOI007	Rooipunt 007	Artefacts	Grade IV
45737	ROOI008	Rooipunt 008	Artefacts	Grade IV
45738	ROOI009	Rooipunt 009	Artefacts	Grade IV
45739	ROOI010	Rooipunt 010	Artefacts	Grade IV
45740	ROOI011	Rooipunt 011	Artefacts	Grade IV
45741	ROOI012	Rooipunt 012	Artefacts	Grade IV
45742	ROOI013	Rooipunt 013	Artefacts	Grade IV
45743	ROOI014	Rooipunt 014	Artefacts	Grade IV
45744	ROOI015	Rooipunt 015	Artefacts	Grade IV
86723	SASOL034	SASOL CSP 034	Artefacts	Grade IIIb
45758	ROOI016	Rooipunt 016	Artefacts	Grade IV
45759	ROOI017	Rooipunt 017	Artefacts	Grade IV
45760	ROOI018	Rooipunt 018	Artefacts	Grade IV
45761	ROOI019	Rooipunt 019	Artefacts	Grade IV
45762	ROOI020	Rooipunt 020	Artefacts	Grade IV
45523	VRV01	Van Rooys Vlei 01	Artefacts	Grade IIIb
45763	ROOI021	Rooipunt 021	Artefacts	Grade IV
45764	ROOI022	Rooipunt 022	Artefacts	Grade IV

45765	ROOI023	Rooipunt 023	Stone walling	Grade IV
45766	ROOI024	Rooipunt 024	Structures	Grade IV
45767	ROOI025	Rooipunt 025	Conservation Area	Grade IV
45768	ROOI026	Rooipunt 026	Conservation Area	Grade IV
45779	ROOI027	Rooipunt 027	Conservation Area	Grade IV
45780	ROOI028	Rooipunt 028	Structures	Grade IV
45781	ROOI029	Rooipunt 029	Conservation Area	Grade IV
45782	ROOI030	Rooipunt 030	Structures	Grade IV
45783	ROOI031	Rooipunt 031	Structures	Grade IV
45784	ROOI032	Rooipunt 032	Structures	Grade IV
45785	ROOI033	Rooipunt 033	Structures	Grade IV
45786	ROOI034	Rooipunt 034	Structures	Grade IV
45787	ROOI035	Rooipunt 035	Structures	Grade IV
45788	ROOI036	Rooipunt 036	Structures	Grade IV
45789	ROOI037	Rooipunt 037	Structures	Grade IV
19979	SPITZ3	Spitzkop 3	Artefacts	Grade IIIb
46287	OLYV01	OLYVENHOUTS DRIFT 01	Artefacts	Grade IIIc
45968	SASOL001	SASOL CSP 001	Structures	Grade IIIc
86677	SASOL002	SASOL CSP 002	Artefacts	Grade IIIb
86678	SASOL003	SASOL CSP 003	Artefacts	Grade IIIb
44977	UP08	Upington 08	Artefacts	Grade IIIc
86679	SASOL004	SASOL CSP 004	Artefacts	Grade IIIb
86680	SASOL005	SASOL CSP 005	Artefacts	Grade IIIb
44980	UP09	Upington 09	Burial Grounds & Graves	Grade IIIa
86681	SASOL006	SASOL CSP 006	Artefacts	Grade IIIb

86682	SASOL007	SASOL CSP 007	Artefacts	Grade IIIb
86683	SASOL008	SASOL CSP 008	Artefacts	Grade IIIb
86684	SASOL009	SASOL CSP 009	Artefacts	Grade IIIb
60026	LOUI01	Louisevale 01	Artefacts	Grade IIIc
60028	LOUI02	Louisevale 02	Artefacts	Grade IIIc
60030	LOUI03	Louisevale 03	Artefacts	Grade IIIc
60032	LOUI04	Louisevale 04	Artefacts	Grade IIIc
60034	LOUI05	Louisevale 05	Artefacts	Grade IIIc
60036	LOUI06	Louisevale 06	Artefacts	Grade IIIc
60038	LOUI07	Louisevale 07	Artefacts	Grade IIIc
39813	SOA001	Solar-Aries 001	Artefacts	Grade IIIc
60040	LOUI08	Louisevale 08	Artefacts	Grade IIIc
39814	SOA002	Solar-Aries 002	Living Heritage/Sacred sites	Grade IIIc
60044	LOUI10	Louisevale 10	Artefacts	Grade IIIc
60042	LOUI09	Louisevale 09	Artefacts	Grade IIIc
44796	DAKOTA01	Dakota Drive, Upington 01	Artefacts, Burial Grounds & Graves	Grade IIIa
60070	LOUI11	Louisevale 11	Artefacts	Grade IIIc
60072	LOUI12	Louisevale 12	Artefacts	Grade IIIc
60074	LOUI13	Louisevale 13	Artefacts	Grade IIIc
44797	DAKOTA02	Dakota Drive, Upington 02	Burial Grounds & Graves	Grade IIIa
60075	LOUI14	Louisevale 14	Artefacts	Grade IIIc
60077	LOUI15	Louisevale 15	Artefacts	Grade IIIc
60079	LOUI16	Louisevale 16	Artefacts	Grade IIIc
60081	LOUI17	Louisevale 17	Artefacts	Grade IIIc

60083	LOUI18	Louisevale 18	Artefacts	Grade IIIc
60085	LOUI19	Louisevale 19	Artefacts	Grade IIIc
60086	LOUI20	Louisevale 20	Artefacts	Grade IIIc
60125	LOUI22	Louisevale 22	Artefacts	Grade IIIc
60127	LOUI23	Louisevale 23	Artefacts	Grade IIIc
86688	SASOL013	SASOL CSP 013	Artefacts	Grade IIIb
60129	LOUI24	Louisevale 24	Artefacts	Grade IIIc
60137	LOUI27	Louisevale 27	Artefacts	Grade IIIc
60143	LOUI31	Louisevale 31	Artefacts	Grade IIIc
89525	DYA033	DYASON'S KLIP 454/033	Artefacts	Grade IIIc
60140	LOUI29	Louisevale 29	Artefacts	Grade IIIc
60133	LOUI25	Louisevale 25	Artefacts	Grade IIIc
86689	SASOL014	SASOL CSP 014	Artefacts	Grade IIIb
86690	SASOL015	SASOL CSP 015	Artefacts	Grade IIIb
60124	LOUI21	Louisevale 21	Artefacts	Grade IIIc
60135	LOUI26	Louisevale 26	Artefacts	Grade IIIc
86691	SASOL016	SASOL CSP 016	Artefacts	Grade IIIb
19978	SPITZ2	Spitzkop 2	Artefacts	Grade IIIb
60138	LOUI28	Louisevale 28	Artefacts	Grade IIIc
19977	SPITZ1	Spitzkop 1	Artefacts	Grade IIIb
60145	LOUI30	Louisevale 30	Artefacts	Grade IIIc
86686	SASOL011	SASOL CSP 011	Artefacts	Grade IIIb
86687	SASOL012	SASOL CSP 012	Artefacts	Grade IIIb
7820	2830BD 317		Ruin > 100 years	Grade IIIb
86702	SASOL017	SASOL CSP 017	Artefacts	Grade IIIb
86703	SASOL018	SASOL CSP 018	Artefacts	Grade IIIb

24972	Van Roois Vley	Van Roois Vlei Stone Age sites	Artefacts	Grade IIIb

CTS HERITAGE

APPENDIX 2

Reference List

Heritage Impact Assessments				
Nid	**Report Type**	**Author/s**	**Date**	**Title**
4101	AIA Phase 1	Peter Beaumont	22/10/2005	Archaeological Impact Assessment at and in the Vicinity of a Quartzite Quarry on Portion 4 of the Farm Droogehout 442 near Upington
4103	AIA Phase 1	Cobus Dreyer	10/03/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Concentrated Solar Thermal Plant (Csp) at the Farms Olyvenhouts Drift, Upington, Bokpoort 390 and Tampansrus 294/295, Groblershoop, Northern Cape
4123	AIA Phase 1	Peter Beaumont	01/08/2006	Phase 1 Heritage Impact Assessment Report on a Planned Residential Development Flanking Dakota Drive in Upington, //Khara Hais Municipality, Northern Cape Province
4124	AIA Phase 1	Peter Beaumont	24/08/2006	Phase 1 Heritage Impact Assessment Report on a Planned Extension of the Rosedale Settlement in Upington, //Khara Hais Municipality, Northern Cape Province
4130	AIA Phase 1	Peter Beaumont	16/08/2006	Phase 1 Heritage Impact Assessment Report on a Planned Extension of the Louisvaleweg Township, //Khara Hais Municipality, Northern Cape Province
4131	AIA Phase 1	Peter Beaumont	18/08/2006	Phase 1 Heritage Impact Assessment Report on a Planned Township Extension Flanking Keimoesweg, //Khara Hais Municipality, Northern Cape Province
4132	AIA Phase 1	Peter Beaumont	18/08/2006	Phase 1 Heritage Impact Assessment Report on a Planned Extension Flanking Rondomstraat, //Khara Hais Municipality, Northern Cape Province
4133	AIA Phase 1	Peter Beaumont	19/08/2006	Phase 1 Heritage Impact Assessment Report on a Planned Township Extension Flanking Lemoendraai in Upington, //Khara Hais Municipality, Northern Cape Province
4134	AIA Phase 1	Peter Beaumont	19/08/2006	Phase 1 Heritage Impact Assessment Report on a Planned Industrial Area Expansion at Laboria, //Khara Hais Municipality, Northern Cape Province
4136	AIA Phase 1	Peter Beaumont	22/08/2006	Phase 1 Heritage Impact Assessment Report on a Planned Extension of Kalksloot Settlement, Siyanda District Municipality, Northern Cape
7841	AIA Phase 1	Peter Beaumont	17/08/2006	Phase 1 Heritage Impact Assessment Report on a Planned Extension of the Rosedale Township, //Khara Hais Municipality, Northern Cape Province
8366	AIA Phase 1	Karen Van Ryneveld	27/10/2005	Cultural Resources Management Impact Assessment: (Portion of) Areachap 426, Upington District, Northern Cape, South Africa
111142	HIA Phase 1	Johnny Van	01/03/2012	Heritage Impact Assessment for the Proposed Development of an Agri-estate on the Farm Melkstroom East of

		Schalkwyk		Upington, Gordonia Magisterial District, Northern Cape Province
117902	HIA Phase 1	Anton van Vollenhoven	25/05/2012	A REPORT ON A HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED SASOL CSP PROJECT NEAR UPINGTON IN THE NORTHERN CAPE PROVINCE
119309	HIA Phase 1	Stephan Gaigher	10/10/2012	HERITAGE IMPACT ASSESSMENT REPORT Proposed Establishment of Several Electricity Distribution Lines within the Northern Cape Province
124405	Heritage Impact Assessment Specialist Reports	Stephan Gaigher	29/10/2013	Heritage Impact Assessment Report for the Proposed Sirius Solar Project near Upington in the Northern Cape Province
124406	Palaeontological Specialist Reports	JF Durand	02/04/2013	Palaeontology Scoping Report
128281	Heritage Scoping	David Morris	30/07/2013	RE Capital 3 Solar Development on the property Dyasons Klip west of Upington, Northern Cape: Scoping phase Heritage Input
131589	Heritage Impact Assessment Specialist Reports	Stephan Gaigher	22/02/2013	Proposed Establishment of Several Electricity Distribution Lines within the Northern Cape Province
158920	AIA Phase 1	David Morris	01/02/2013	RE Capital 3 Solar Development on the property Dyasons Klip west of Upington, Northern Cape: Archaeological Impact Assessment – proposed 'central' development footprint
159068	PIA Phase 1	John E Almond	07/03/2014	PALAEONTOLOGICAL HERITAGE BASIC ASSESSMENT: DESKTOP STUDY Proposed RE Capital 3 Solar Development on the property Dyason's Klip near Upington , Northern Cape
159203	Heritage Impact Assessment Specialist Reports	Johnny Van Schalkwyk	11/03/2014	Cultural Heritage Impact Assessment Proposed Township development of Erf 1, UPINGTON, //KHARA HAIS MUNICIPALITY
159293	HIA Phase 1	Johnny Van Schalkwyk	12/03/2014	Cultural Heritage Impact Assessment for proposed township development, Louisvaleweg, UPINGTON

160008	HIA Phase 1	Johnny Van Schalkwyk	15/03/2014	Cultural Heritage Impact Assessment for the proposed township development, Paballelo, Upington, //Khara Hais Municipality
161427	HIA Phase 1	Stephan Gaigher	15/04/2014	Proposed Establishment of Several Electricity Distribution Lines within the Northern Cape Province
166079	HIA Phase 1	Johnny Van Schalkwyk	12/03/2014	Proposed extension of Dakota Road, Upington
170520	Heritage Scoping	Johnny Van Schalkwyk	01/01/2014	Heritage Impact Assessment Report for the proposed 1GW Upington Solar Park within the // Khara Hais Municipality, Northern Cape Province
174335	HIA Phase 1	Wouter Fourie	24/03/2014	Heritage Impact Assessment for the proposed Solar Power Park for SolarReserve SA (Pty) Ltd, Farm Rooipunt 617, Gordonia RD, Siyanda District Municipal Region, Northern Cape.
289187	Heritage Scoping	Jaco van der Walt	01/06/2015	Heritage Scoping Report for the proposed Bloemsmond Solar 1 and Solar 2 PV Project, Keimoes, NC Province

CTS HERITAGE

APPENDIX 3 - Keys/Guides

Key/Guide to Acronyms

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

Full guide to Palaeosensitivity Map legend

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

CTS HERITAGE

APPENDIX 4 - Methodology

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

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

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

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

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

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

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

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

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

DETERMINATION OF THE PALAEONTOLOGICAL SENSITIVITY

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

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

DETERMINATION OF THE COVERAGE RATING ASCRIBED TO A REPORT POLYGON

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

Low coverage will be used for:

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

Medium coverage will be used for

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

High coverage will be used for

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

RECOMMENDATION GUIDE

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

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

This recommendation is made when:

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

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

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

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

CTS HERITAGE

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

Note:

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

The compilation of the Heritage Screener will not include any field assessment. The Heritage Screener will be submitted to the applicant within 24 hours from receipt of full payment. **If the 24-hour deadline is not met by CTS, the applicant will be refunded in full.**