CTS HERITAGE

HERITAGE SCREENER

CTS Reference Number:	**CTS21_280_2**
SAHRA Case No.	**TBA**
Client:	**Savannah**
Date:	**February 2022**
Title:	**Proposed development of SBPM solar PV and battery storage facility near Northam in the Limpopo and North West Provinces**

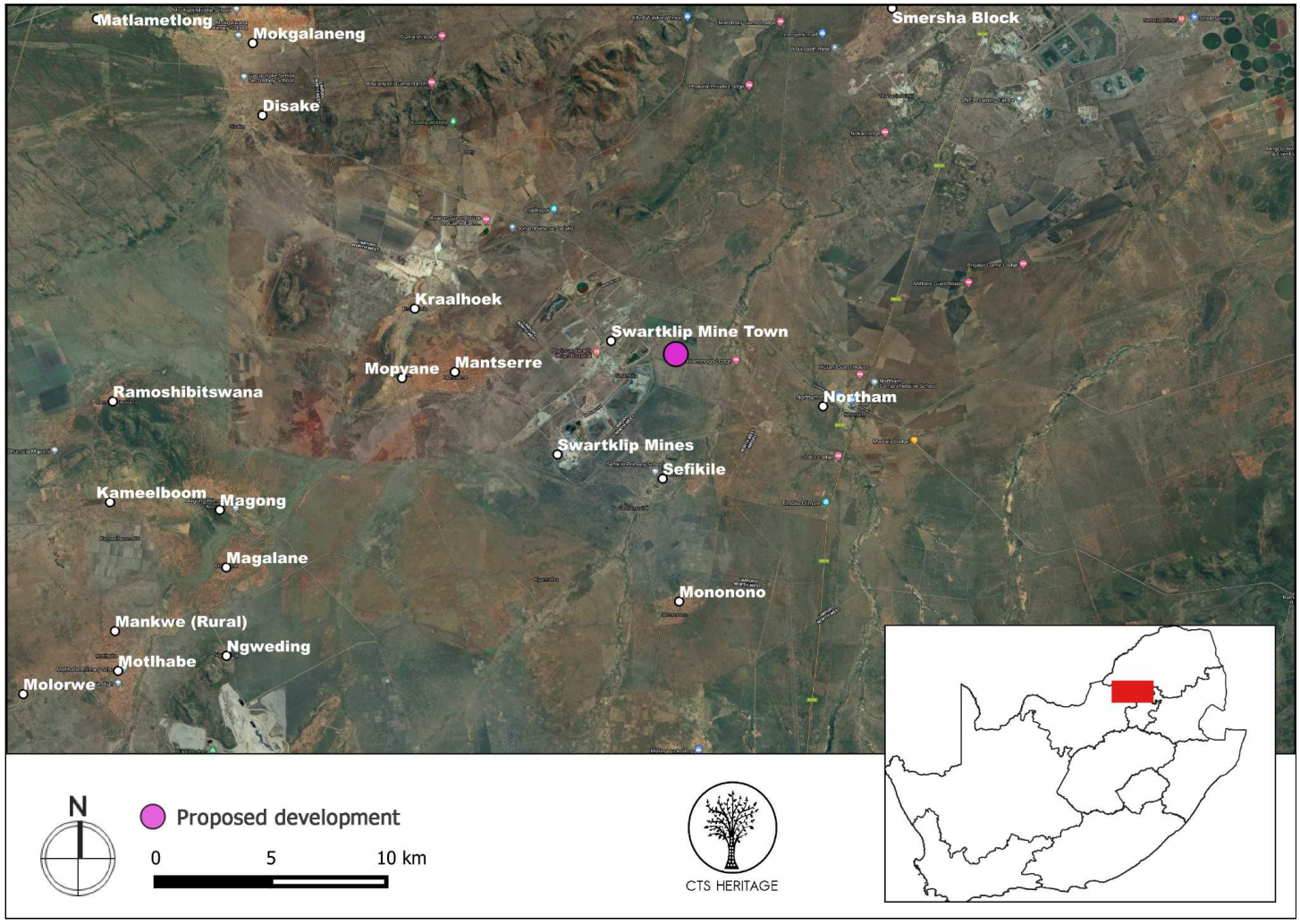

Figure 1a. Satellite map indicating the location of the proposed development in the Limpopo and North West Provinces

Recommendation:	**RECOMMENDATION** **Due to the potential for impact to significant heritage resources, it is recommended that an HIA is completed that assesses impacts to archaeological heritage.**

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1. Proposed Development Summary

Main Street 1886 Proprietary Limited proposes the development of the Solar PV facility and associated infrastructure on a site bordering the eastern end of the Siyanda Bakgatla Platinum Mine area near Northam. The solar PV facility will comprise several arrays of PV panels, a Battery Energy Storage System (BESS), and associated infrastructure with a contracted capacity of up to 100MW.

The purpose of the proposed project is to generate electricity for exclusive use by the Siyanda Mine, following which any excess power produced will be distributed to the national grid, if applicable. The construction of the PV facility aims to reduce the Siyanda Mine's dependency on direct supply from Eskom's national grid for operation activities, while simultaneously decreasing the mine's carbon footprint.

A preferred project site with an extent of ~1138ha and a development area of 574 ha has been identified by Main Street 1886 Proprietary Limited as a technically suitable area for the development of the Solar PV Facility. The study area is located on Portion 4 of Farm Grootkuil 409. The project site falls within the Thabazimbi Local Municipality within the Waterberg District Municipality in the Limpopo Province. The site is located ~6.5km west of the town of Northam and is accessible via the Swartklip Road which branches off the R510 provincial route.

Infrastructure associated with the solar PV facility will include:

- 100MW Solar PV array comprising PV modules and mounting structures.
- Inverters and transformers.
- Cabling between the project components.
- Battery Energy Storage System (BESS).
- On-site facility substation and power lines between the solar PV facility and the Mine and Eskom substation.
- Site offices, Security office, operations and control, and maintenance and storage laydown areas.
- Access roads, internal distribution roads

<u>Grid connection solution.</u>

To evacuate the generated power to the Siyanda Mine, the grid connection solution consisting of the following is proposed:

- The power generated by the solar PV facility will be transferred to the three step up transformers at the on-site/plant substation. Power will then be delivered from each step-up transformer as follows:
    - two 6.6 km, 33 kV transmission lines to the Mortimer substation with four step down transformers (33/6.6 kV; 10 MVA),
    - two 4.7 km, 33 kV transmission lines to the Fridge substation with two step down transformers (33/6.6 kV; 10 MVA),
    - two 2.9 km, 33 kV transmission lines to the Ivan substation with three step down transformers (33/11 kV; 10 MVA)

The grid connection is proposed on the following properties:

- Portion 3 of Farm Grootkuil 409
- Portion 4 of Farm Grootkuil 409
- Portion 5 of Farm Grootkuil 409
- Portion 0 of Farm Spitskop 410
- Portion 0 of Farm Turfbult 404

- Portion 1 of Farm Zwartklip 405
- Portion 2 of Farm Zwartklip 405

2. Application References

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

3. Property Information

Latitude / Longitude	24°55'50.03"S/ 27°12'6.29"E
Erf number / Farm number	»» Portion 0 of Farm Grootkuil 409 » Portion 2 of Farm Grootkuil 409 » Portion 3 of Farm Grootkuil 409 » Portion 6 of Farm Grootkuil 409
Local Municipality	Thabazimbi Local Municipality and the Moses Kotane Local Municipality
District Municipality	Waterberg District Municipality and the Bojanala Platinum District Municipality
Province	Limpopo and North West
Current Use	Agricultural
Current Zoning	Agricultural

4. Nature of the Proposed Development

Total Surface Area	251 Ha
Depth of excavation (m)	TBA
Height of development (m)	TBA

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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

TBA

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

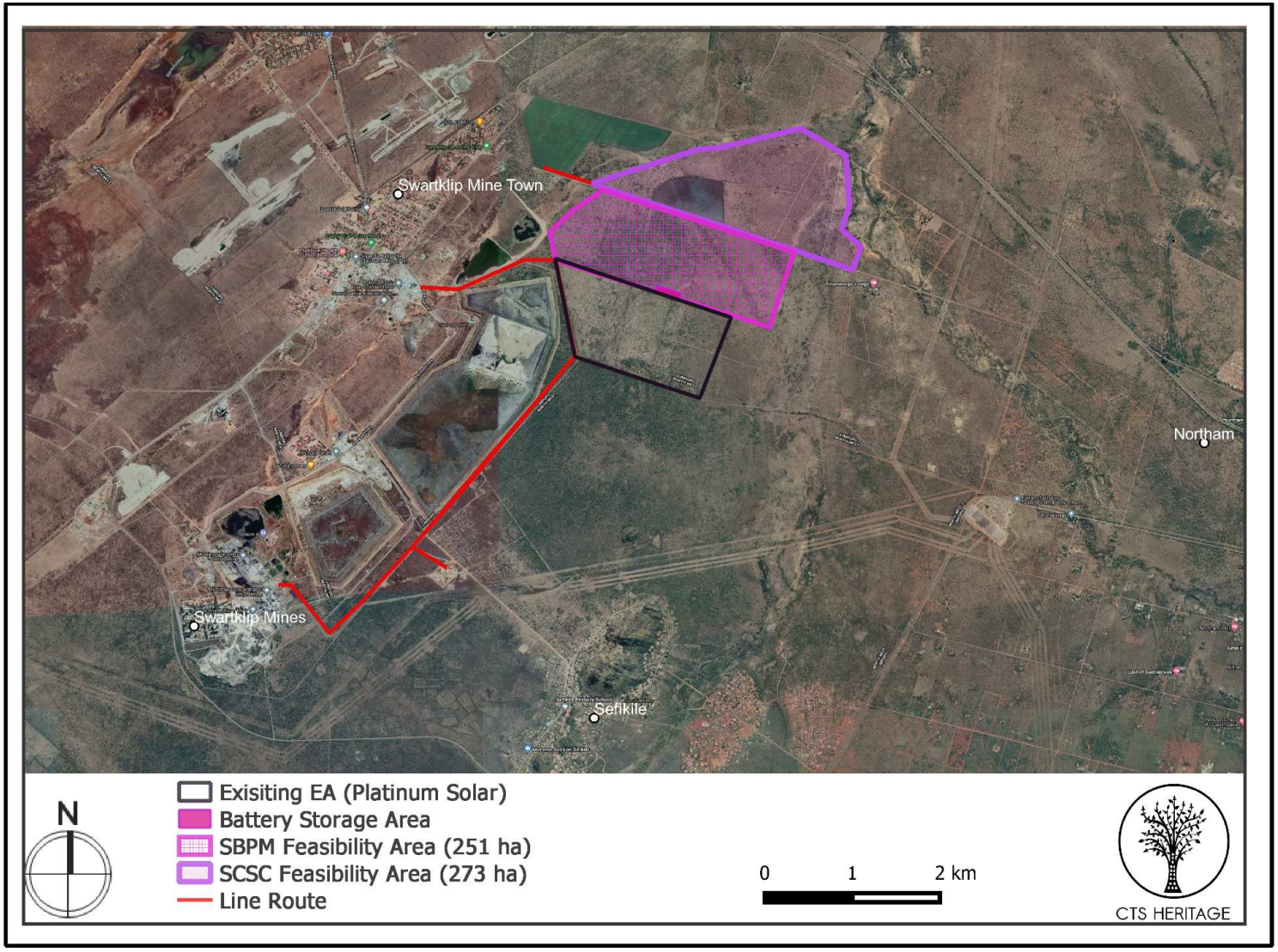

Figure 1b Overview Map. Satellite image (2019) indicating the proposed study area

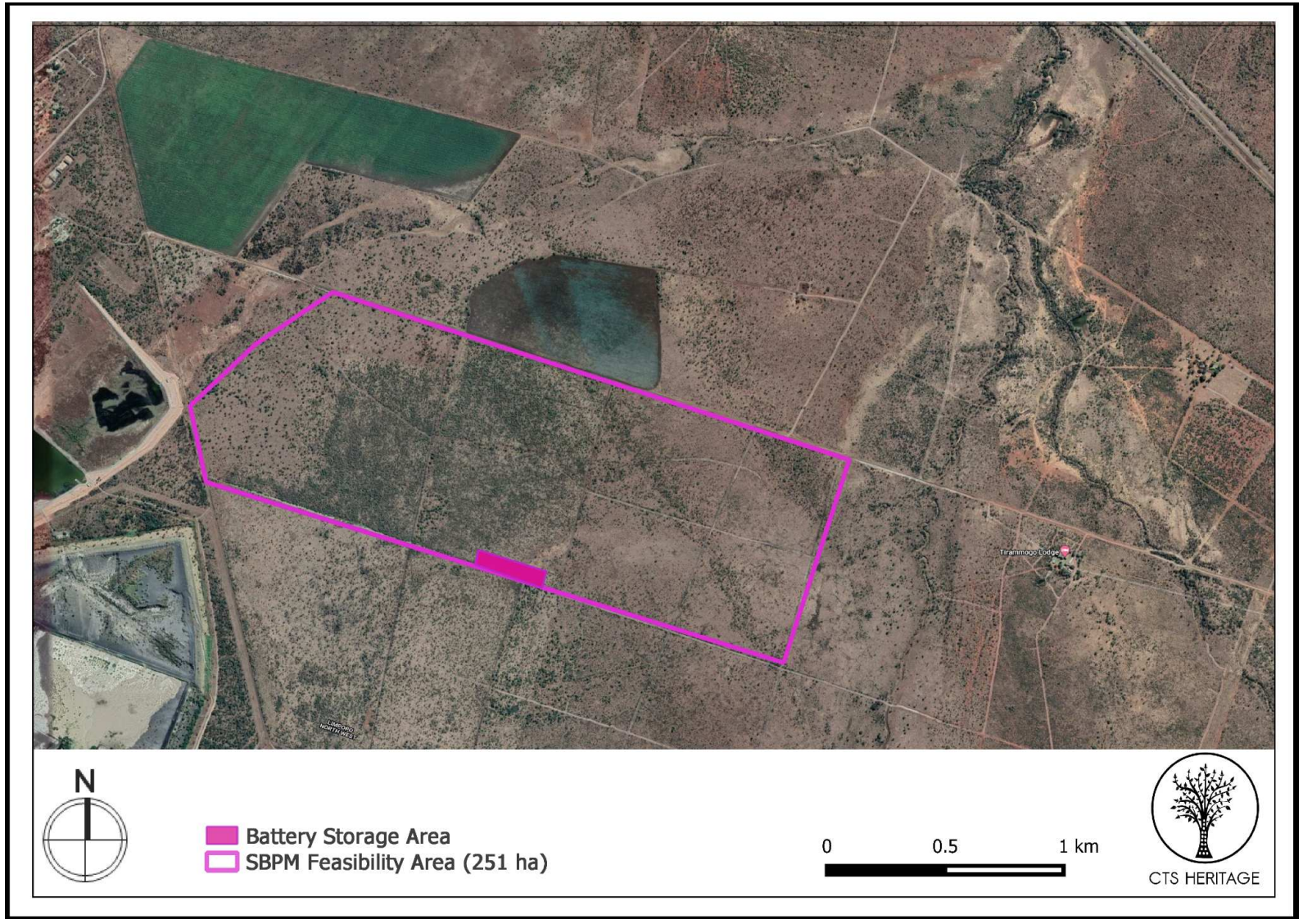

Figure 1c. Overview Map. Satellite image (2019) indicating the proposed study area at closer range.

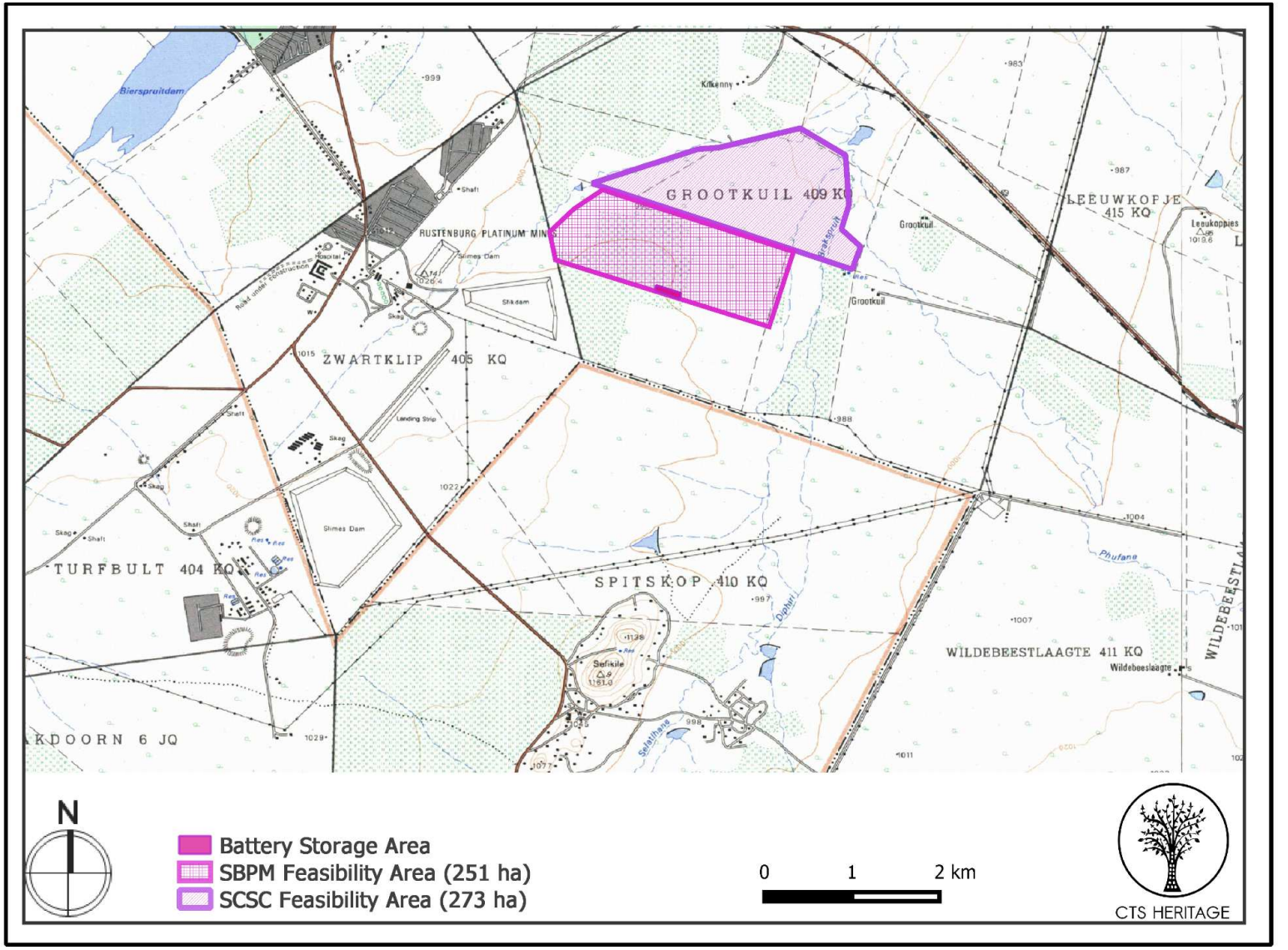

Figure 1d. Overview Map. 1:50 000 Topo Map indicating the proposed study area at closer range.

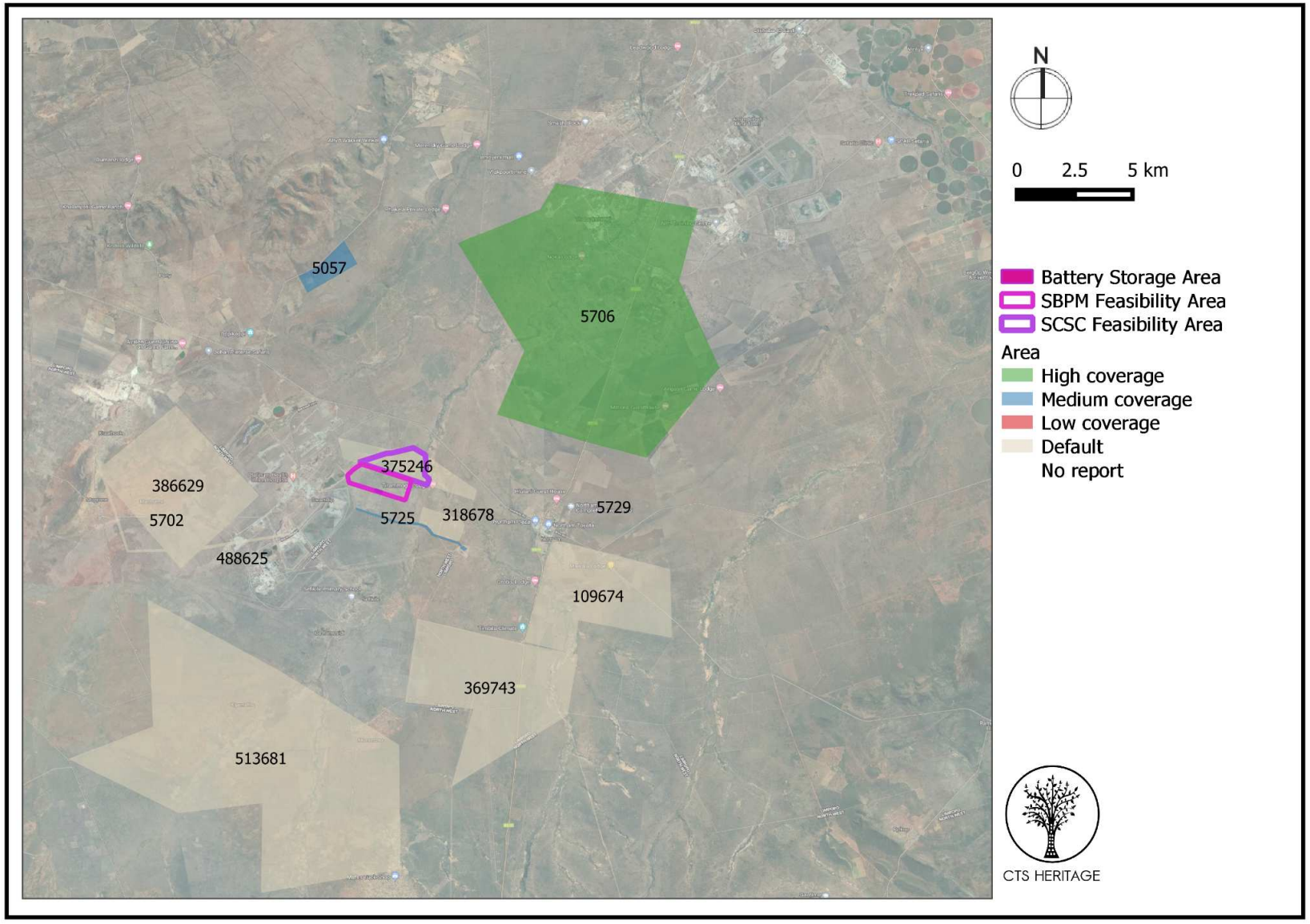

Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments surrounding the proposed study area within 10km, with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.

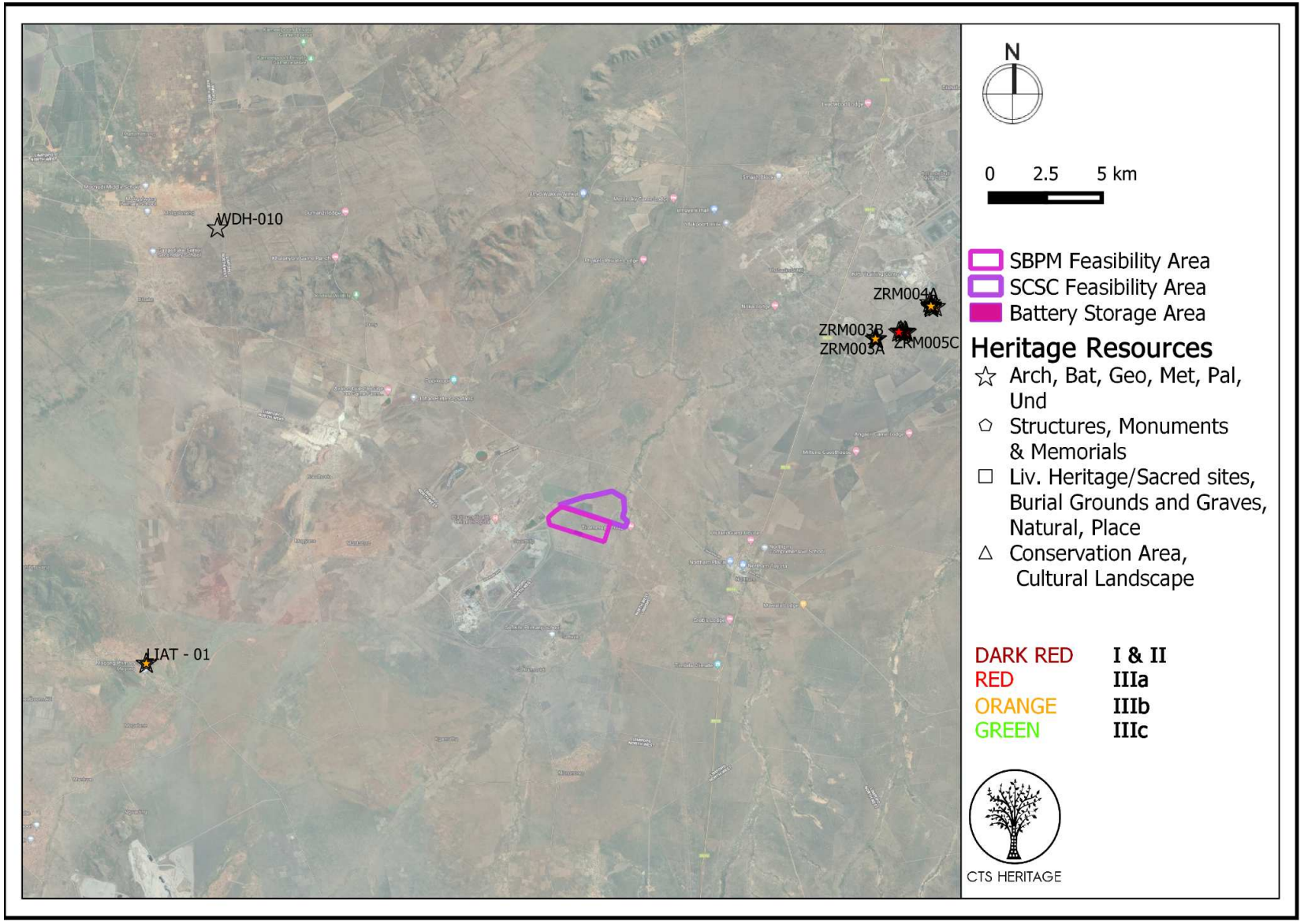

Figure 3. Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated. Please See Appendix 4 for a full description of heritage resource types.

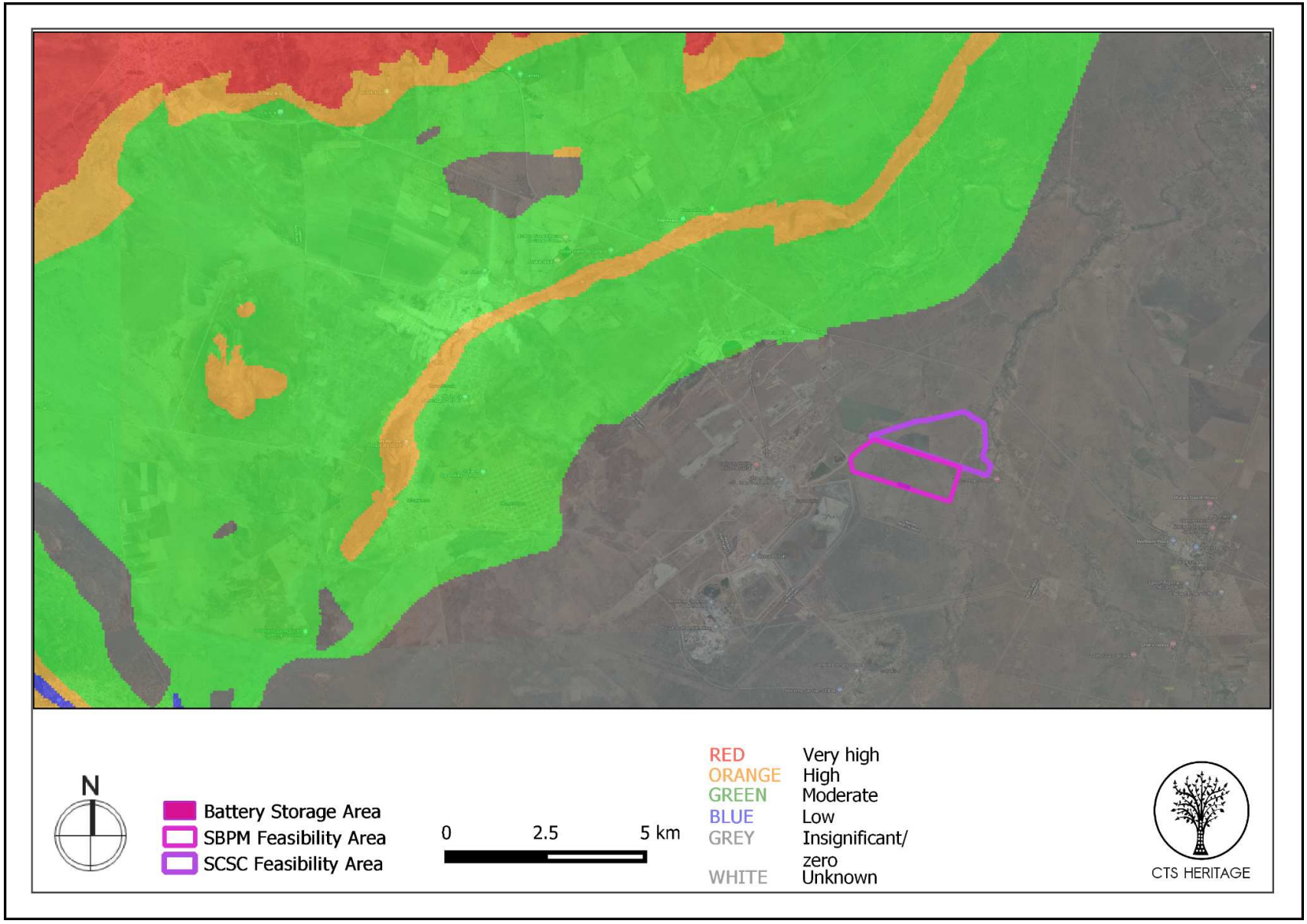

Figure 4. Palaeosensitivity Map. Indicating varied fossil sensitivity underlying the study area. Please See Appendix 3 for a full guide to the legend.

8. Heritage statement and character of the area

Background

The area proposed for development (Figures 1a, 1b, 1 c, 1d) is adjacent to the town of Swartklip, which is locally governed by the Thabazimbi Local Municipality. In isiZulu, the word Thabazimbi means "iron mountain", and the Zulu and Nyasa speaking people historically worked on this mountain, mining iron. Swartklip is also a mining town, with a population of 3, 517 people, and was built around the Siyanda Bakgalta Platinum Mine, which employs 5, 200 people.

Archaeology

Several archaeological and heritage impact assessments have been conducted in the area. Van Schalkwyk and colleagues conducted a high coverage archaeological survey 5 km away from the area proposed for development (2003, SAHRIS ID 5706). These practitioners reported several Late Iron Age stone-walled sites with faunal and cultural remains, including pottery. They suggested that these sites were likely associated with the Tswana people. The report did not mention the exact number of Iron Age sites that Van Schalkwyk and colleagues encountered during the survey. As for the Stone Age, Van Schalkwyk and colleagues documented only isolated Middle and Later Stone Age specimens. Conversely, other reports (Pistorius 2002, SAHRIS ID 5725; Roodt 2007, SAHRIS ID 50057; Kruger 2014, SAHRIS ID 318678), reported no Stone Age remains. Interestingly, surveys pertaining to the immediate vicinity of the proposed development report minimal amounts of archaeology. Kruger (2014) surveyed the Grootkuil farm (part of portion 5 of the farm, see Figure 2), and documented one historical structure that constituted the original Grootkuil farmhouse. Kruger also mentioned the presence of dense vegetation coverage at the farm that would lower the probability of discovering sub-surface cultural remains. Pistorius (2002) surveyed a narrow strip for the Eskom power line (see Figure 2, id 5725) on a neighbouring farm called Spitskop, and reported several ex situ potsherds.

As significant archaeological heritage has been documented in the broader region, it is possible that the prospective development may negatively impact on similar archaeological heritage.

Palaeontology

According to the SAHRIS Palaeosensitivity Map (Figure 4), the area proposed for development is underlain by sediments of zero palaeontological sensitivity. No reports are available for the area proposed for development. However, an adjacent areas proposed for development called SCSC (Figure 1b) has been previously assessed in a palaeontological desktop study conducted by Professor Bruce Rubidge (Palaeontological Desktop Study – Siyanda Chrome Smelting Company Pty. Ltd, SAHRIS ID 375246, 2015). In the assessment, Rubidge proposed that since the study area was underlain by gabbros and norites of the Precambrian Bushveld Igneous Complex, fossil preservation was highly unlikely. Rubidge, however, noted that fossil-bearing Quaternary alluvial deposits, although not visible on a geological map, could be still present in low-lying areas. Rubidge, hence, recommended that if fossils were exposed as a result of development activities, that a qualified palaeontologist should be contacted to assess the exposure for fossils before further development took place so that the necessary rescue operations were implemented. Based on the geological map, the geological contexts of areas SBPM and SCSC appear to be similar, suggesting that the recommendation outlined by Rubidge described above may also be applicable to the area proposed for development.

RECOMMENDATION

Due to the potential for impact to significant heritage resources, it is recommended that an HIA is completed that assesses impacts to archaeological heritage.

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, remnants of Iron Age settlements, burial grounds and graves, historical artefacts, historical structures and rock art engravings through destruction during the development phase and disturbance during the operational phase is possible.
- 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 rural and mining to semi-industrial, however, due to the density of mining activities in 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 heritage resources through destruction during the development phase and disturbance during the operational phase.	Destruction of significant heritage resources	Local scale with broader impacts to scientific knowledge	None known at present

Gaps in knowledge & recommendations for further study

The heritage resources in the area proposed for development are not yet 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 further heritage studies are required in terms of section 38 of the NHRA with specific focus on impacts to archaeological heritage.

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APPENDIX 1: List of heritage resources in proximity to the development area

Site ID	Site no	Full Site Name	Site Type	Grading
134428	ZRM003A	ZONDEREINDE MINE	Stone walling	Grade IIIb
134431	ZRM003B	ZONDEREINDE MINE	Stone walling	Grade IIIb
134433	ZRM004A	ZONDEREINDE MINE	Stone walling	Grade IIIb
134434	ZRM004B	ZONDEREINDE MINE	Stone walling	Grade IIIb
134435	ZRM004C	ZONDEREINDE MINE	Stone walling	Grade IIIb
134436	ZRM004D	ZONDEREINDE MINE	Stone walling	Grade IIIb
134438	ZRM004E	ZONDEREINDE MINE	Stone walling	Grade IIIb
134443	ZRM005A	ZONDEREINDE MINE	Stone walling	Grade IIIa
134444	ZRM005B	ZONDEREINDE MINE	Stone walling	Grade IIIa
134445	ZRM005C	ZONDEREINDE MINE	Stone walling	Grade IIIa
134446	ZRM005D	ZONDEREINDE MINE	Stone walling	Grade IIIa
134448	ZRM005E	ZONDEREINDE MINE	Stone walling	Grade IIIa
138436	WDH-010	Woodhouse	Artefacts	
25271	LIAT - 01	LIA Tswana site	Settlement	Grade IIIb

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APPENDIX 2: Reference List

Nid	Report Type	Author/s	Date	Title
109674	HIA Phase 1	M Hutten	01/05/2010	HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED DE PUT RESIDENTIAL TOWNSHIP DEVELOPMENT SOUTH OF NORTHAM, LIMPOPO
318678	AIA Phase 1	Neels Kruger	19/05/2014	ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) OF A DEMARCATED SURFACE PORTION ON THE FARM GROOTKUIL 409KQ FOR THE PROPOSED PLATINUM PHOTOVOLTAIC POWER PLANT DEVELOPMENT, THABAZIMBI LOCAL MUNICIPALITY, WATERBERG DISTRICT MUNICIPALITY, LIMPOPO PROVINCE
369743	Heritage Impact Assessment Specialist Reports	Prof. Anton van Vollenhoven	21/09/2016	HERITAGE IMPACT ASSESSMENT - Input for Environmental Impact Assessment report undertaken in terms of the National Environmental Management Act 107 of 1998
375246	PIA Desktop	Bruce Rubidge	01/12/2015	Palaeontological Desktop Study â€“ Siyanda Chrome Smelting Company Pty. Ltd
5057	AIA Phase 1	Frans Roodt	20/02/2007	Phase 1 Heritage Resources Impact Assessment (Scoping & Evaluation) Rhebokkloof Wild Life Estate Thabazimbi, Limpopo
5702	AIA Phase 1	Johnny Van Schalkwyk	01/02/2003	Arch Survey Mantserre-Kraalhoek-Mopyane Water Scheme, NW Province
5706	AIA Phase 1	Johnny Van Schalkwyk, Frank Teichert, Anton Pelser	01/06/2003	A Survey of Archaeological Sites for the Amandelbult Platinum Mine Seismic Exploration Program
5725	AIA Phase 1	Julius CC Pistorius	01/12/2002	A Cultural Heritage Assessment for Eskom's Proposed New Power Line Between the Spitskop Substation and the Union Plats Substation in the Limpopo
5729	AIA Phase 1	JM Maguire, Calvin van Wijk	12/06/2008	Phase 1 Archaeological Impact Assessment for Portion 128 of the Farm Koedoesdoorns KQ 414, Northam, Limpopo Province

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APPENDIX 3 - Keys/Guides

Key/Guide to Acronyms

AIA	Archaeological Impact Assessment
DARD	Department of Agriculture and Rural Development (KwaZulu-Natal)
DEFF	Department of Environment, Forest and Fisheries (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.

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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.

(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.