



CTS HERITAGE

HERITAGE SCREENER

CTS Reference Number:	CTS21_153
SAHRIS Ref:	
Client:	Environamics
Date:	July 2021
Title:	Proposed development of the Sonvanger OHL near Theunissen in the Free State
Recommendation by CTS Heritage Specialists	RECOMMENDATION: As it is not likely that the proposed development will impact significant heritage resources, it is recommended that no further heritage studies are required for this proposed development. A Chance Fossil Finds Procedure must be implemented for the duration of construction activities.

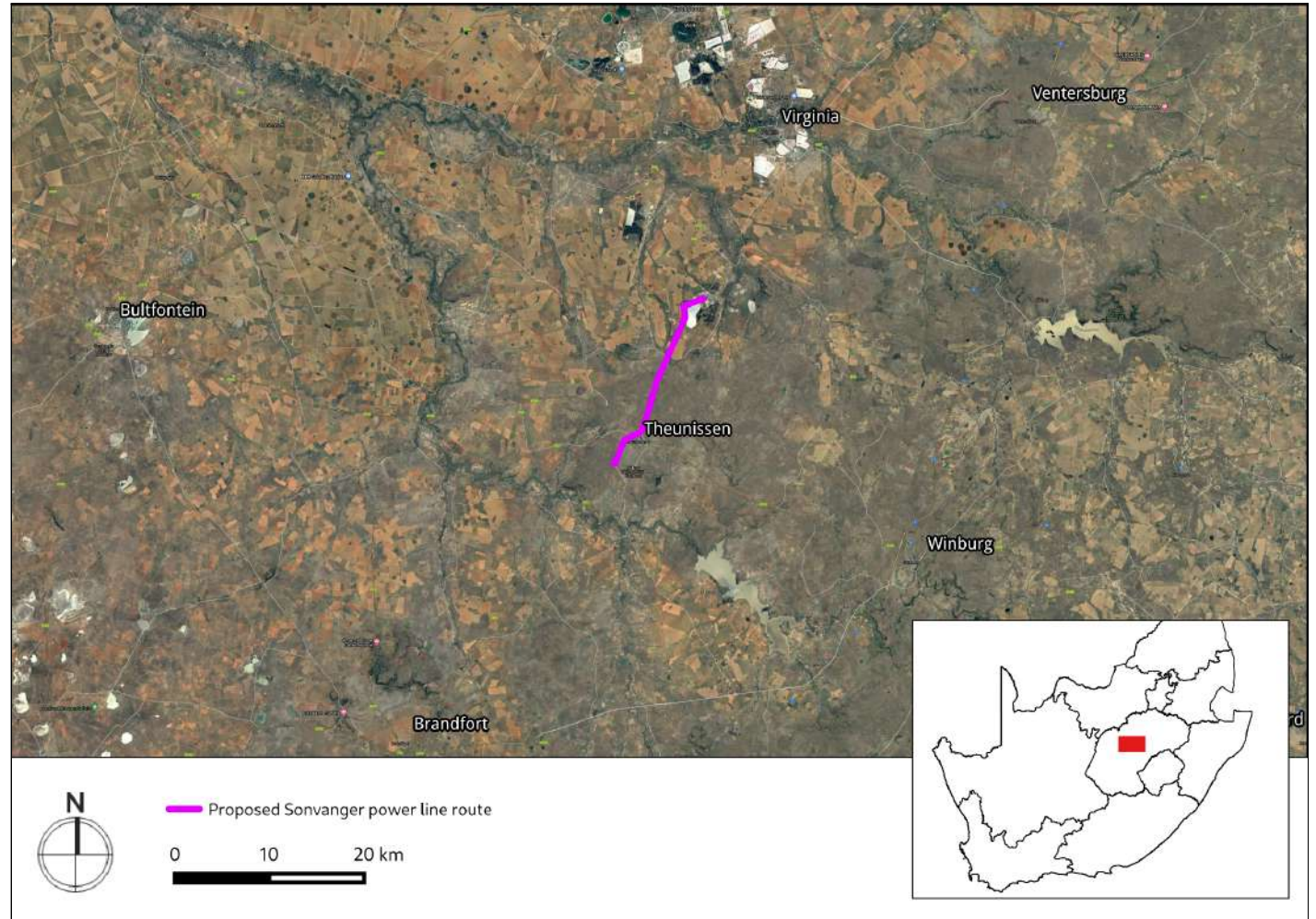


Figure 1a. Satellite map indicating the location of the proposed development in the Free State Province

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1. Proposed Development Summary

The activity entails the development of a 132kV single-circuit power line to enable the connection of the authorised Sonvanger Photovoltaic Solar Power Plant (DFFE ref.: 14/12/16/3/3/2/672) to the national grid network. This will enable the evacuation of the generated solar electricity. A 200m wide and 22km long grid connection corridor is being assessed for the placement of the power line route. The power line is proposed to connect into the existing Oryx-Joel 132kV Line. A service road associated with the power line is also proposed to be developed.

The activity entails the development of a power line which will be single circuit and have a capacity of 132kV. The power line will connect to the existing Oryx-Joel 132kV Line via a loop-in loop-out connection and will enable the evacuation of the generated electricity from the authorised Sonvanger Photovoltaic Solar Power Plant. The project is proposed by Pele Green Energy (Pty) Ltd.

2. Application References

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

3. Property Information

Latitude / Longitude	28°20'43.98"S 26°43'57.46"E
Erf number / Farm number	Afrikander Oord 80 (Portions 0 & 2), Ebenhaeser 401 (Portions 0, 1, 2 and 3), Erfbloem 12 (Portions 0, 4, 5 and 6), Excelsior 147 (Portions 1, 2 and 3), Geodemoed 143 (Portions 0, 2 and 3), Grottkau 410 (Portions 0, 3 and 5), Karreebooms Vallei (Portions 0, 2, 5, 6, 7 and 8), Leeuwbult 52 (Portions 0 and 3), Leeuwvlei 115 (Portions 0, 1, 2 and 3), Mamre 566 (Portions 0, 1, 2 and 3), Masilo 597 (Portions 0 and 12), Mooi Hoek 297 (Portions 0, 1, 4 and 5), Silesia 409 (Portions 0, 2 and 3), Smaldeel 262 (Portions 0, 1, 2, 8, 20, 21, 22, 23), Spes Bona 290 (Portions 0 and 2), Theunissen 252 (Portions 0 and 2), Vergelegen 85 (Portions 1, 4, 5 and 7).
Local Municipality	Masilonyana and the Matjhabeng Local Municipalities
District Municipality	Lejweleputswa District Municipality
Province	Free State Province
Current Use	Light grazing of livestock



4. Nature of the Proposed Development

Total Surface Area	22km in length x 200m Corridor
Depth of excavation (m)	2 - 3.5m
Height of development (m)	30m max

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
x	1. Construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier over 300m in length.
	2. Construction of a bridge or similar structure exceeding 50m in length.
	3. Any development or activity that will change the character of a site-
	a) exceeding 5 000m 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

Grid connection and substations as well as the associated service road for the power line.

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

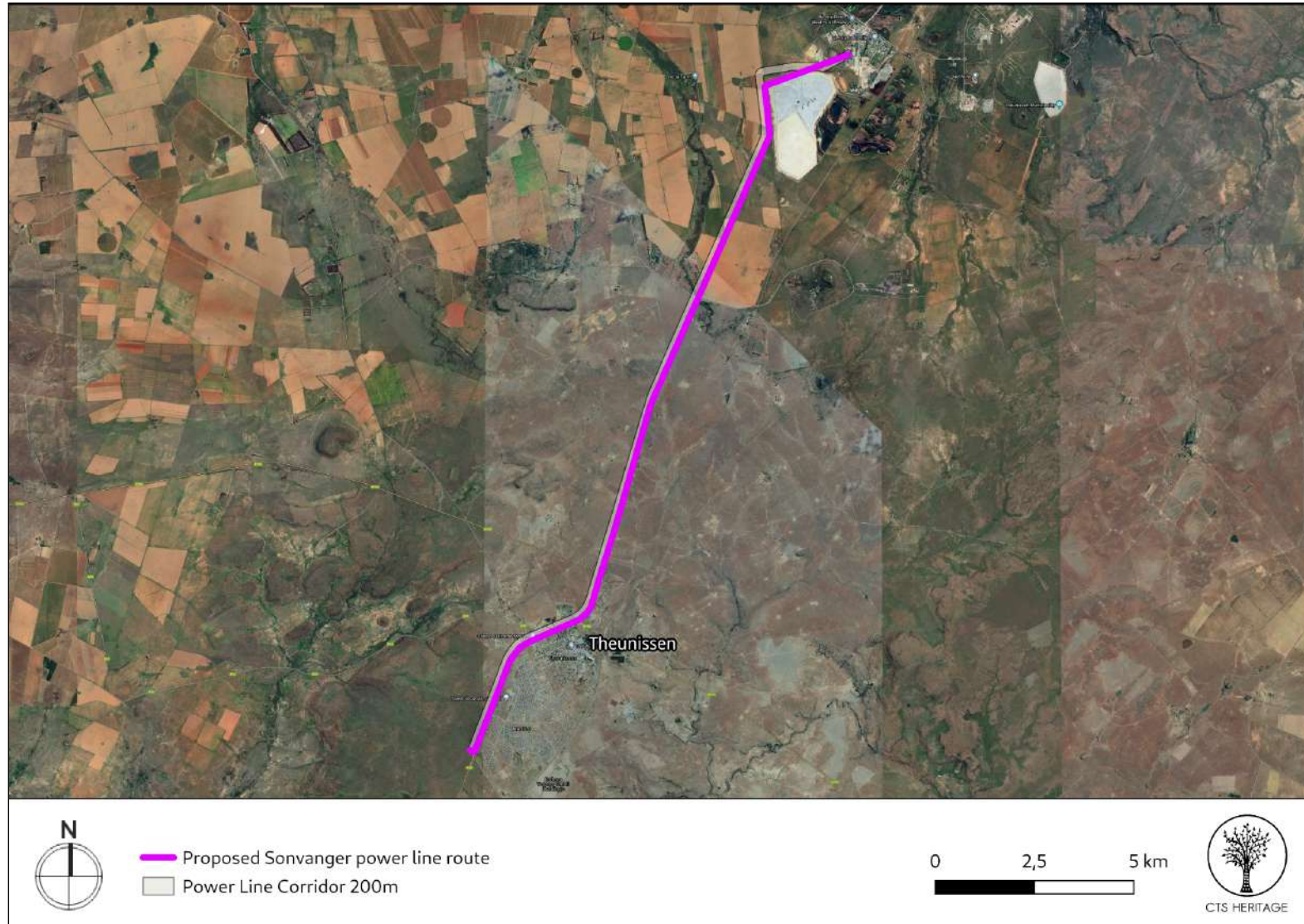


Figure 1b. Overview Map. Satellite image (2019) indicating the proposed development area at closer range.



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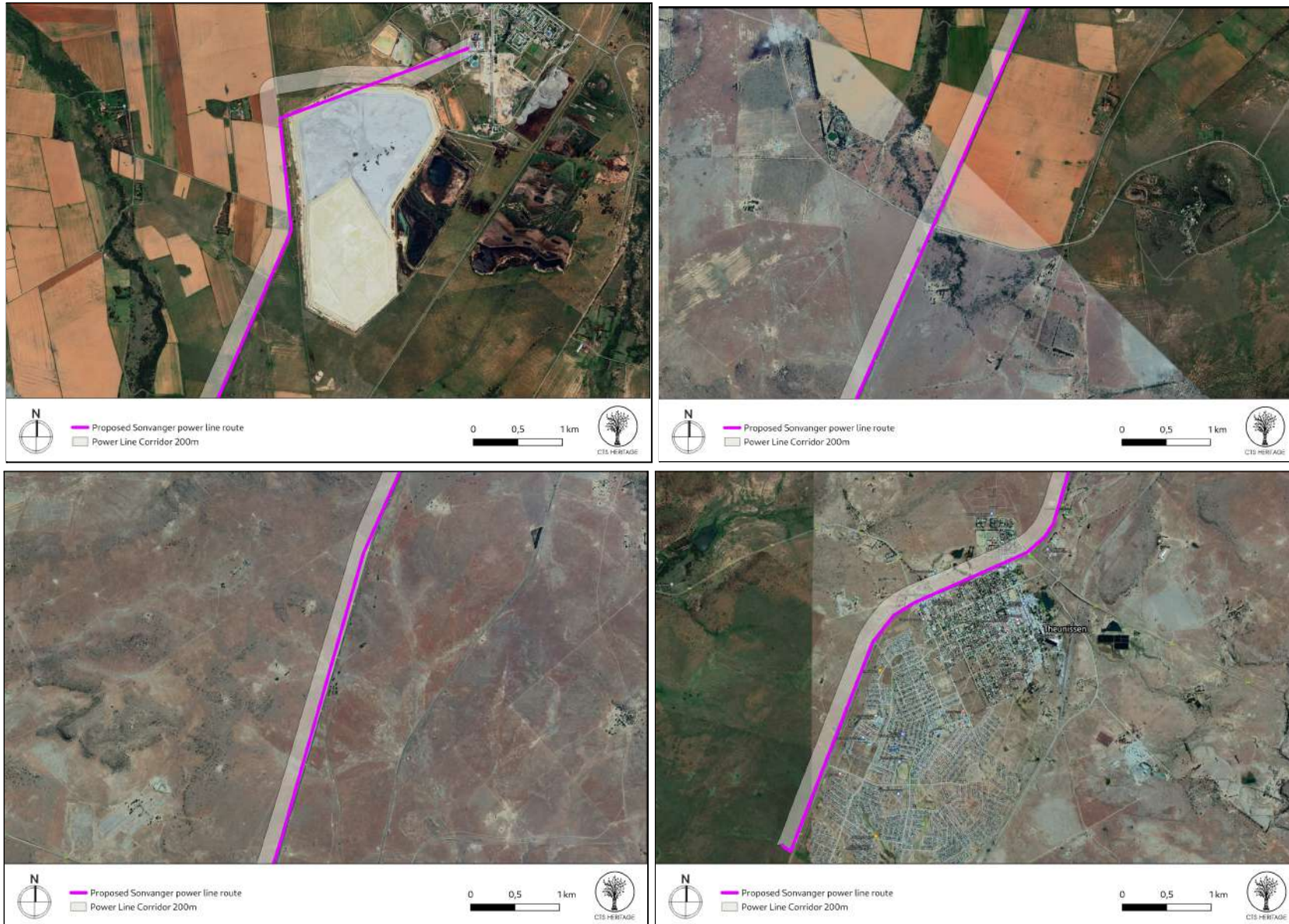


Figure 1c. Overview Map. Satellite image (2019) indicating the proposed development area at closer range along the R30.

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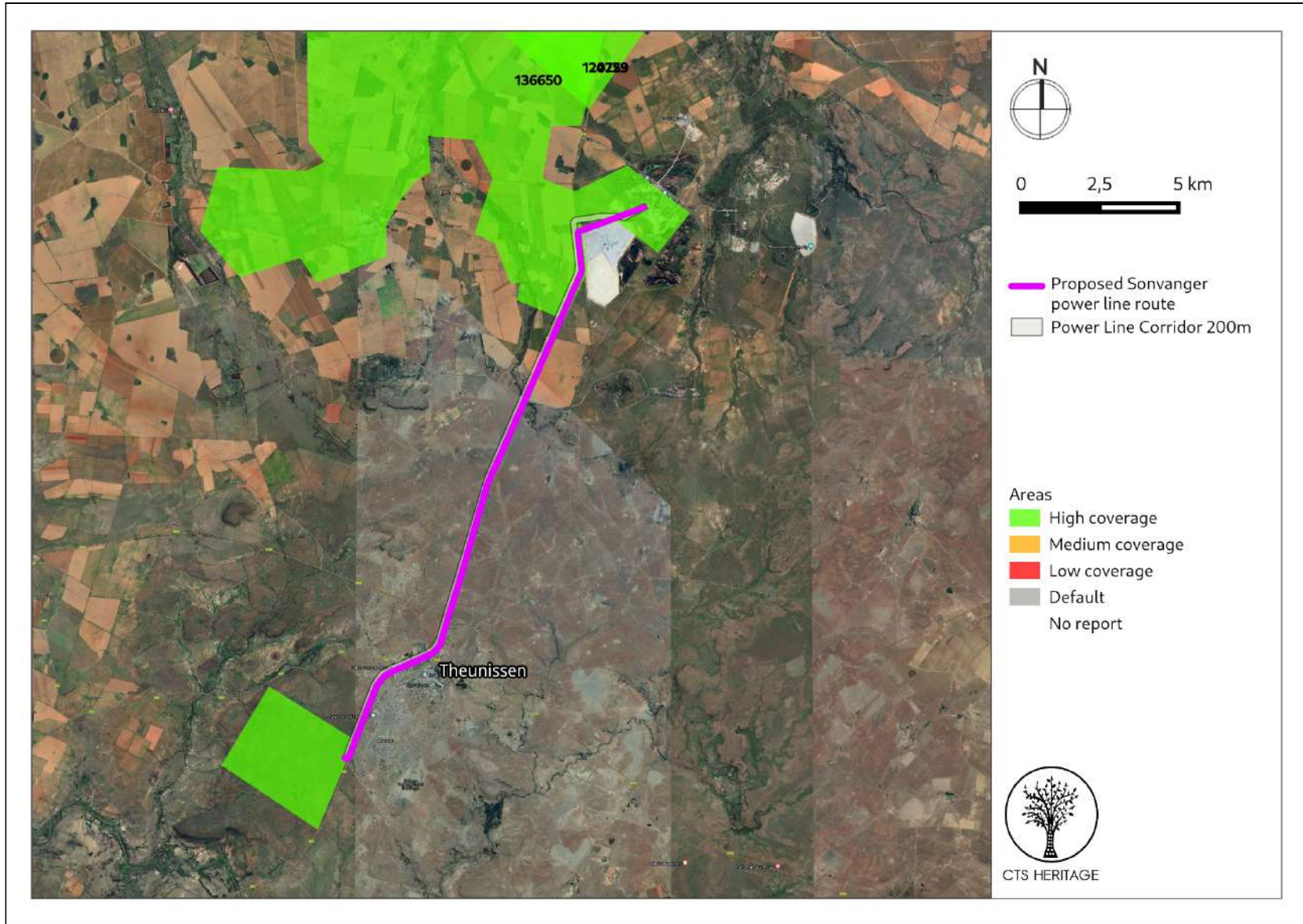


Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments surrounding the proposed development area within 5km, with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.

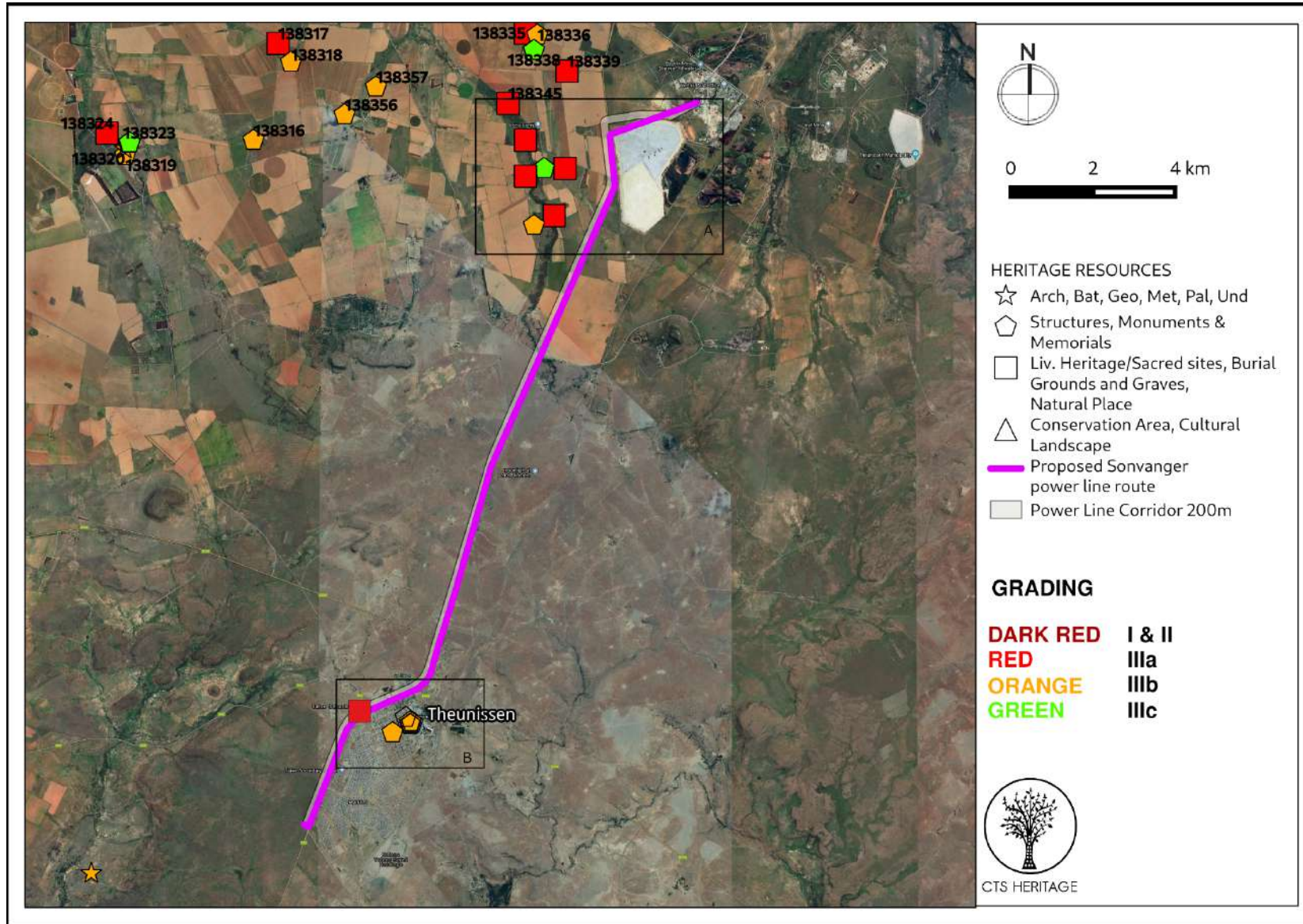


Figure 3. Heritage Resources Map. Heritage Resources previously identified in and near the study area. See insets a to b below with SAHRIS Site IDs indicated. Please See Appendix 4 for a full description of heritage resource types.



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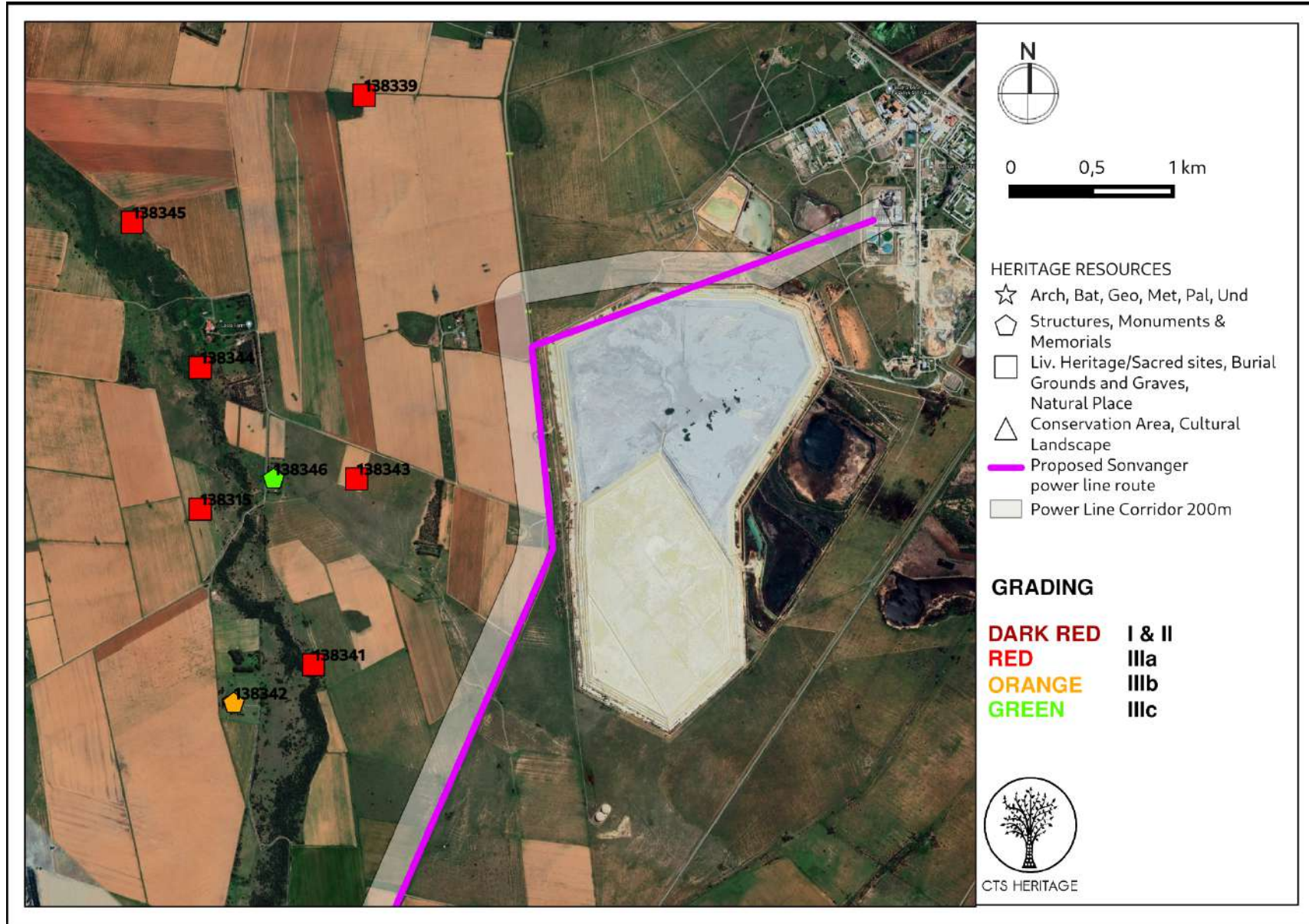


Figure 3a. Heritage Resources Map. Inset A

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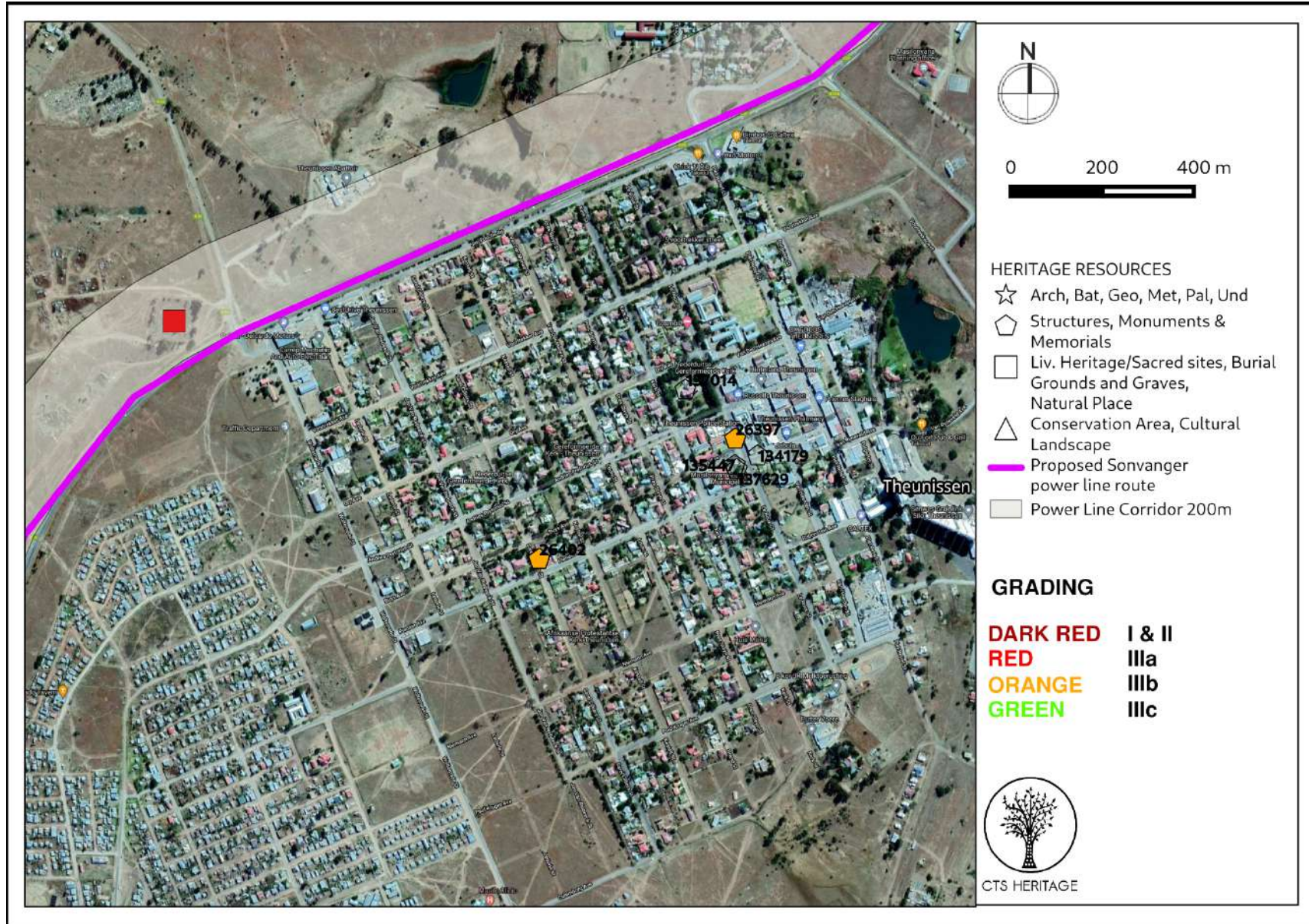


Figure 3b. Heritage Resources Map. Inset B

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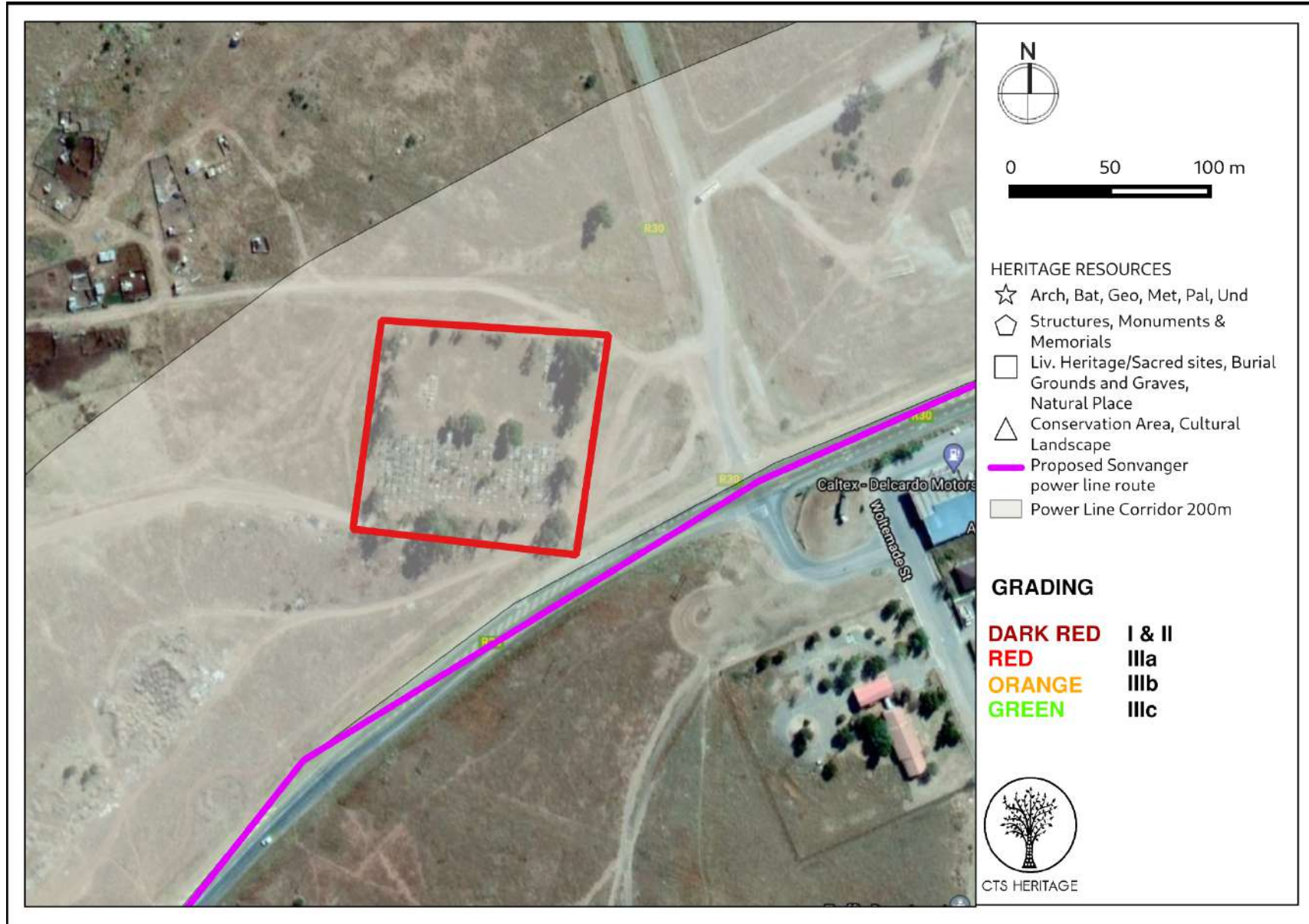


Figure 3c. Heritage Resources Map. Close-up map of the municipal cemetery located on the outskirts of Theunissen



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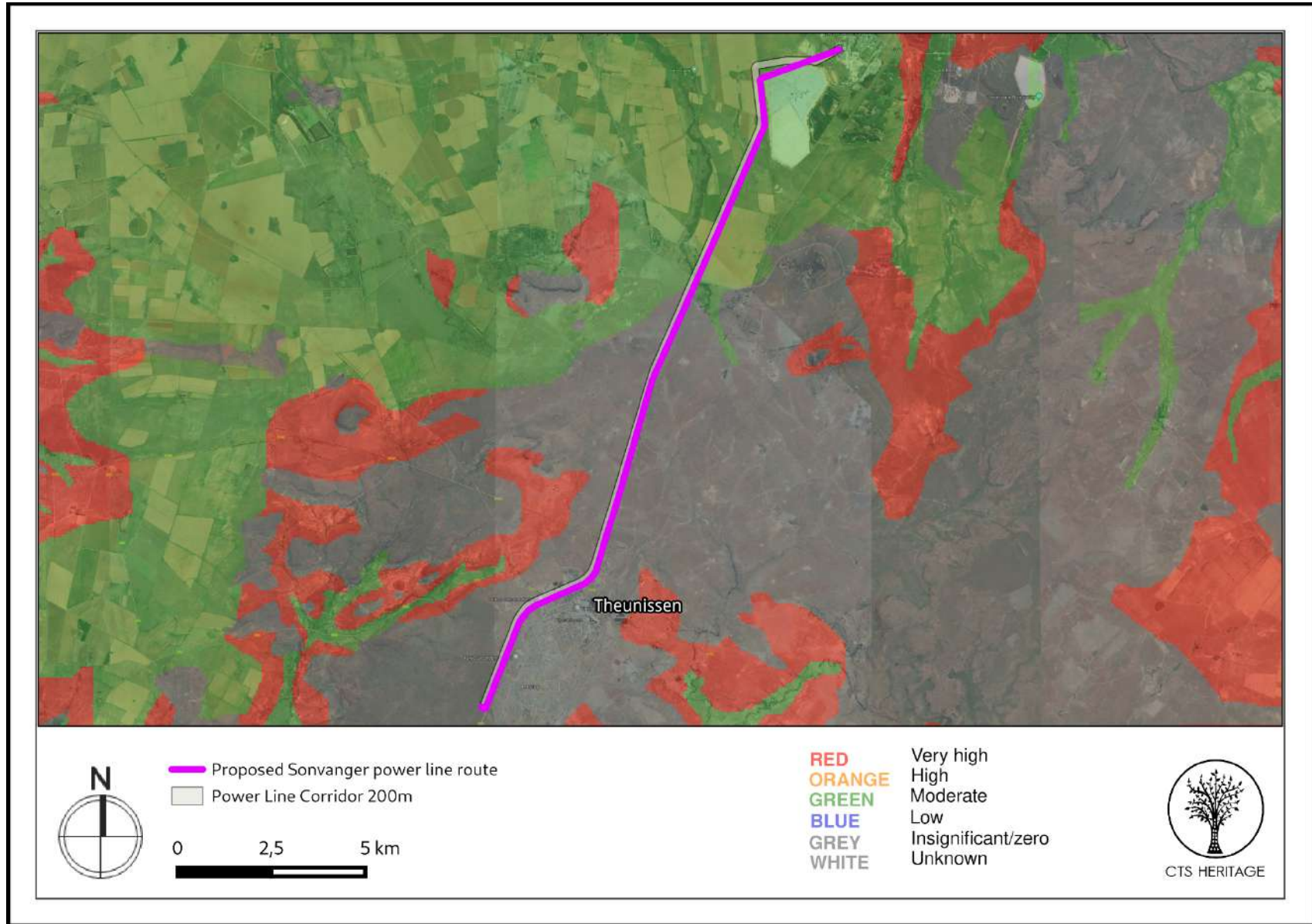


Figure 4a. SAHRIS Palaeosensitivity Map. Indicating zero to moderate fossil sensitivity underlying the study area. Please See Appendix 3 for a full guide to the legend.

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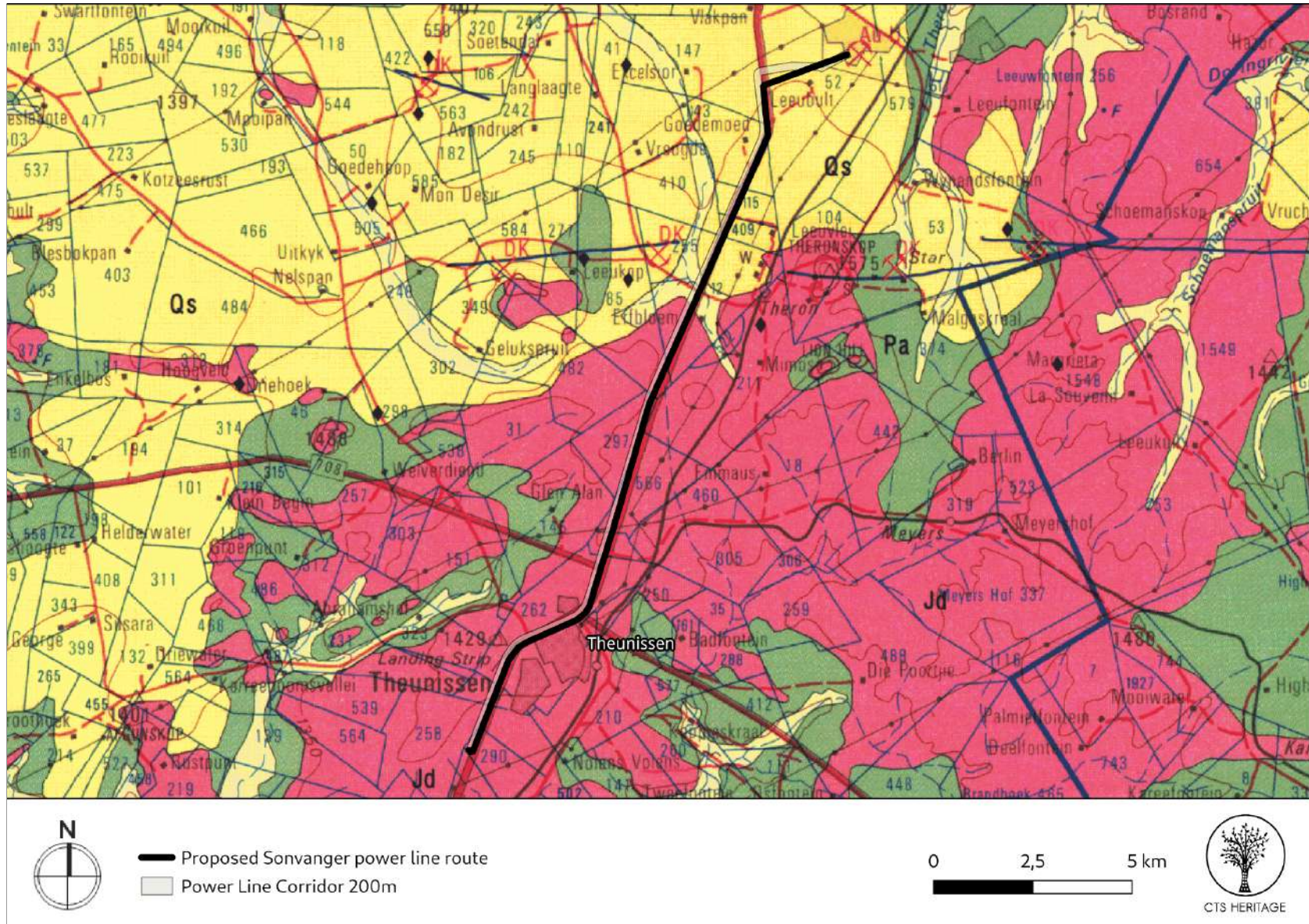


Figure 4b. Geology Map. Extract from the Council for GeoScience Map 2826 for Winberg indicating that the area proposed for development is underlain by Jd - Jurassic Dolerite and Qs - Quaternary Sands

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Figure 6a. Google Street View. Facing north along the R30

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Figure 6b. Google Street View. Facing south along the R30 towards Theunissen

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Figure 6c. Google Street View. Facing north along the R30

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Figure 6d. Google Street View. Facing south along the R30

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Figure 6e. Google Street View. Facing north along the R30 with the town of Theunissen visible to the right

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Figure 6f. Google Street View. Facing west along the R30 towards the municipal cemetery

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8. Heritage statement and character of the area

This application is for the proposed development of a power line that runs along the road reserve of the R30 from the Sonvanger PV facility located just outside of the town of Theunissen until the Beatrix Mine Sibanye Stillwater located approximately 18km northeast of Theunissen. According to Van Svhalikwyk (2014), “Very little is known about pre-colonial settlement in the region. This is probably the result of a very low occupation of the region by humans. This, in turn, is probably the result of the fact that there are very little resources, e.g. hills, outcrops and rivers in the region which were preferred by humans to settle in its vicinity. The town of Theunissen was laid out in 1907 on the farms Smaldeel and a portion of Poortje and attained municipal status in 1912. It was first known as Smaldeel, but the name was changed to Theunissen in honour of Commandant H. Theunessin, who obtained permission for its establishment (Raper 2004). Two formal cemeteries are located on the northern side of the town.” GoogleEarth Imagery of the R30 indicates a landscape that has been thoroughly transformed by agriculture. Furthermore, as the proposed alignment of the power line is located along an existing regional road, the R30, it is not anticipated that this proposed development will negatively impact on any significant cultural landscape heritage resources.

Few Heritage Impact Assessments have been completed in the vicinity of the proposed development (Figure 2). Van Schalkwyk (2014) completed an HIA for the proposed Sonvanger PV facility located southwest of Theunissen. He identified no heritage resources in his assessment. Birkholtz (2017) completed an HIA for the proposed Tetra4 Cluster 1 project which proposes to extend natural gas production operations within an existing Production Right, near the town of Virginia. Some of the HIA by Birkholtz (2017) overlaps with this project area. Birkholtz (2017) conducted a thorough desktop assessment of the area including the Battle of Zand River at the bridge on the road between Welkom and Theunissen located outside of this assessment area as well as the historic diamond mining activities in the area. In his field assessment, Birkholtz (2017) identified a number of cemeteries and historic structures as well as two scatters of Middle and Later Stone Age lithics - both determined to have contextual significance and are graded III C. Based on the known archaeological sensitivity of the broader area, as well as the previously disturbed nature of the development area along the R30 and the limited footprint anticipated for the proposed power line, it is not anticipated that the proposed development will negatively impact on any significant archaeological resources.

It is noted that there is an existing municipal cemetery located within the powerline corridor (Figure 3c and 6f), this is a modern cemetery managed by the municipality which is clearly demarcated. The proposed powerline will not impact on this cemetery through the careful placement of pylons and the location of the powerline alignment as close to the R30 as possible. While it remains possible that burials may be located outside of the cemetery and within the power line corridor, impact to these sites can be avoided through strategic placement of the pylons.

According to the SAHRIS Palaeosensitivity Map (Figure 4a), the area proposed for development is underlain by sediments of zero and moderate palaeontological sensitivity. According to the extract from the Council of GeoScience map for Winberg 2826 (Figure 4b), the sediments underlying the development area consist of Jurassic Dolerite (zero paleontological sensitivity) and Quaternary Sands (moderate sensitivity). According to a Desktop Palaeontological Assessment completed by Bamford (2021) for this project, “The proposed site route in the northern section lies on the Quaternary sands, alluvium and calcretes that are non-fossiliferous unless there are traps for fossils such as paleo-pans or palaeo-springs. No such feature is visible on the satellite imagery. The southern half is on non-fossiliferous dolerite of Jurassic age. Nonetheless, a Fossil Chance Find Protocol should be added to the EMP. Based on this information it is recommended that no palaeontological site visit is required unless fossils are found when excavations for foundations commence.”

RECOMMENDATION:

As it is not likely that the proposed development will impact significant heritage resources, it is recommended that no further heritage studies are required for this proposed development. A Chance Fossil Finds Procedure must be implemented for the duration of construction activities.



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APPENDIX 1

List of heritage resources within close proximity to the development area

Site ID	Site no	Full Site Name	Site Type	Grading
26449	9/2/325/0002	Sandstone school building, Coenraad Snyman Primary School, Modderpoort, Ladybrand District	Building	Grade IIIb
26418	9/2/334/0002-001	Old turbine building, Goedemoed, Rouxville District	Building	Grade IIIb
26414	9/2/334/0002-002	Old school building, Goedemoed, Rouxville District	Building	Grade IIIb
26415	9/2/334/0002-003	Old church building, Goedemoed, Rouxville District	Building	Grade IIIb
26402	9/2/338/0002	Old Nederduitse Gereformeerde Church parsonage, 43 Sarel Cilliers Street, Theunissen	Building	Grade IIIb
26397	9/2/338/0004	Town Hall, Le Roux Street, Theunissen	Building	Grade IIIb
26383	9/2/346/0001	First dwelling-house of President J P Hoffman and the family cemetery, Hoffmansrust, Wepener District	Burial Grounds & Graves	Grade IIIa
39334	Vetchkop		Archaeological	Grade IIIb
26497	9/2/311/0002	Old Farmhouse, Merumetsu, Excelsior District	Building	Grade IIIb
29638	Mimosa		Archaeological	Grade IIIb
134179	Town hall Le Roux Street, Theunissen	Town hall Le Roux Street, Theunissen	Building	
135447	DC18/NAMM/0002	Theunissen Trek Monument, Masilonyana Local Municipality, Theunissen	Monuments & Memorials	
92773	9/2/303/0005	Baden Baden	Palaeontological	
138312	TRC1-001	TETRA4 CLUSTER 1	Structures	Grade IIIb

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138313	TRC1-002	TETRA4 CLUSTER 1	Structures	Grade IIIb
138314	TRC1-003	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138315	TRC1-004	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138316	TRC1-005	TETRA4 CLUSTER 1	Building	Grade IIIb
138317	TRC1-006	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138318	TRC1-007	TETRA4 CLUSTER 1	Structures	Grade IIIb
138329	TRC1-018	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138331	TRC1-020	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138332	TRC1-021	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138333	TRC1-022	TETRA4 CLUSTER 1	Building	Grade IIIc
138335	TRC1-024	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138336	TRC1-025	TETRA4 CLUSTER 1	Building	Grade IIIb
138338	TRC1-026	TETRA4 CLUSTER 1	Structures	Grade IIIc
138339	TRC1-027	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138341	TRC1-029	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138342	TRC1-030	TETRA4 CLUSTER 1	Building	Grade IIIb
138343	TRC1-031	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138344	TRC1-032	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138345	TRC1-033	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa

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138346	TRC1-034	TETRA4 CLUSTER 1	Building	Grade IIIc
138356	TRC1-044	TETRA4 CLUSTER 1	Building	Grade IIIb
138357	TRC1-045	TETRA4 CLUSTER 1	Structures	Grade IIIb
138358	TRC1-046	TETRA4 CLUSTER 1	Building	Grade IIIb
137014	NG Kerk, Theunissen	NG Kerk, Theunissen	Monuments & Memorials	
137629	Town Hall, Theunesen	Town Hall, Theunesen	Monuments & Memorials	

APPENDIX 2 Reference List

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
120259	PIA Desktop	Barry Millstead		Desktop Palaeontological Heritage Impact Assessment Report for the Oryx Solar Energy Facility
124729	Heritage Scoping	Jaco van der Walt	08/05/2013	Archaeological Scoping Report for the Proposed Oryx Energy Facility
136650	Archaeologic al Specialist Reports	Jaco van der Walt	30/08/2013	Archaeological Impact Assessment report for the Oryx Solar Energy Facility
	Final HIA	Johnny van Schalkwyk	07/2014	Cultural heritage impact assessment for the PROPOSED DEVELOPMENT OF PHOTOVOLTAIC POWER PLANTS ON SEVEN DIFFERENT LOCATIONS IN NORTH WEST AND FREE STATE PROVINCES: Case 5729
398206	Final HIA	Polke Birkholtz	28/04/2017	PROJECT NAME: PROPOSED TETRA4 CLUSTER 1 GAS PRODUCTION PROJECT HERITAGE STUDY: IMPACT LEVEL REPORT

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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)
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.

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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 PALAEOLOGICAL SENSITIVITY

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

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

DETERMINATION OF THE COVERAGE RATING ASCRIBED TO A REPORT POLYGON

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

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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.