

CTS HERITAGE

HERITAGE SCREENER

CTS Reference Number:	CTS24_053
Client:	EnviroWorks
Date:	April 2024
Title:	Proposed prospecting on various properties near Bothaville in the Free State

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

RECOMMENDATION

Based on the information available, it is unlikely that the proposed prospecting will negatively impact on significant heritage resources due to the limited footprint of the activity and as such, no further specialist assessments are recommended at this stage. Should mining proceed, a full HIA will be required. It is recommended that Chance Fossil Finds Procedure (attached) be implemented for the duration of prospecting activities.

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1. Proposed Development Summary

The application area is located approximately 30 km east of Bothaville town in the Free State Province of South Africa. It covers an area of 18 627.1944 ha and extends over 51 farm portions.

The proposed prospecting programme will be completed within five (5) years. Based on information presented in the accompanying Prospecting Work Programme, it is anticipated that the following invasive and non-invasive activities will be undertaken during prospecting:

Invasive prospecting activities:

1. 6 diamond core drillholes

Non-invasive prospecting activities:

1. Data acquisition
2. Database, map generation and development of geological modelling
3. Field visits
4. Geophysical surveys
5. Re-visit key historical drillhole core, and re-logging and re-sampling
6. Logging and sampling of new drillholes
7. Code compliant resource estimation
8. Concept study

2. Application References

Name of relevant heritage authority(s)	SAHRA
Name of decision making authority(s)	Department of Mineral Resources and Energy (FS)

3. Property Information

Latitude / Longitude	-27.43602,26.86942
Erf number / Farm number	Portion 1 and the Remainder of the Farm Damplaats No. 220

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	<p>Portion 1, 2 and the Remainder of the Farm Roode Rand No. 35 Portion 1 and the Remainder of the Farm Weestevreden No. 269 Portion 1 and the Remainder of the Farm Tarantaaldraai No. 156 Portion 1 and the Remainder of the Farm Eureka No. 761 Portion 1, 2 and the Remainder of the Farm Concord No. 392 Portion 1, 2 and the Remainder of the Farm Zoetlaagte No. 194 Portion 1 and the Remainder of the Farm Lekkerleven No. 308 Portion 1, 2, 3, 4 and the Remainder of the Farm Blesboklaagte No. 250 Portion 2, 3, 8, the Remainder of the Portion 1 and the Remainder of the Farm Rustpan No. 1174 Portion 1, 2 and the Remainder of the Farm Hebron No. 107 Portion 1 of the Farm Stukpan No. 435 Remainder of the Farm Gelukskraal No. 56 Remainder of the Farm Eden No. 454 Brak-spruit No. 222 Mealie Bult No. 20 Beestkraal-Noord No. 186 Lyden No. 264 Spitshoek No. 868 Uitkijk No. 147 Doorndraai West No. 154 Doorndraai East No. 235 Doornheuvel No. 242 Kaalplaats No. 51 Diepwater No. 50 Annasville No. 1196 Taljaard No. 300 Vergenoeg No. 89 Vlakpan No. 541</p>
Local Municipality	Nala
District Municipality	Lejweleputswa
Province	Free State
Current Use	The application area is predominantly utilised for agricultural purposes, natural areas, livestock and game farming. Infrastructure such as secondary tar roads, gravel roads and homesteads occur within proximity of the project area. In terms of land cover, the application area is covered by low shrubland, cultivated fields (high and medium use), grassland and woodland/open bush.
Current Zoning	Agriculture

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4. Nature of the Proposed Development

Total Area	The application area will not exceed 18 627.1944 ha of which up to 0.54 ha (development footprint) will have been disturbed by the prospecting operations at the time of closure.
Depth of excavation (m)	A total of 6 diamond boreholes to a depth of 700m each.
Height of development (m)	N/A. Temporary infrastructure will be installed to drill the boreholes. Infrastructure will be removed upon completion of the works.

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-
	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

NA

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

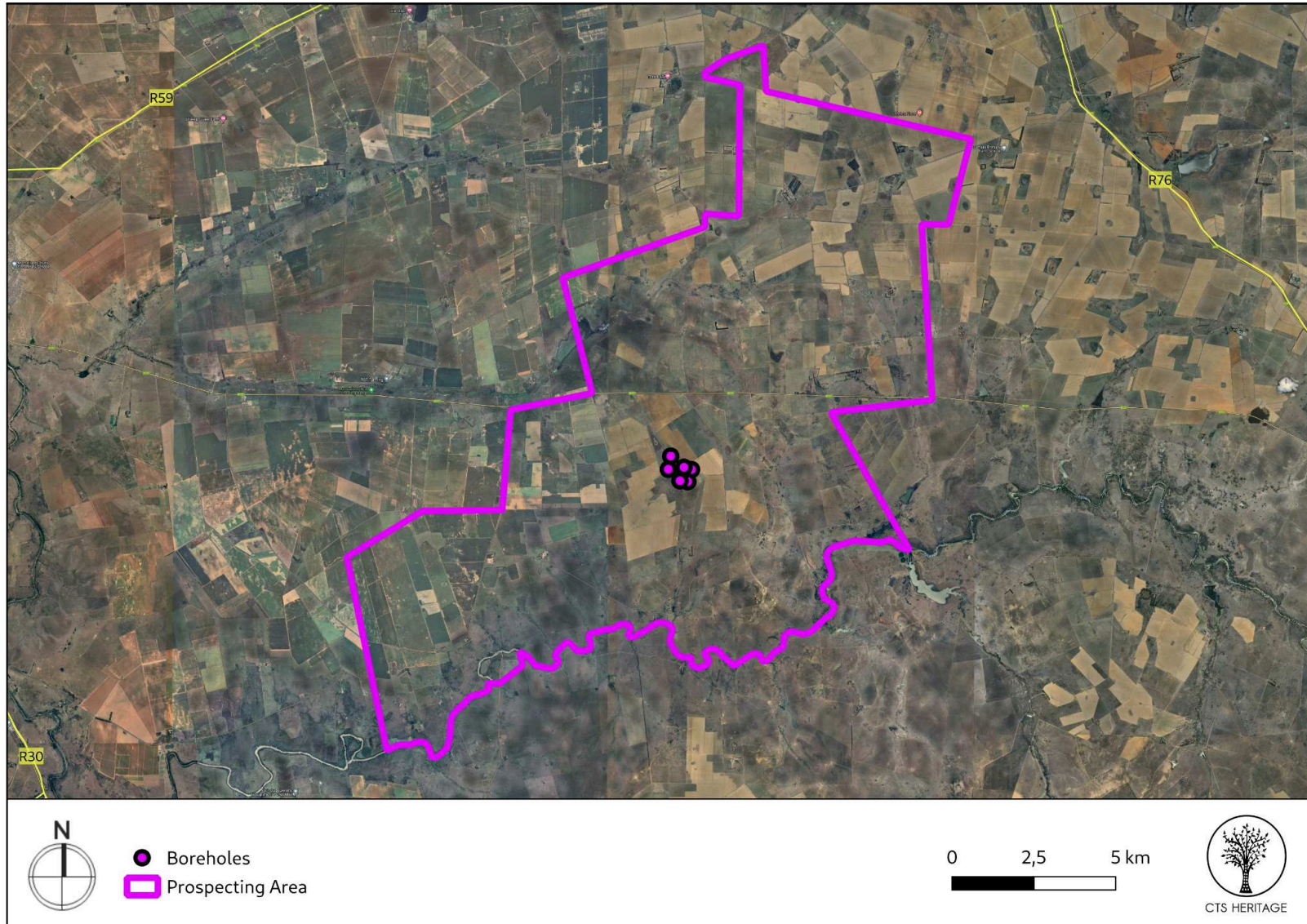


Figure 1b. Overview Map. Satellite image (2024) indicating the proposed development area



Figure 1c. Overview Map. Satellite image (2024) indicating the proposed boreholes



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● Boreholes
■ Prospecting Area

0 100 200 m



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Figure 1d. Overview Map. Satellite image (2024) indicating the proposed boreholes 3 and 4

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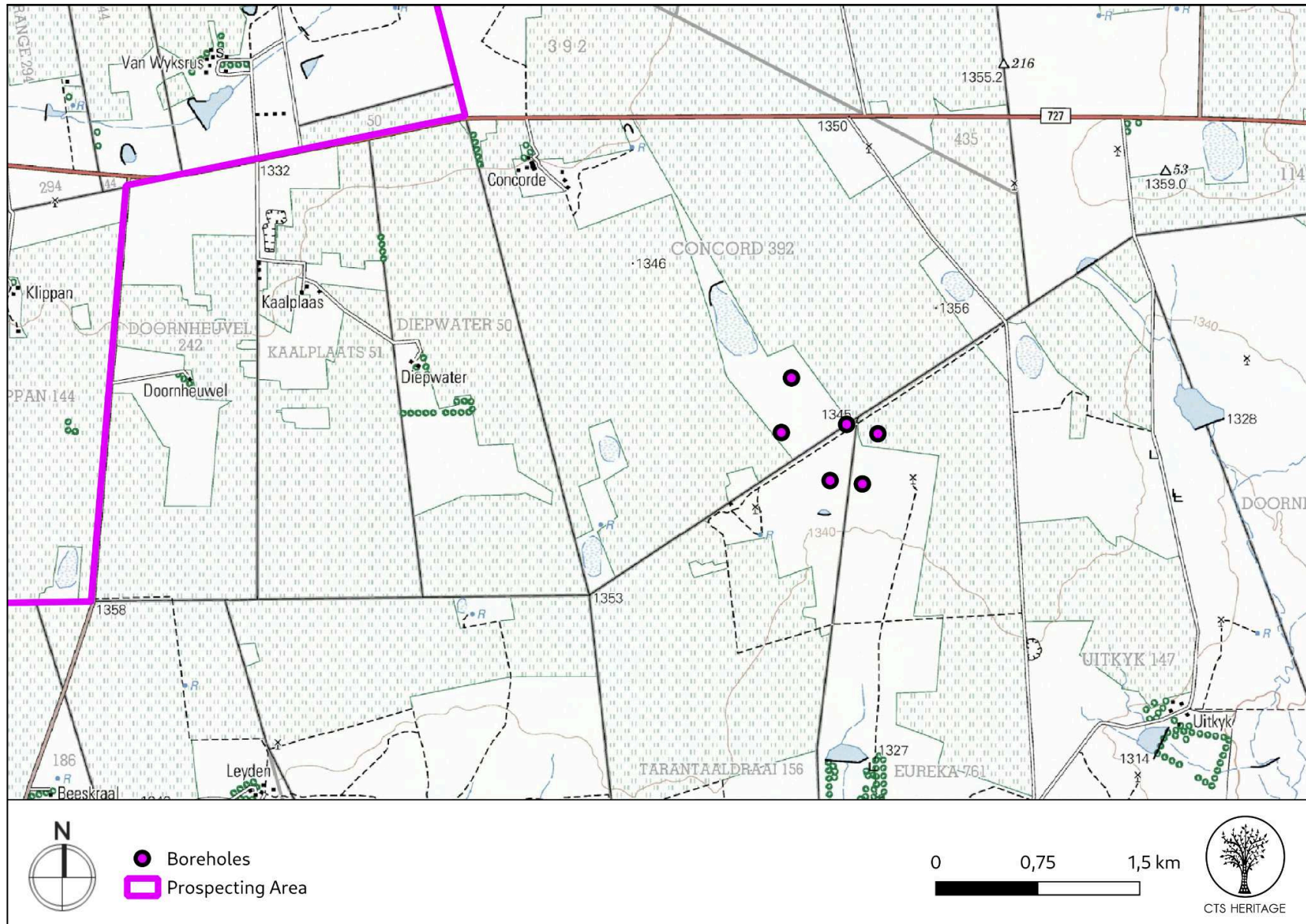


Figure 1e. Overview Map. Extract from the 1:50 000 Topo map indicating the proposed boreholes

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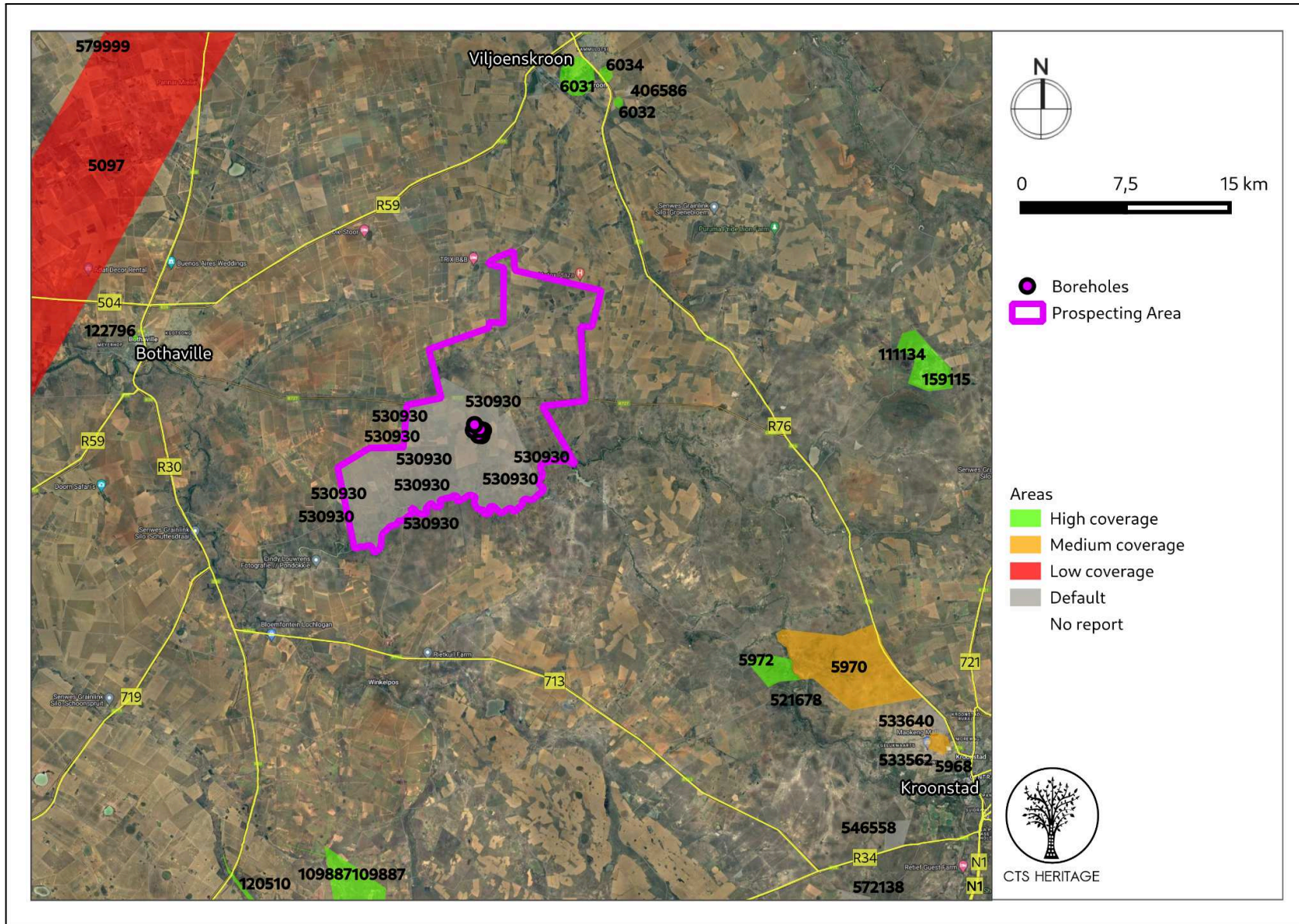


Figure 2a. Previous HIAs Map. Previous Heritage Impact Assessments covering the proposed development area with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.

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Figure 2b. Previous HIAs Map. Previous Heritage Impact Assessments indicating the area surveyed by NGT in 2019

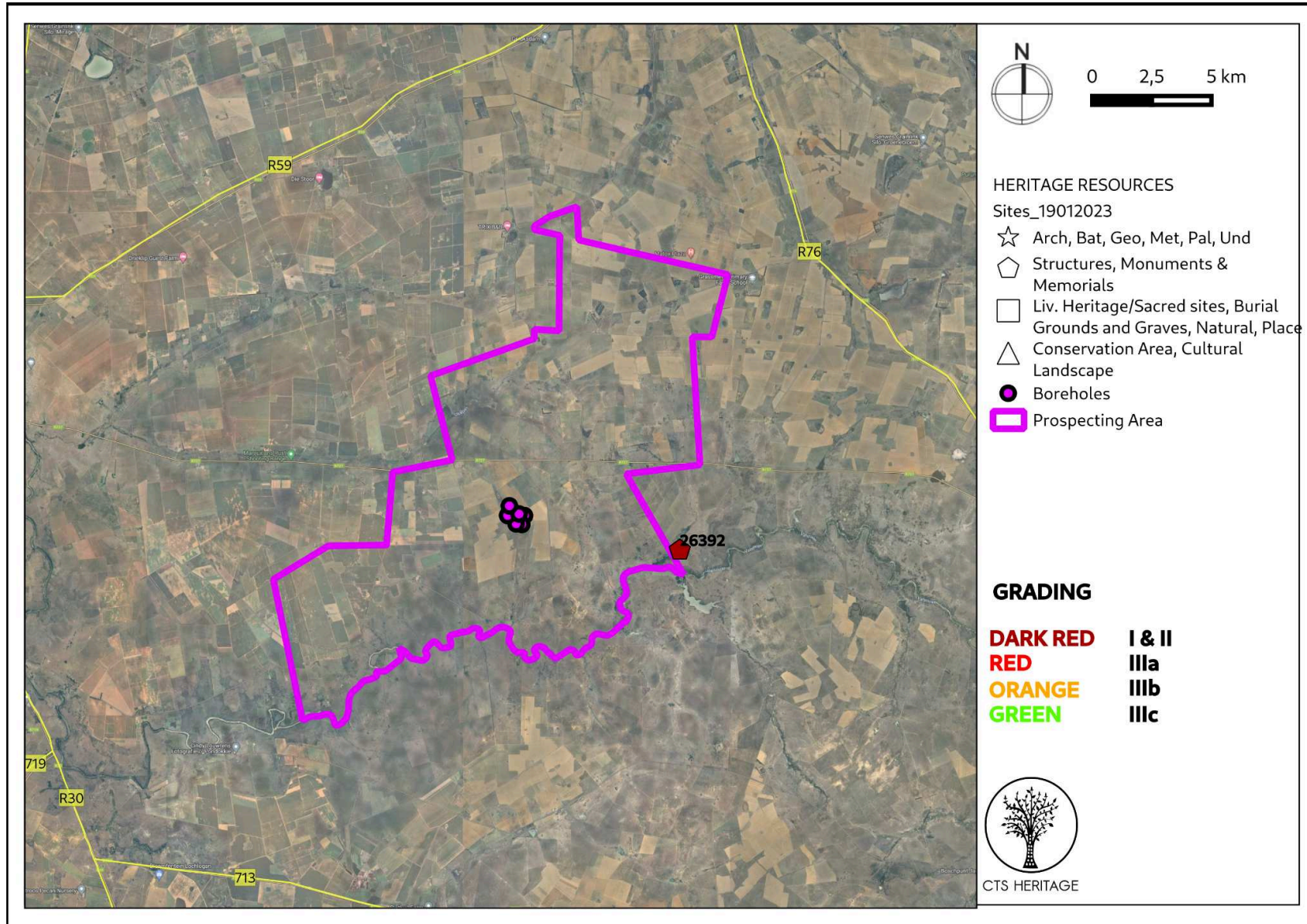


Figure 3. Heritage Resources Map. Heritage Resources previously identified within the study area, with SAHRIS Site IDs indicated in the insets below. Please See Appendix 4 for full description of heritage resource types.

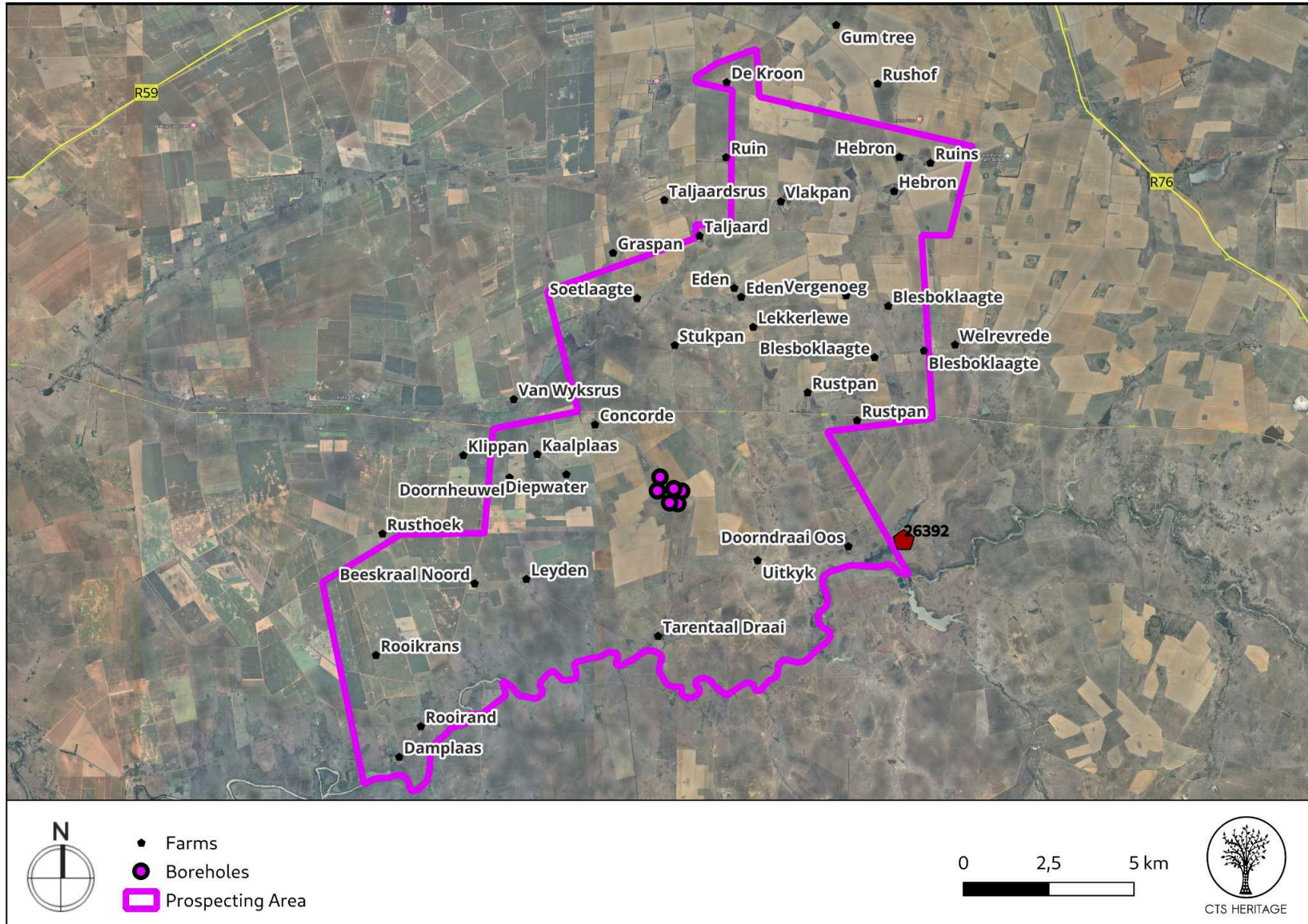


Figure 3b. Heritage Resources Map Potential sites of heritage sensitivity



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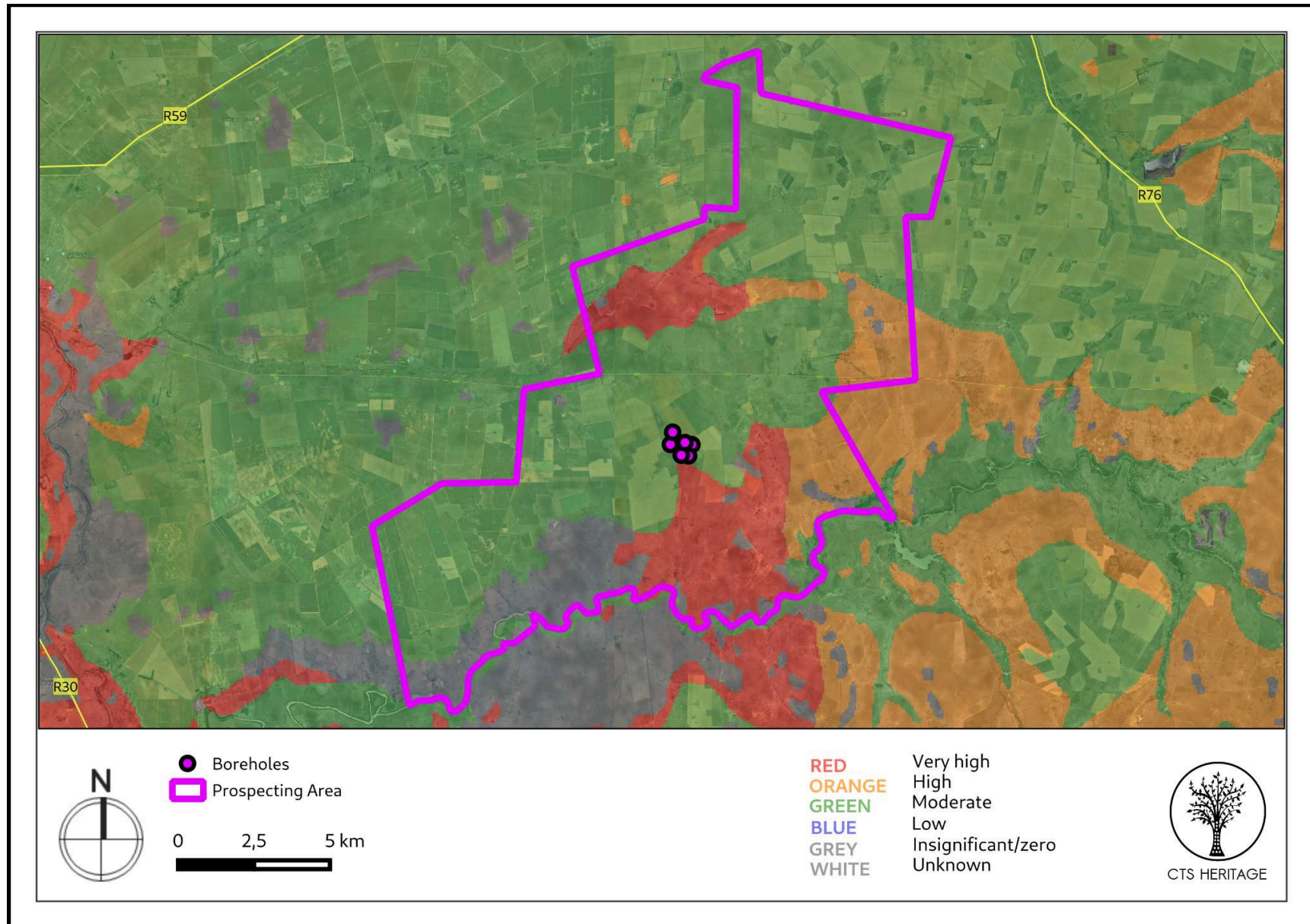
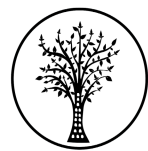


Figure 4a. Palaeosensitivity Map. Indicating fossil sensitivity underlying the study area. Please See Appendix 3 for a full guide to the legend.

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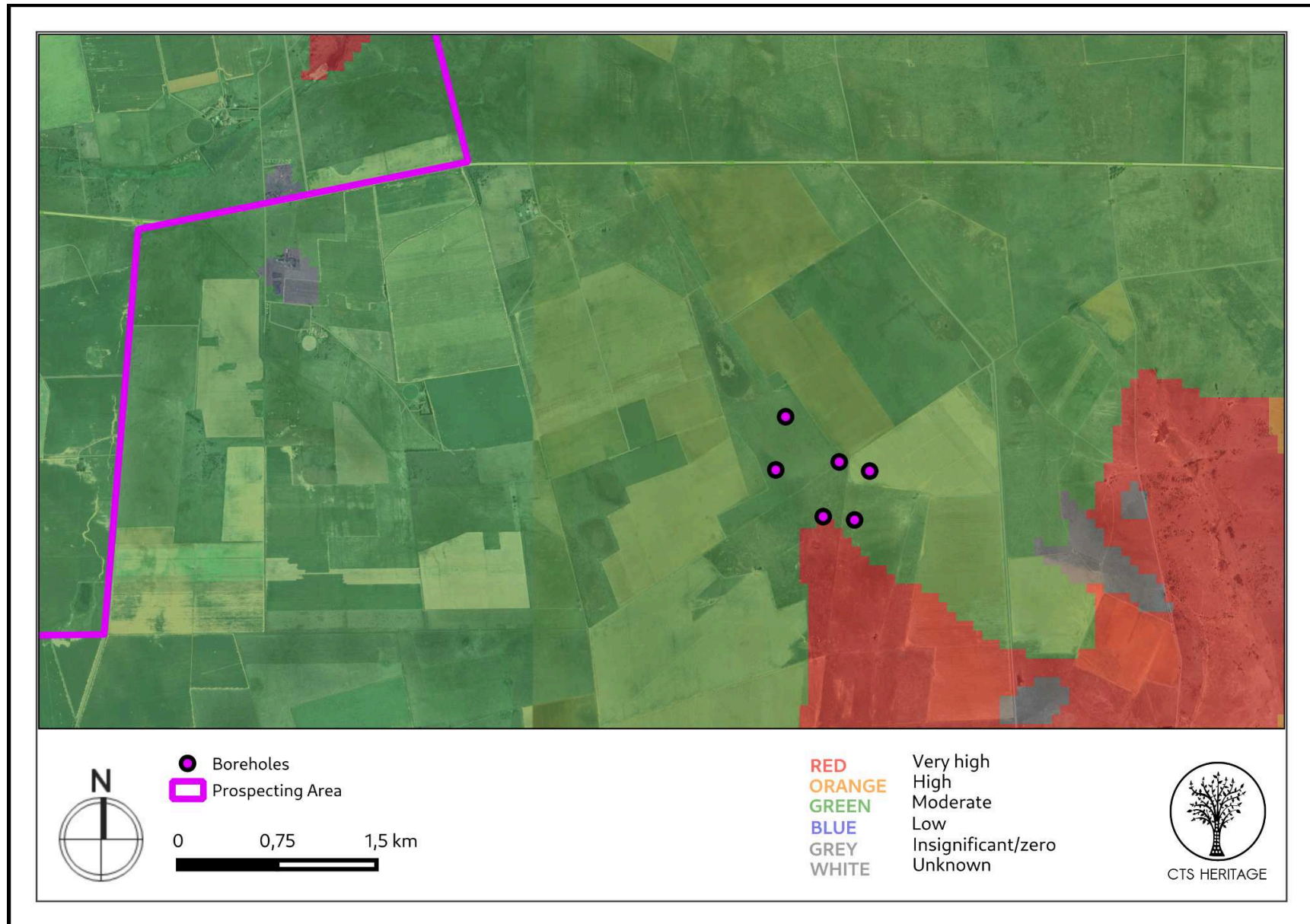


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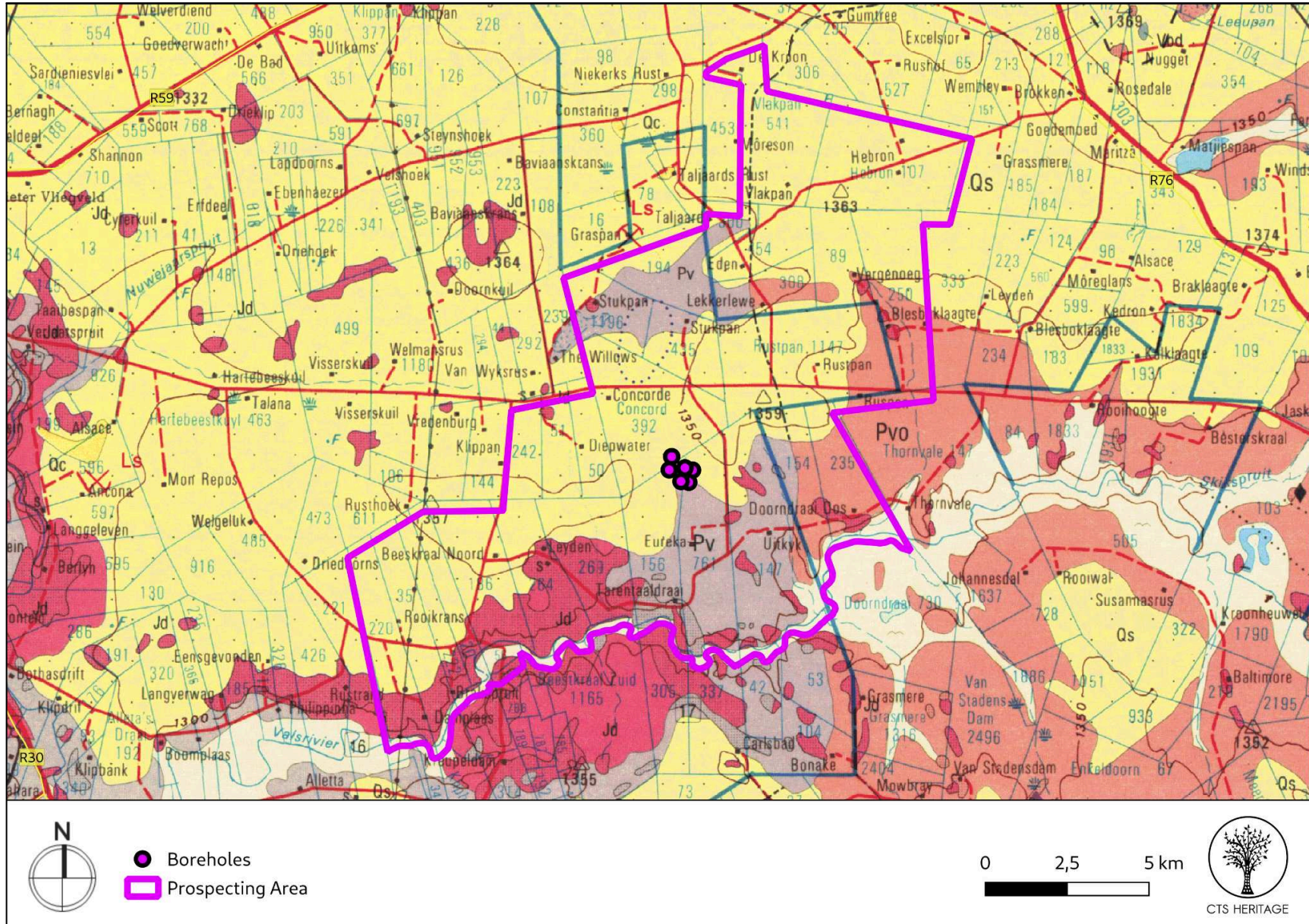


Figure 5. Geology Map for Kroonstad 2726 - indicates the prospecting area is underlain by Qs: Quaternary sediments and Pv: Vryheid Formation of the Ecca Group



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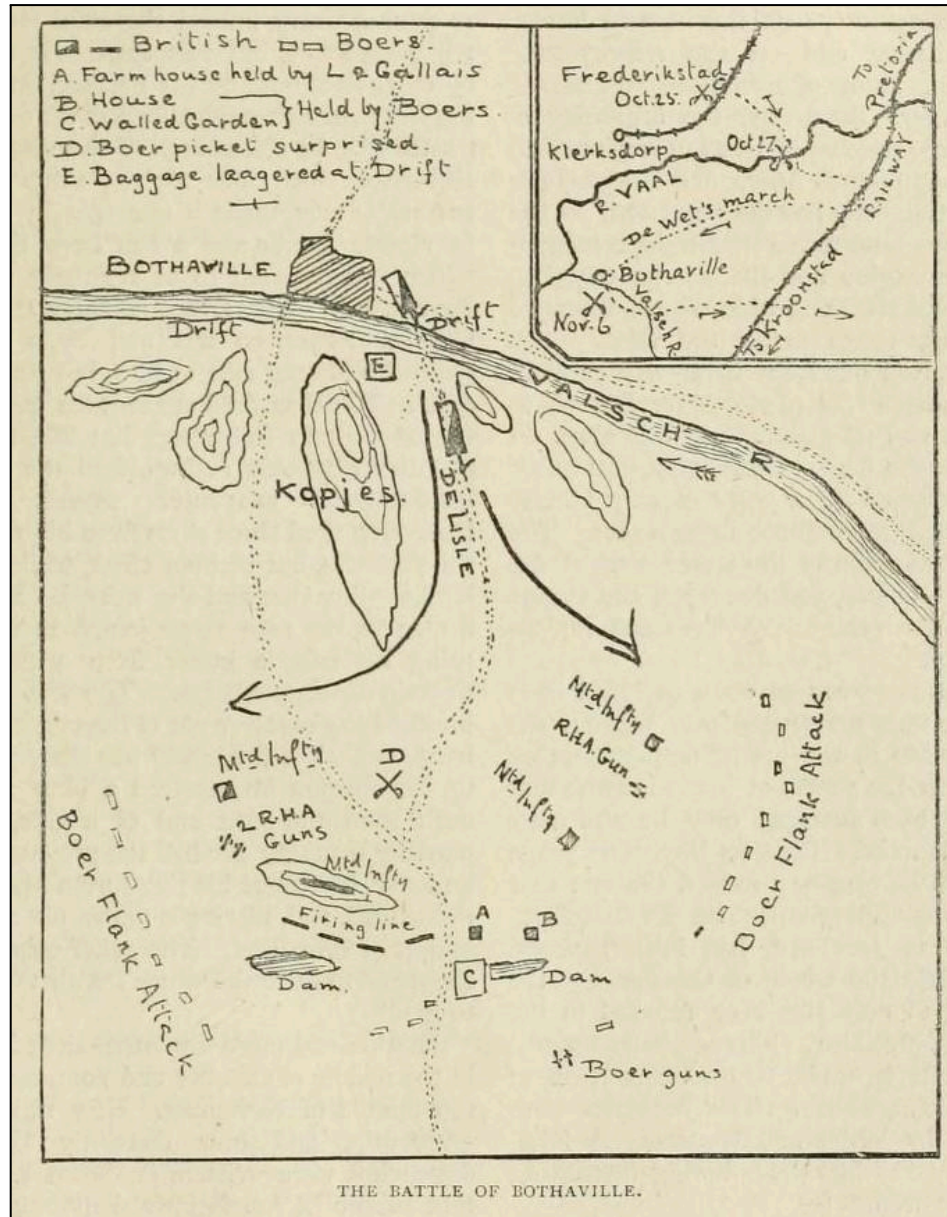


Figure 6. Map indicating the location of the Battle of Bothaville

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8. Heritage Assessment

Background

This application is submitted as part of the assessment process for a proposed prospecting application consisting of 6 boreholes. Due to the nature and scale of the proposed prospecting, none of the activities listed in section 38(1) of the NHRA is triggered. The area proposed for the boreholes has been previously subjected to a heritage impact assessment process in 2019 (NGT, SAHRIS ID 530930). This report is referred to extensively below.

The area proposed for prospecting is located east of Bothaville and south of Viljoenskroon. A 'church town', Botharnia, was established in 1891 on a portion of Gladdedrift farm, by Voortrekker JP van Wyk who left Pretoria after religious persecution. The town was renamed Bothaville in 1893, after Theunis Louis Botha, the original owner of the farm. The Battle of Doornkraal took place some distance south of town on 6 November 1900, and will not be impacted by the proposed prospecting activities (Figure 6). Doornkraal Monument is a granite memorial built in honour of Boers who died here in the surprise attack by British soldiers. Some of the Boer soldiers were buried in a communal grave. The town received municipal status in 1914.

Archaeology and Built Environment Heritage

According to Van Schalkwyk (2013), "The cultural landscape qualities of the region essentially consist of a rural setup. In this the human occupation is made up of a pre-colonial element consisting of limited Stone Age and Iron Age occupation, as well as a much later colonial (farmer) component. This was soon followed by the development of a number of urban centres or towns. Originally these mostly served the surrounding farming communities, but with the discovery of the Free State Gold Fields, they expanded rapidly in order to serve this industry as well."

Prior to colonial settlement in 1855, the area proposed for development formed part of a landscape that was occupied by indigenous Khoe herders and San hunter-gatherers. These indigenous communities were displaced by Bantu-speaking people who began to occupy the area in the Iron Age. According to Van Schalkwyk (2013), "Sites dating to the Late Iron Age are known to occur in the region, especially... in the vicinity of the Sandrivier, whereas some are known to occur to the northwest of Ventersburg. These are typical stone walled sites that are linked with Sothospeakers and date to the period after 1600." As such, it is possible that Early, Middle or Later Stone Age artefacts may be located within the broader area. Furthermore, it is possible that evidence of Iron Age settlement may also be located within the proposed area.

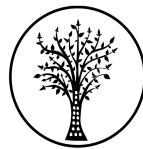
The Thornvale Provincial Heritage Site is located approximately 10km east of the proposed borehole locations (SAHRIS Site ID 26392, Figure 3). This site was declared as a National Monument in 1992. The gazette notice reads "THE HOMESTEAD AND THE SANDSTONE COOLING CHAMBER ON THE FARM THORNVALE 147, IN THE DISTRICT OF VILJOENSKROON Description The homestead and the sandstone cooling chamber, situated on a portion of the farm Thornvale 147, in the District of Viljoenskroon (formerly No. 428, situated in the District of Kroonstad". No impact to the PHS is anticipated, however impacts to its sense of place must be assessed should mining proceed.

NGT (2019) completed a field assessment of the area proposed for the boreholes. They note that "The physical survey focused on the area proposed for prospecting, specifically the eight proposed drillhole locations located on the farms Concord 392 (Portion RE), Eureka 761 (Portion 1) and Tarantaaldraai 156 (Portion 1)... The proposed location for the drillholes are situated in a dry grassland area that is used for agricultural activities, including the growing of cornfield and cattle grazing. Consequently, the areas are very disturbed by these activities. No archaeological resources or burial grounds or graves were identified at the proposed locations for the drillholes, or the 500 m zone of influence surrounding the drillhole locations." As such, it is very unlikely that the proposed boreholes will impact on significant archaeological or built environment heritage resources. Should mining proceed, a full HIA including a full archaeology assessment is required.

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Palaeontology

According to the SAHRIS Palaeosensitivity Map, the area proposed for prospecting is underlain by sediments of moderate and high palaeontological sensitivity (Figure 4a). According to the extract from the CGS Map for Kroonstad, the boreholes are located in an area underlain by Quaternary Sands and the Vryheid Formation of the Ecca Group. According to a PIA completed for a prospecting application that overlays the area assessed herein (NGT, 2019), “the proposed sites lie on Quaternary sands which overlie shales of the Vryheid Formation of the Ecca Group. Beneath these are the Central Rand Group, Witwatersrand Supergroup of the Free State Goldfield. Only the Vryheid Formation of the Karoo Supergroup is potentially fossiliferous. It is composed predominantly of mudstones, sandstones and shales and could have fossil plants typical of the Glossopteris flora. The Jurassic dolerite dykes and overlying Quaternary sands do not preserve fossils.”

Bamford’s report (2019) confirms that “A Fossil Chance Find Protocol should be followed once drilling commences. If any fossils are discovered by the responsible person in charge, they should be rescued and put aside for a professional palaeontologist to assess. As far as the palaeontology is concerned the project may proceed.”

Due to the limited nature and scale of the proposed borehole excavations, it is very unlikely that the proposed boreholes will impact on significant palaeontological heritage. However, it is recommended that the Chance Finds Protocol is implemented for the duration of prospecting activities. Should mining proceed, a full HIA including a full PIA is required.

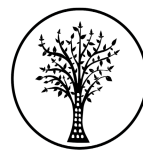
RECOMMENDATION

Based on the information available, it is unlikely that the proposed prospecting will negatively impact on significant heritage resources due to the limited footprint of the activity and as such, no further specialist assessments are recommended at this stage. Should mining proceed, a full HIA will be required. It is recommended that Chance Fossil Finds Procedure (attached) be implemented for the duration of prospecting activities.

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Table 2: Impact Assessment Table: Impacts to heritage resources from the proposed prospecting including archaeology, palaeontology, built structures and the cultural landscape

Aspect	Score	Definition
Nature	-1	Likely to result in a negative impact
Extent	1	Impacts limited to the specific activity
Duration	5	Any impacts will be permanent
Magnitude/Intensity	5	Any impacts will be significant
Reversibility	5	Irreversible Impact
Probability	1	Impacts are improbable due to the limited nature of the activity and is distance from any known resources

$$C = (1+5+5+5)/4$$

$$C = 4 \times -1$$

$$C = -4$$

$$ER = -4 \times 1$$

Environmental Risk Score is <9: LOW

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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	Notes
26392	9/2/341/0002	Farmhouse and cooler, Thornvale, Viljoenskroon District	Building	Grade II	National monument

APPENDIX 2

Reference List with relevant AIAs and PIAs

Heritage Impact Assessments				
Case ID	Report Type	Author/s	Date	Title
530930	HIA	Nkosinathi Tomose	28/02/2019	Basic assessment report for the amendment of an existing prospecting right and environmental authorisation for the Bothaville NE Ext A situated in the Free State 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)
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

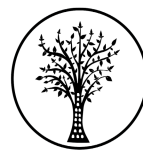
Full guide to Palaeosensitivity Map legend

	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.

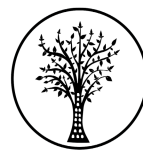
This recommendation is made in instances in which there are already some studies undertaken in the area and/or in the adjacent area for the proposed development. Further studies in a limited HIA may include:

- 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

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- 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.

APPENDIX 5 -Summary of Specialist Expertise

Jenna Lavin, an archaeologist with an MSc in Archaeology and Palaeoenvironments, and currently completing an MPhil in Conservation Management , heads up the heritage division of the organisation since 2016, and 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. 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 on the Executive Committee 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. Recently, Jenna has been responsible for conducting training in how to write Wikipedia articles for the Africa Centre's WikiAfrica project.

Since 2016, Jenna has drafted over 100 Heritage Impact Assessments and Screening Assessments throughout South Africa.

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