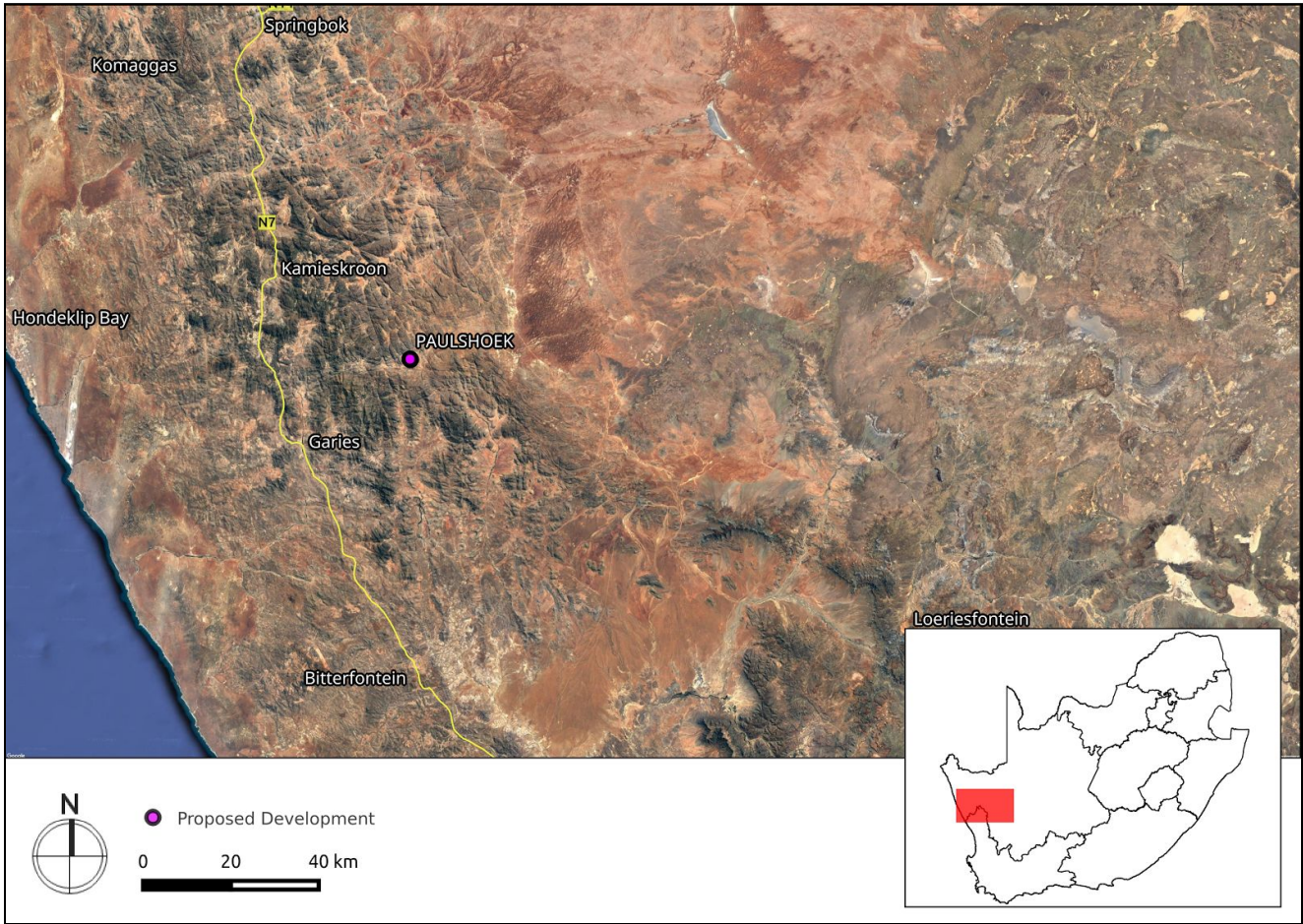


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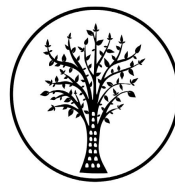
## HERITAGE SCREENER

CTS Number:	Reference	<b>CTS17_159</b>
SAHRIS Case ID:		
Client:		<b>Enviro Africa</b>
Date:		<b>9 November 2017</b>
Title:		<b>Paulshoek Bulk Water Supply</b>
 <p><b>Figure 1a. Satellite Map</b> indicating the location of the proposed development in the Northern Cape Province</p>		
Recommendation by CTS Heritage Specialists: ( <b>Type 2</b> )	<b>RECOMMENDATION:</b> The heritage resources along the routes proposed for development are only partially recorded See Section 8 for full recommendations.	

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## 1. Proposed Development Summary

The proposed Paulshoek Bulk Water Supply System includes the following:

- Equipment for existing boreholes,
- construction of a 228Kl steel panel reservoir,
- installation of approximately 3.5km of pipelines,
- construction of a Water Treatment Works (desalination plant) and associated evaporation ponds (waste brine).

## 2. Application References

<b>Name of relevant heritage authority(s)</b>	SAHRA
<b>Name of decision making authority(s)</b>	DENC

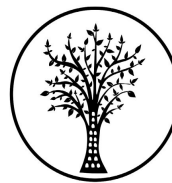
## 3. Property Information

<b>Latitude / Longitude</b>	-30.376401° / 18.250839°
<b>Erf number / Farm number</b>	RE/614
<b>Local Municipality</b>	Kamiesberg Municipality
<b>District Municipality</b>	Namakwa
<b>Previous Magisterial District</b>	Namakwaland
<b>Province</b>	Northern Cape
<b>Current Use</b>	Agriculture
<b>Current Zoning</b>	Agriculture
<b>Total Extent</b>	~0.5ha

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#### 4. Nature of the Proposed Development

Total Surface Area	3.5km pipelines, ~0.5ha for WWTW
Depth of excavation (m)	~1-2m
Height of development (m)	Low - WWTW single storey and pipeline
Expected years of operation before decommission	Unknown

#### 5. Category of Development

Triggers: Section 38(8) of the National Heritage Resources Act	X
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.	X
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 <sup>2</sup> in extent	X
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 <sup>2</sup>	
5. Other (state):	

#### 6. Additional Infrastructure Required for this Development

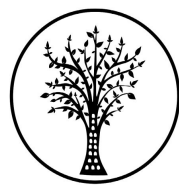
NA
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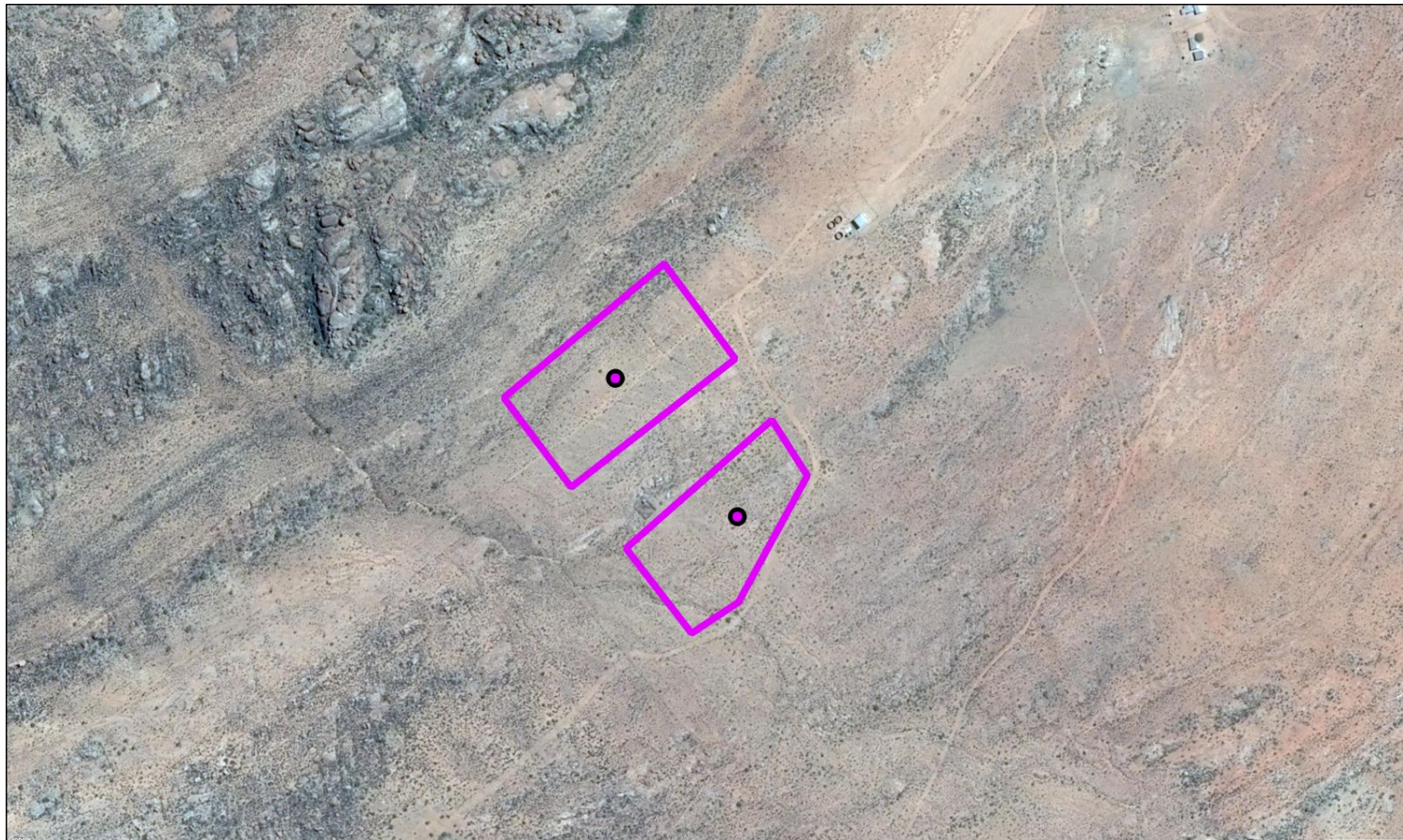
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## 7. Mapping (please see Appendix 3 and 4 for a full description of our methodology and map legends)



● Proposed Development  
— Proposed Development

0 1 2 km



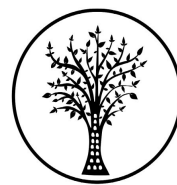
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**Figure 1b. Overview Map.** Satellite image (2017) indicating the proposed development area at closer range.

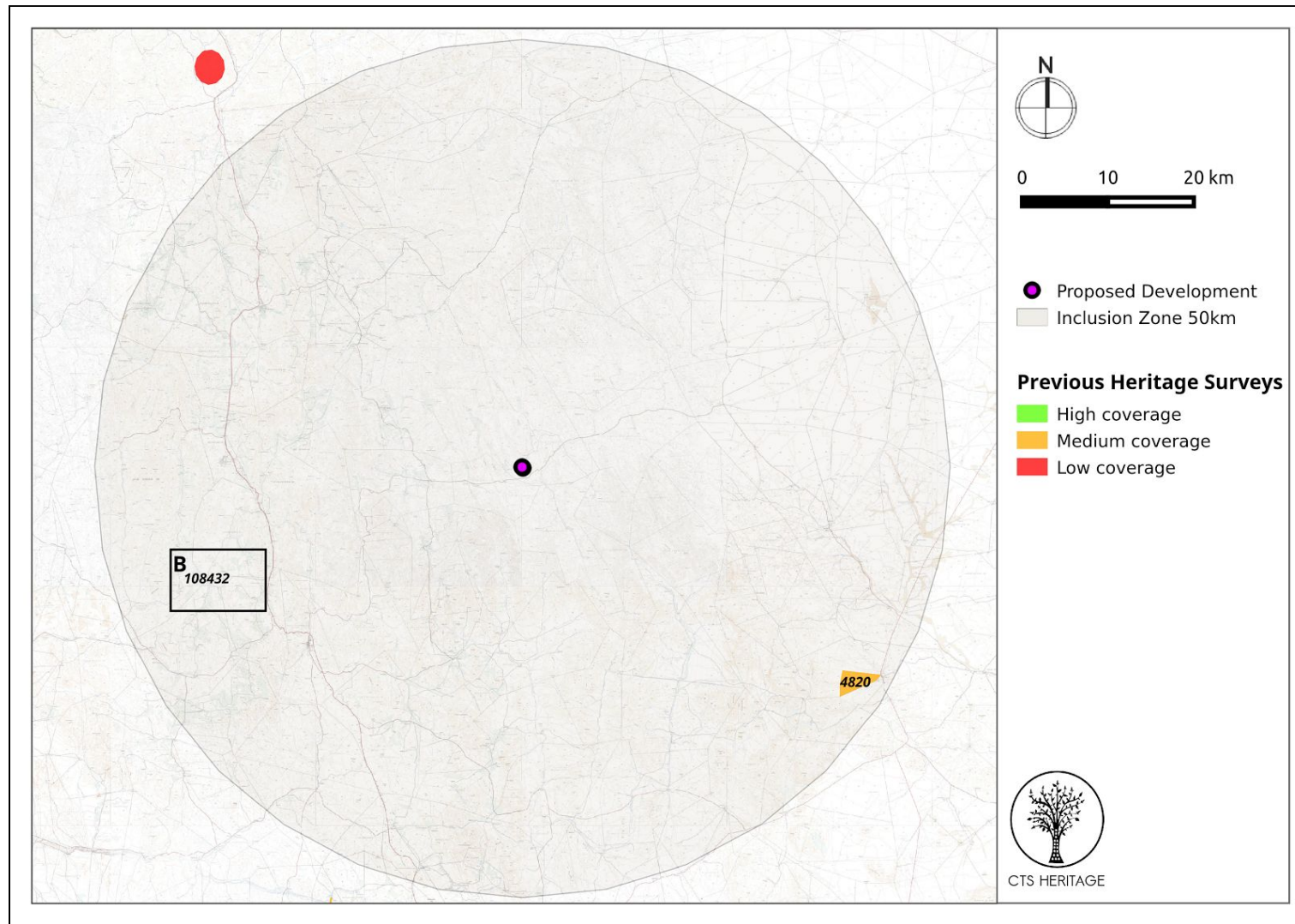
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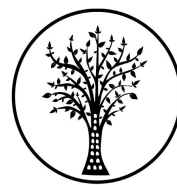
**Figure 2a. Previous HIAs Map - area surveys only.** Previous Heritage Impact Assessments surrounding the proposed development area within 50kms, with SAHRIS NIDS indicated (please see Appendix 2 for full reference list). **Note there are no PIAs mapped within the inclusion zone.**

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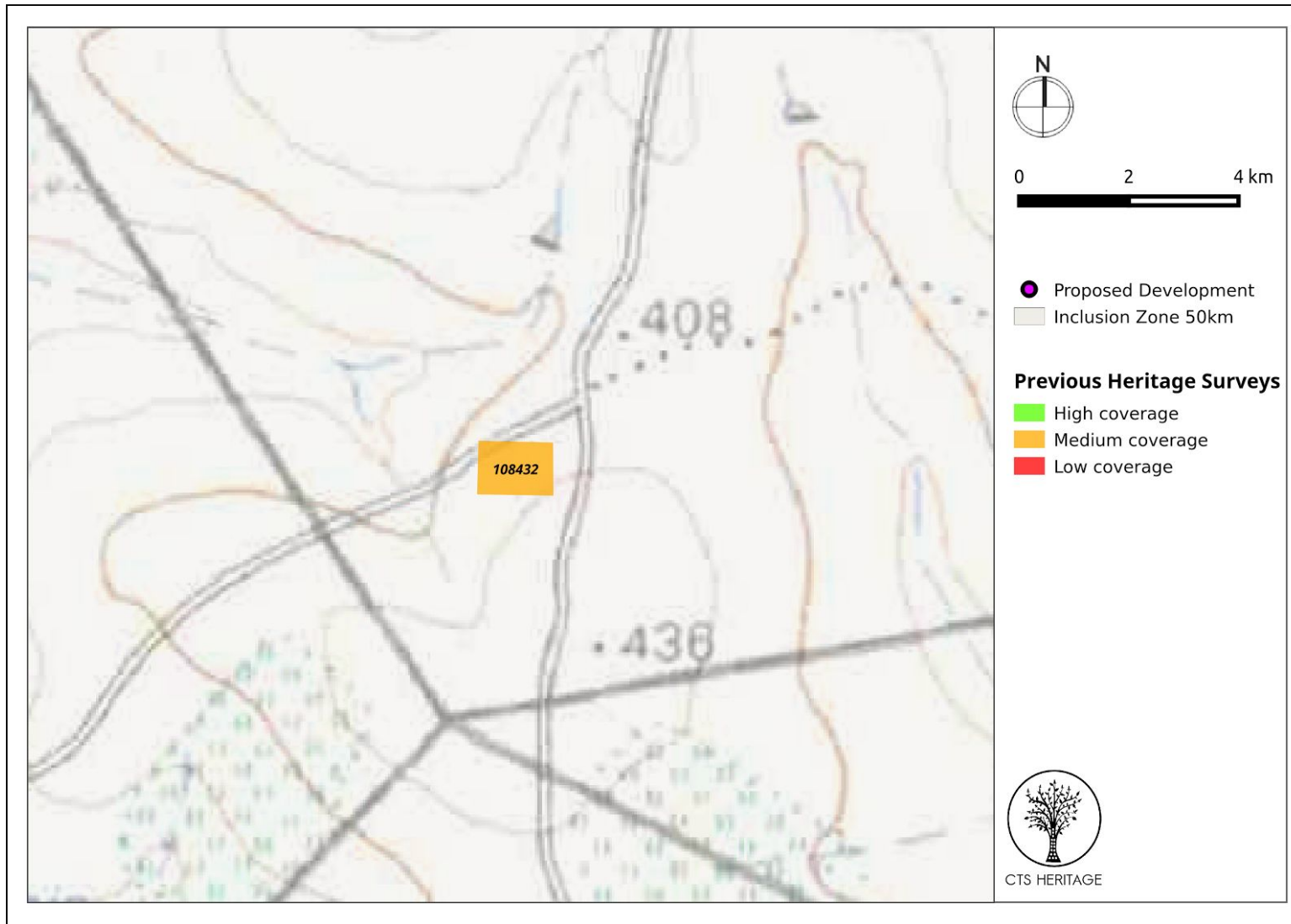
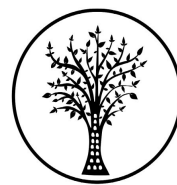


Figure 2b. Inset Map.

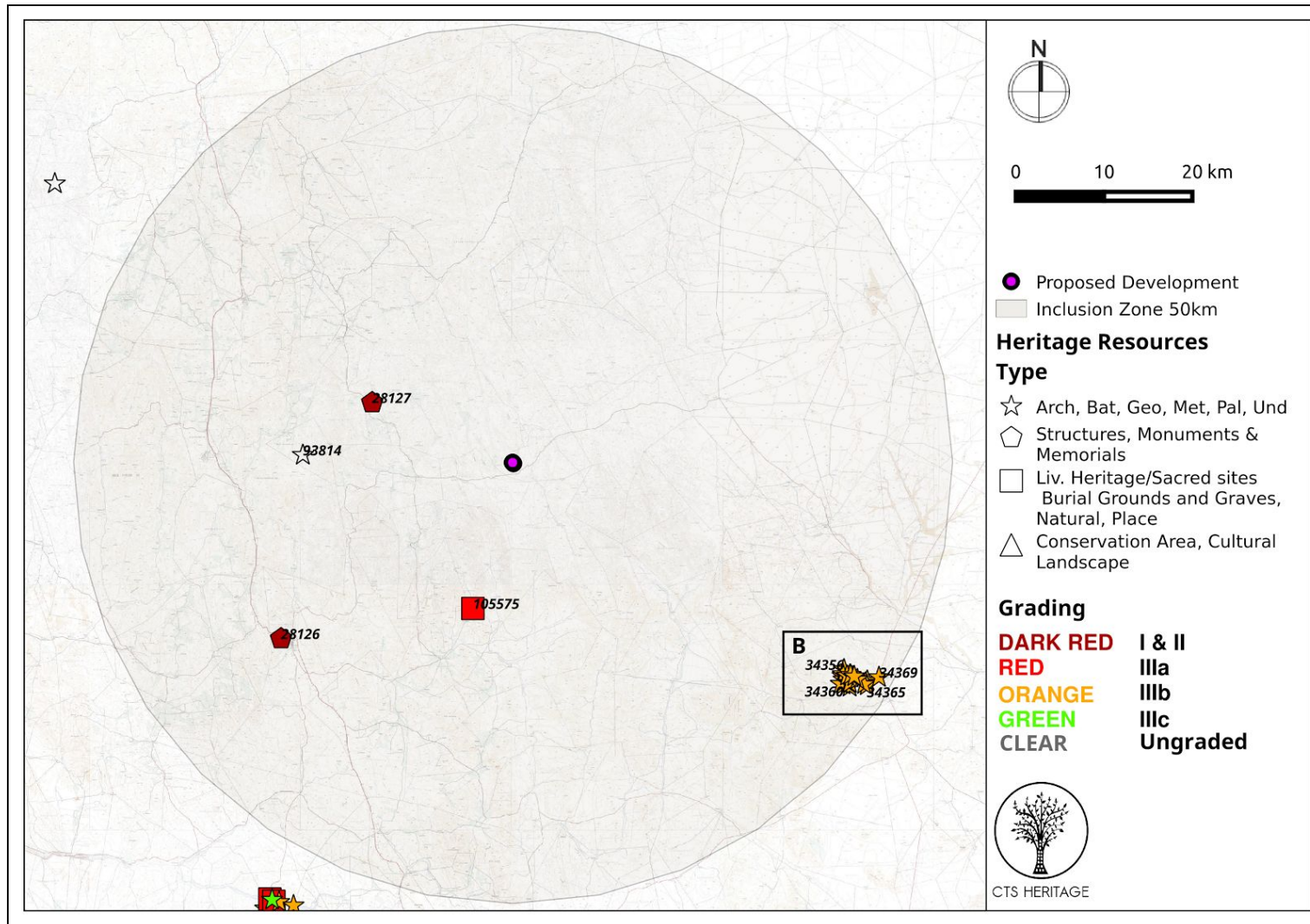
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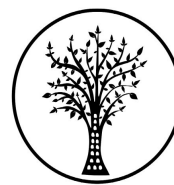
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**Figure 3a. Heritage Resources Map.** Heritage resources previously identified in and near the study area, with SAHRIS Site IDs indicated (see Figure 3b for inset). See Appendix 4 for full description of heritage resource types.



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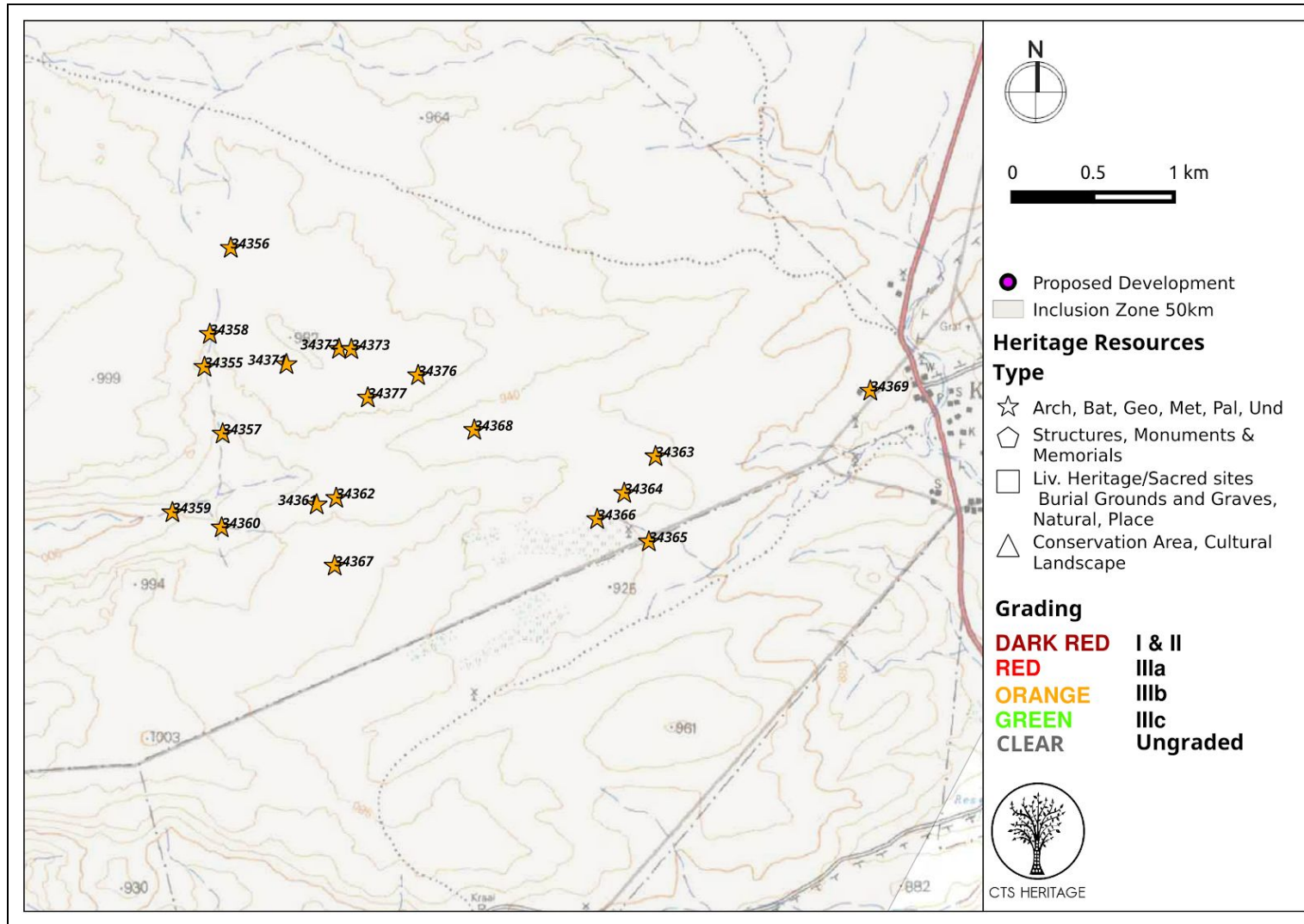


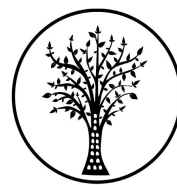
Figure 3b. Inset Map.

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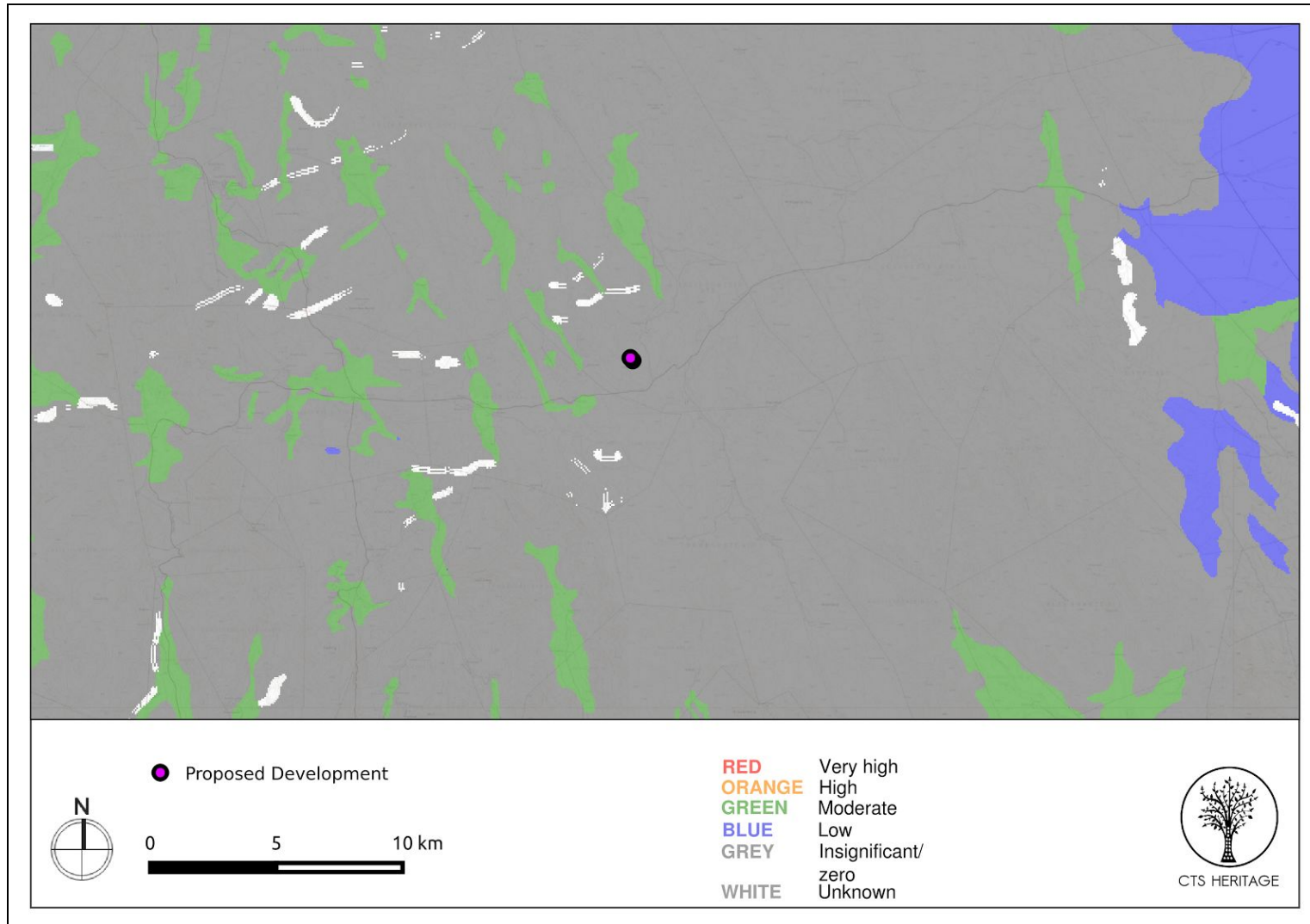
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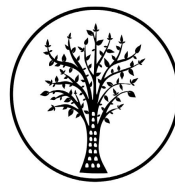




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**Figure 4. Palaeosensitivity Map**, indicating insignificant/zero fossil sensitivity underlying the study area. See Appendix 3 for full guide to the legend.



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## 8. Heritage statement and character of the area

The proposed Paulshoek Bulk Water Supply system includes the equipment for existing boreholes, the construction of a 228Kl steel panel reservoir, the installation of approximately 3.5km of pipelines, and the construction of a Water Treatment Works (desalination plant) and associated evaporation ponds (waste brine). At present, the proposed layout of these components have not been determined, and the applicant has only provided estimated locations for the proposed water treatment works and evaporation ponds, and not the position of boreholes and pipelines. The proposed development will be located approximately 500m southwest of Paulshoek settlement (Figures 1a and 1b). The development area comprises open veld at the foot of a low, rocky kopje.

The central Namaqualand region has been inhabited since the Early Stone Age (ESA) and was increasingly exploited throughout the Middle and Later Stone Ages (MSA and LSA, respectively). In the period of recent prehistory, the area was home to Khoekhoen who moved seasonally through the landscape with their flocks, a pattern of transhumance that was repeated by the early European settlers in the region. The proposed development area is situated on the farm Leliefontein, on which the Leliefontein Mission Station was established in 1812, some 15km northwest of Paulshoek. The Mission Station was the site of the Leliefontein Massacre in 1902, which saw the slaughter of 35 local inhabitants by the Boer Leader Manie Maritz.

Very little heritage survey work has been conducted in this region, with only two previous archaeological surveys completed within a 50km radius (Figures 2a and 2b). A study conducted some distance to the southwest of the study area indicated that at least parts of the area are of low archaeological heritage significance (Webley 2012, SAHRIS NID 26814). However, a study conducted some 45kms to the southeast, identified several open surface scatters of Middle Stone Age artefacts, noting the presence of buried material in places; they recorded Later Stone Age sites and a number of highly patinated artefacts that were likely Early Stone Age in origin (Lanham and Manhire 2007, SAHRIS NID 4820). This disparity between findings is not surprising given the distance between the two surveys (approximately 90kms), and indicates spatially diverse archaeological signatures across the broader Namaqualand landscape. This pattern is more likely a consequence of the lack of reconnaissance and research in the area rather than a real lack of archaeological material.

Known heritage sites in the area include two Provincial Heritage Sites, being the Letterklip at Garies (SAHRIS SID 28126) and the Methodist Church and Manse at nearby Leliefontein (SAHRIS SID 28127) (Figure 3a), while a single graveyard has been graded Grade IIIa (SAHRIS SID 105575). The remaining known sites comprise twenty artefact locations recorded some 43km to the south east at Kliprand, Western Cape (Figure 3b), and a single rock art site (Figure 3a) located on a rocky outcrop to the west (SAHRIS SID 93814).

According to the SAHRIS Palaeosensitivity Map (2014) the development area is underlain by the Kamiesberg Formation which includes rock types such as migmatitic banded biotite gneiss. These are of **insignificant/zero fossil sensitivity** as they are metamorphosed deposits that are unfossiliferous. While no Palaeontological Impact Assessments have been undertaken in the area, a Letter of Exemption (LOE) compiled by Dr John Almond (2012, SAHRIS NID 108434) some 37kms west of the area describes the geology thus: "The Kamieskroon Gneiss...is part of the highly-metamorphosed Late Precambrian rocks of the Garies Terrane (Bushmanland Subprovince, Namaqua-Natal Metamorphic Belt). This bedrock is not fossiliferous. Minor Quaternary regolith and colluvial soil mantles the bedrock, but these deposits are very poorly fossiliferous." (This LOE has not been mapped, but covers the area indicated in Figure 2b by SAHRIS NID 108432).

Given that the proposed study area is in hilly terrain, largely undisturbed, and given the paucity of information about the local archaeology, it is recommended that the development site be subject to an archaeological survey. However, the unfossiliferous nature of the bedrock means that no significant impacts on fossil heritage are expected and that no further palaeontological studies are required.

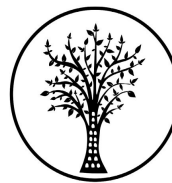
**RECOMMENDATION: The heritage resources along the routes proposed for development are only partially recorded**

**Based on the available information, it is recommended that a Heritage Impact Assessment is completed dealing with the archaeological impacts of the development.**

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## APPENDIX 1

### List of heritage resources within the 50km Inclusion Zone

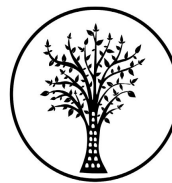
Site ID	Site no	Full Site Name	Site Type	Grading	Declaration
28126	9/2/066/0011	Letterklip, Garies, Namaqualand District	Building	Grade II	Provincial Heritage Site
28127	9/2/066/0012	Methodist Church and Manse, Leliefontein, Namaqualand District	Building	Grade II	Provincial Heritage Site
34367	KRD13	Kliprand 13	Artefacts	NA	NA
34355	KRD1	Kliprand 1	Artefacts	NA	NA
34356	KRD2	Kliprand 2	Artefacts	NA	NA
34357	KRD3	Kliprand 3	Artefacts	NA	NA
34358	KRD4	Kliprand 4	Artefacts	NA	NA
34359	KRD5	Kliprand 5	Artefacts	NA	NA
34361	KRD7	Kliprand 7	Artefacts	NA	NA
34362	KRD8	Kliprand 8	Artefacts	NA	NA
34363	KRD9	Kliprand 9	Artefacts	NA	NA
34364	KRD10	Kliprand 10	Artefacts	NA	NA
34365	KRD11	Kliprand 11	Artefacts	NA	NA
34366	KRD12	Kliprand 12	Artefacts	NA	NA
34368	KRD14	Kliprand 14	Artefacts	NA	NA
34369	KRD15	Kliprand 15	Artefacts	NA	NA
34371	KRD16	Kliprand 16	Artefacts	NA	NA
34373	KRD18	Kliprand 18	Artefacts	NA	NA

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34376	KRD19	Kliprand 19	Artefacts	NA	NA
93814	Twee Rivieren	Twee Rivieren Rock Art Site	Rock Art	NA	NA
34360	KRD6	Kliprand 6	Artefacts	NA	NA
34372	KRD17	Kliprand 17	Artefacts	NA	NA
34377	KRD 20	Kliprand 20	Artefacts	NA	NA
105575	JUN-GROM-1	Juno-Gromis 01	Burial Grounds & Graves	Grade IIIa	NA

## APPENDIX 2

### Reference List

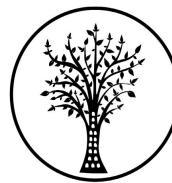
Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
4820	AIA	John Lanham, Anthony Manhire	01/11/2007	Archaeological Impact Assessment: Proposed Hondekloof Nickel Mine: Portion 6 of Farm Nuwefontein, Kliprand District, Western Cape Province
108432	HIA	Lita Webley	06/12/2012	Desktop HIA Brakfontein 431
4820	AIA	John Lanham, Anthony Manhire	01/11/2007	Archaeological Impact Assessment: Proposed Hondekloof Nickel Mine: Portion 6 of Farm Nuwefontein, Kliprand District, Western Cape Province

Palaeontological Impact Assessments				
Nid	Report Type	Author/s	Date	Title
108434	PIA LOE	John Almond	2012	Note in Support of Exemption from a Desktop Palaeontological Impact Assessment: Environmental Management Plan for the Proposed Raumix Aggregates (Pty) Ltd. Quarry on Brakfontein 431, Near Garies, Northern Cape

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## APPENDIX 3 - Keys/Guides

### Key/Guide to Acronyms

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

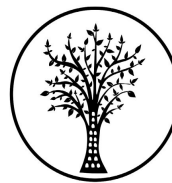
### Full guide to Palaeosensitivity Map legend

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

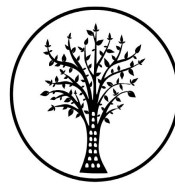
Each report assessed for the compilation of the Heritage Screener is colour-coded according to the level of coverage accomplished. The extent of the surveyed coverage is labeled in

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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

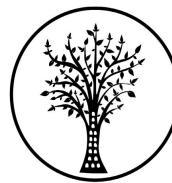
**(2) The heritage resources and the area proposed for development are only partially recorded** - The surveys undertaken in the area have not adequately captured the heritage resources and/or there are sites which require mitigation or management plans. Further specific heritage work is recommended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

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- 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.

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.**

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