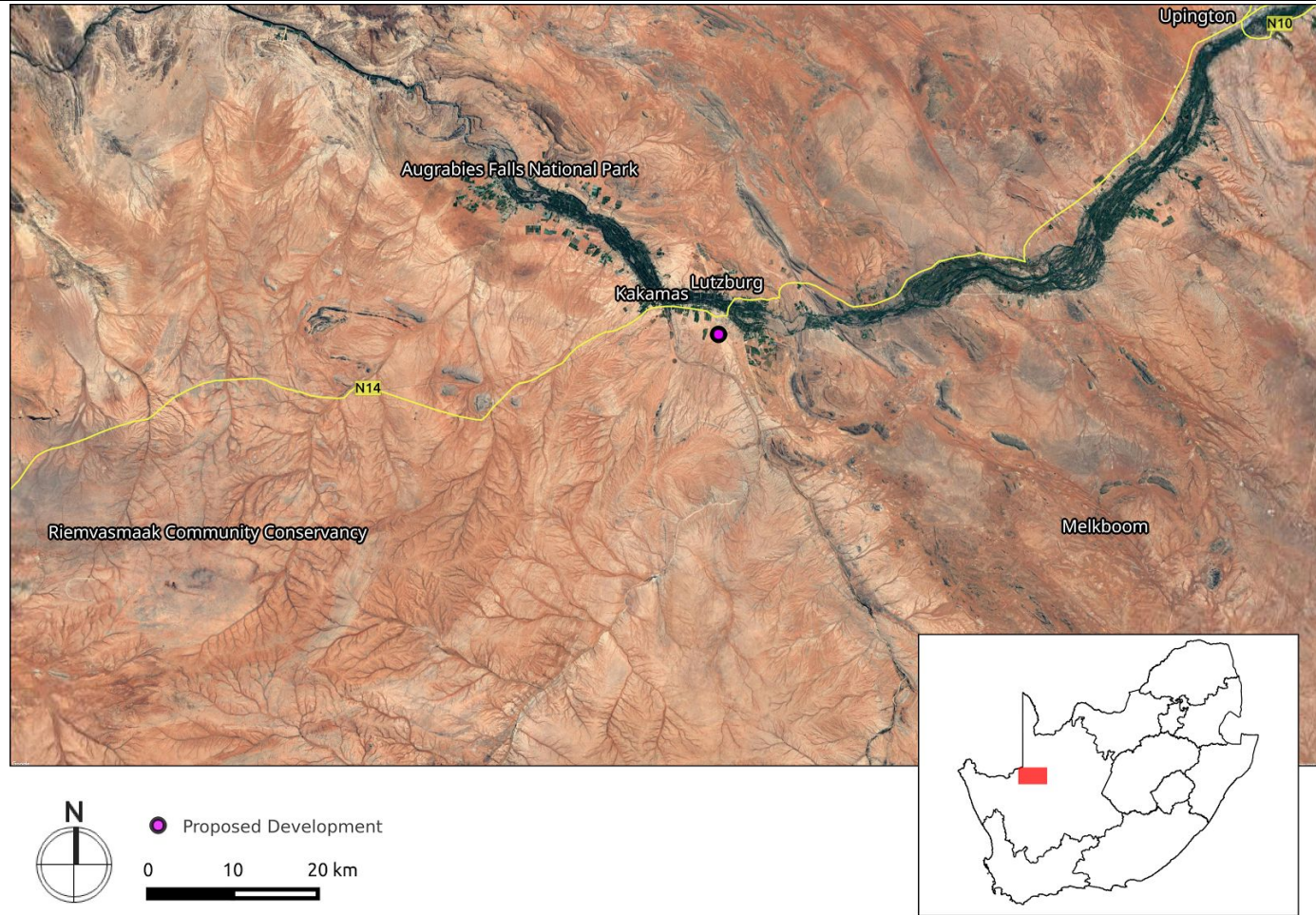
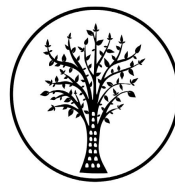


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HERITAGE SCREENER

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



CTS HERITAGE

1. Proposed Development Summary

The applicant is proposing the following on a site near Kakamas, Northern Cape

- Upgrading of the existing sewer pump stations and rising mains.
- New Wastewater Treatment Works (WWTW) on Erf 236 (Capacity \pm 7 Ml/d).
- New sewer rising main (Approximately 6km, 400mm diameter) from the Hospital Pump Station to the proposed WWTW.
- Possibility of an additional booster pump station.

2. Application References

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

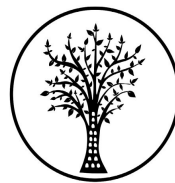
3. Property Information

Latitude / Longitude	-28.818583° / 20.605492°
Erf number / Farm number	1084, 1654, 1768, 236
Local Municipality	Kai !Garib Municipality
District Municipality	Siyanda Municipality
Previous Magisterial District	Gordonia
Province	Northern Cape
Current Use	Agriculture
Current Zoning	Agriculture
Total Extent	~6.5ha; 6km pipeline, 400mm in diameter

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4. Nature of the Proposed Development

Total Surface Area	~6.5ha ; 6km pipeline, 400mm in diameter
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 ² 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 ²	
5. Other (state):	

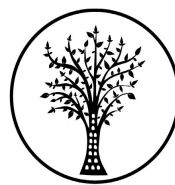
6. Additional Infrastructure Required for this Development

NA

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

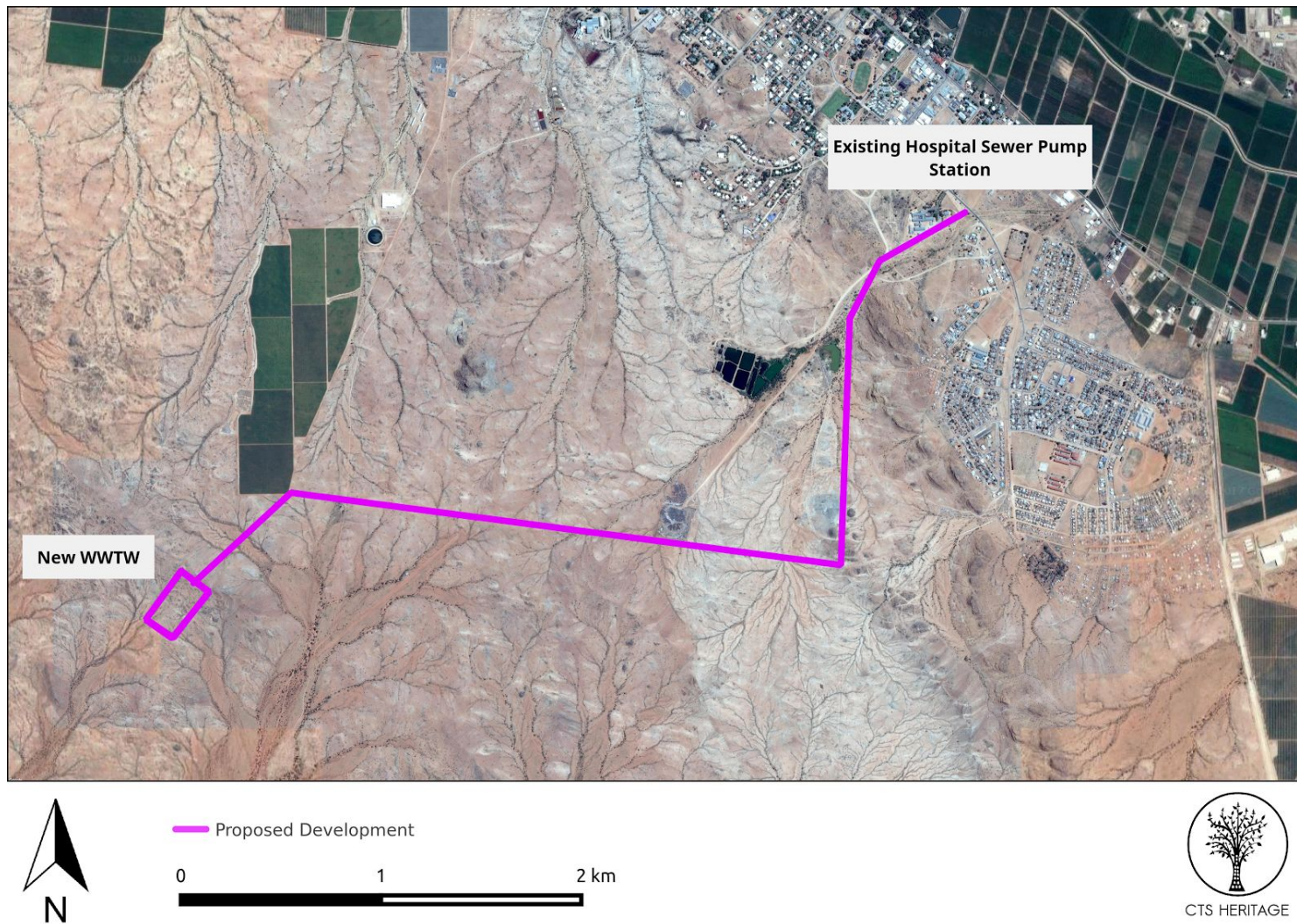
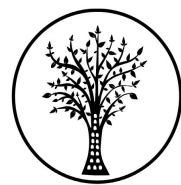


Figure 1b. Overview Map. Satellite image (2017) indicating the proposed development area at closer range.



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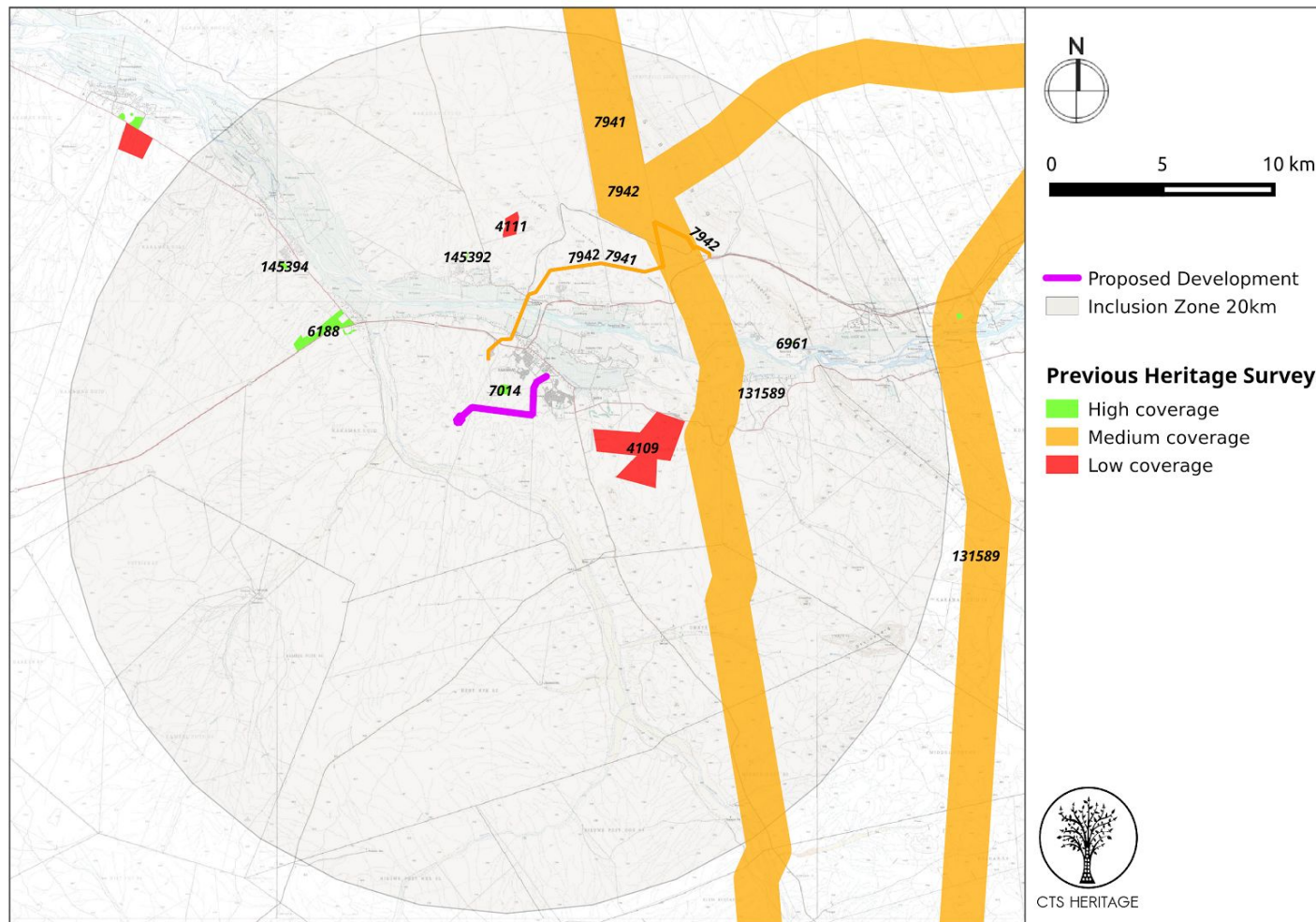
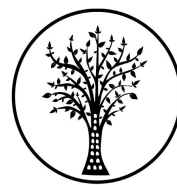


Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments surrounding the proposed development area within 20kms, with SAHRIS NIDS indicated (please see Appendix 2 for full reference list). Note there are no PIAs within the inclusion zone.



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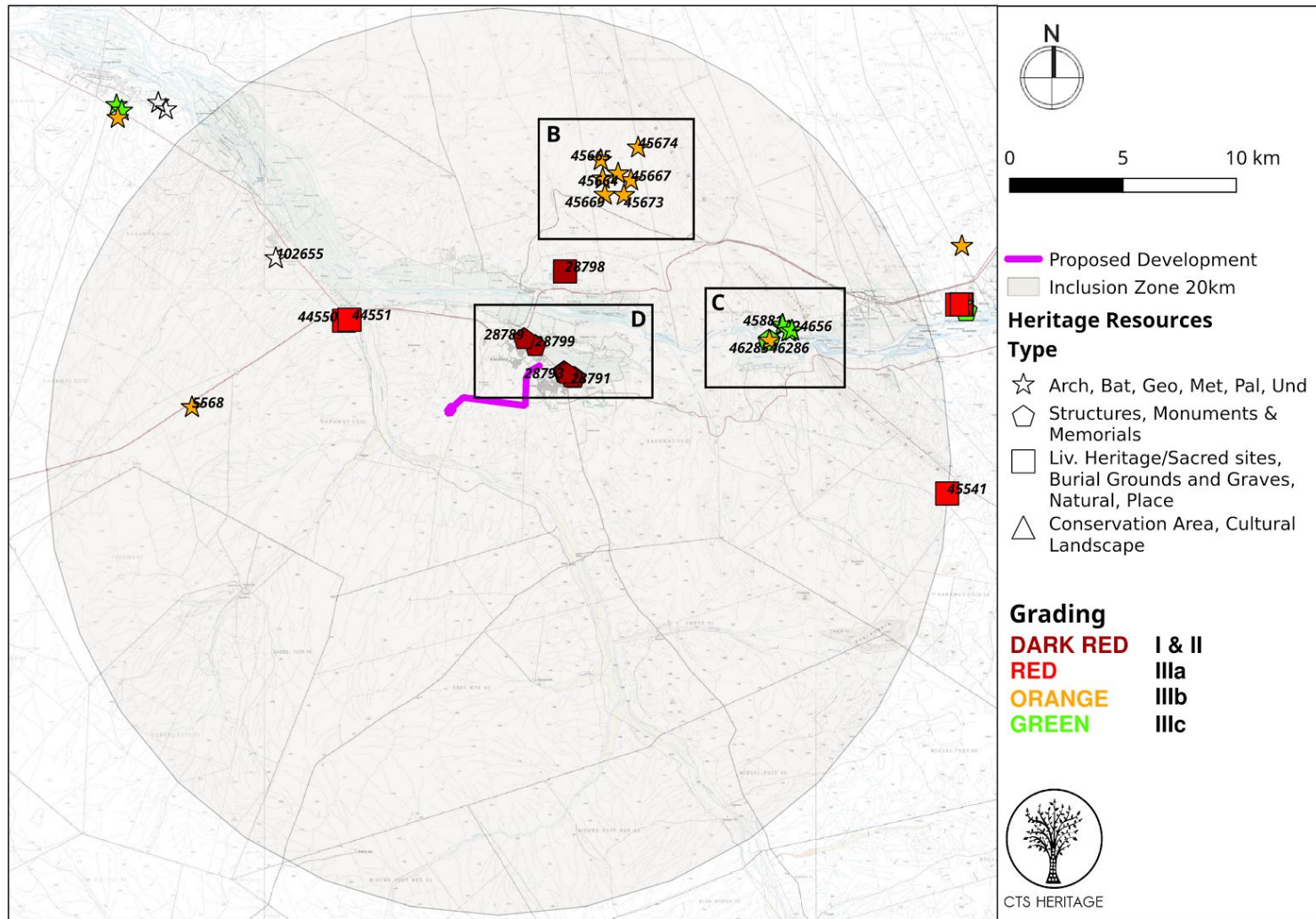
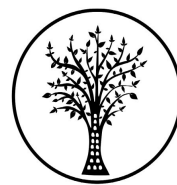


Figure 3a. Heritage Resources Map. Heritage resources previously identified in and near the study area, with SAHRIS Site IDs indicated (see Figures 3b-3d for insets). See Appendix 4 for full description of heritage resource types.

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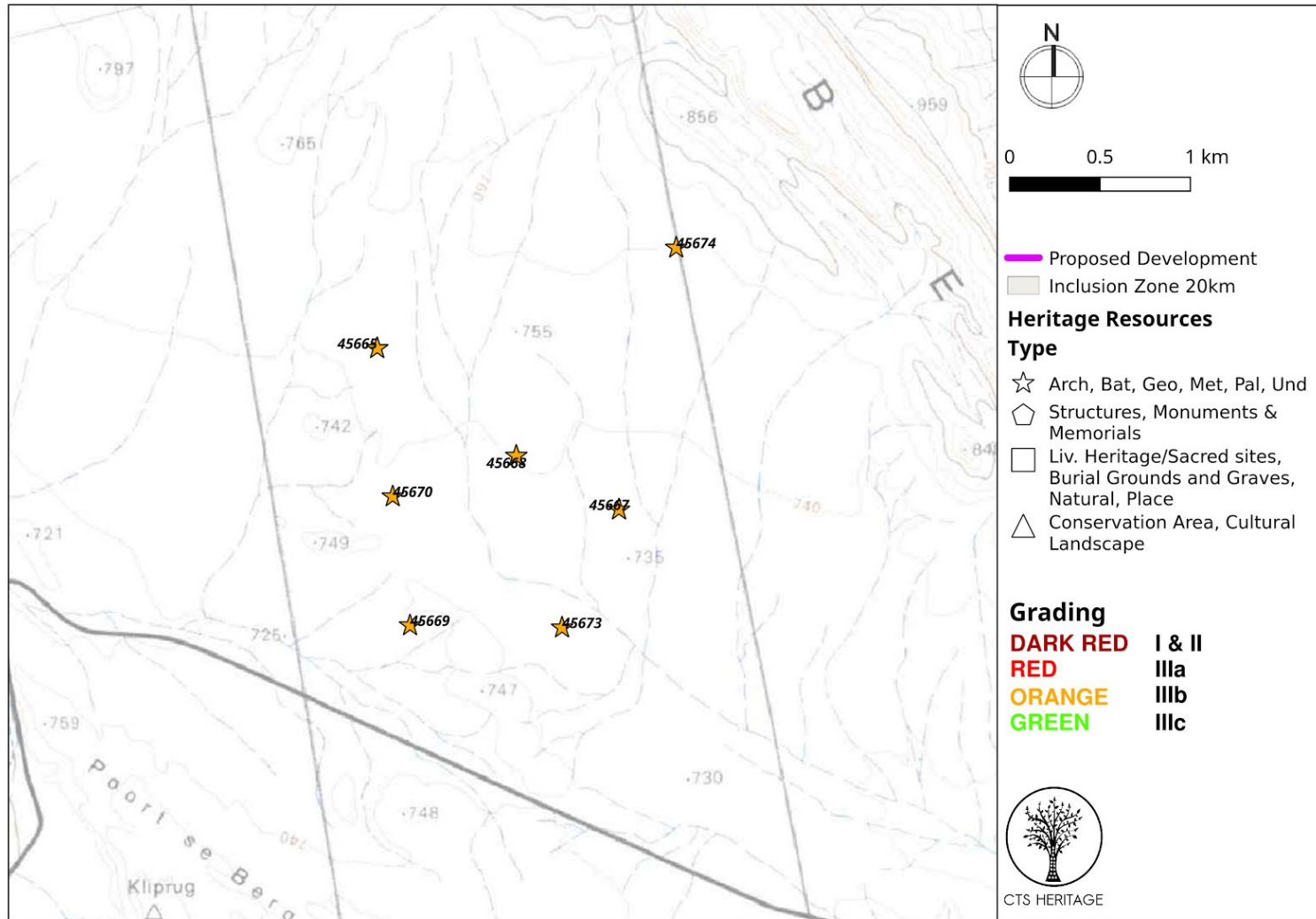
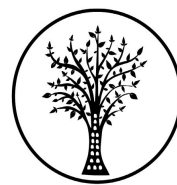


Figure 3b. Inset map.

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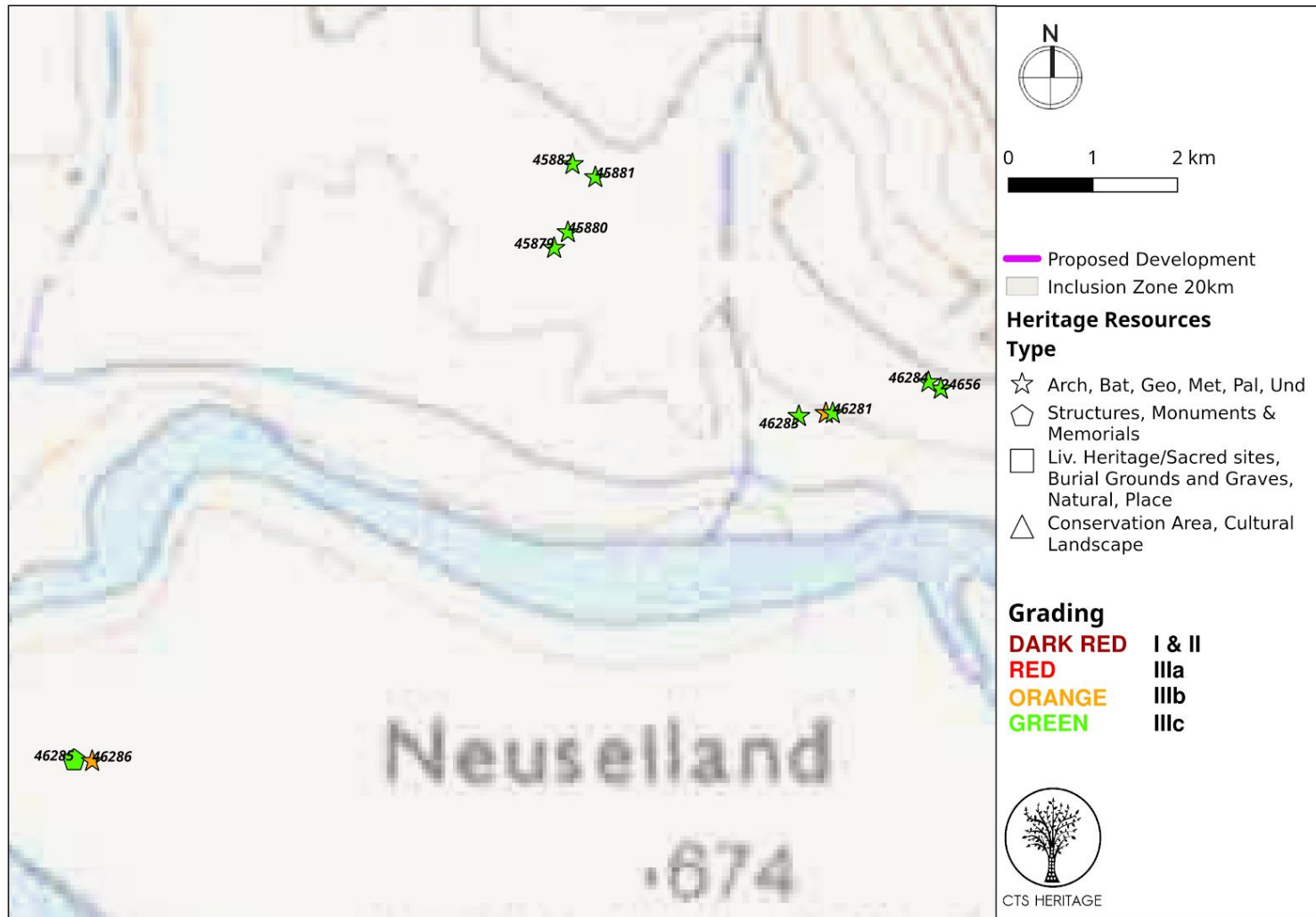
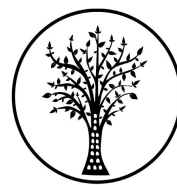


Figure 3c. Inset map.

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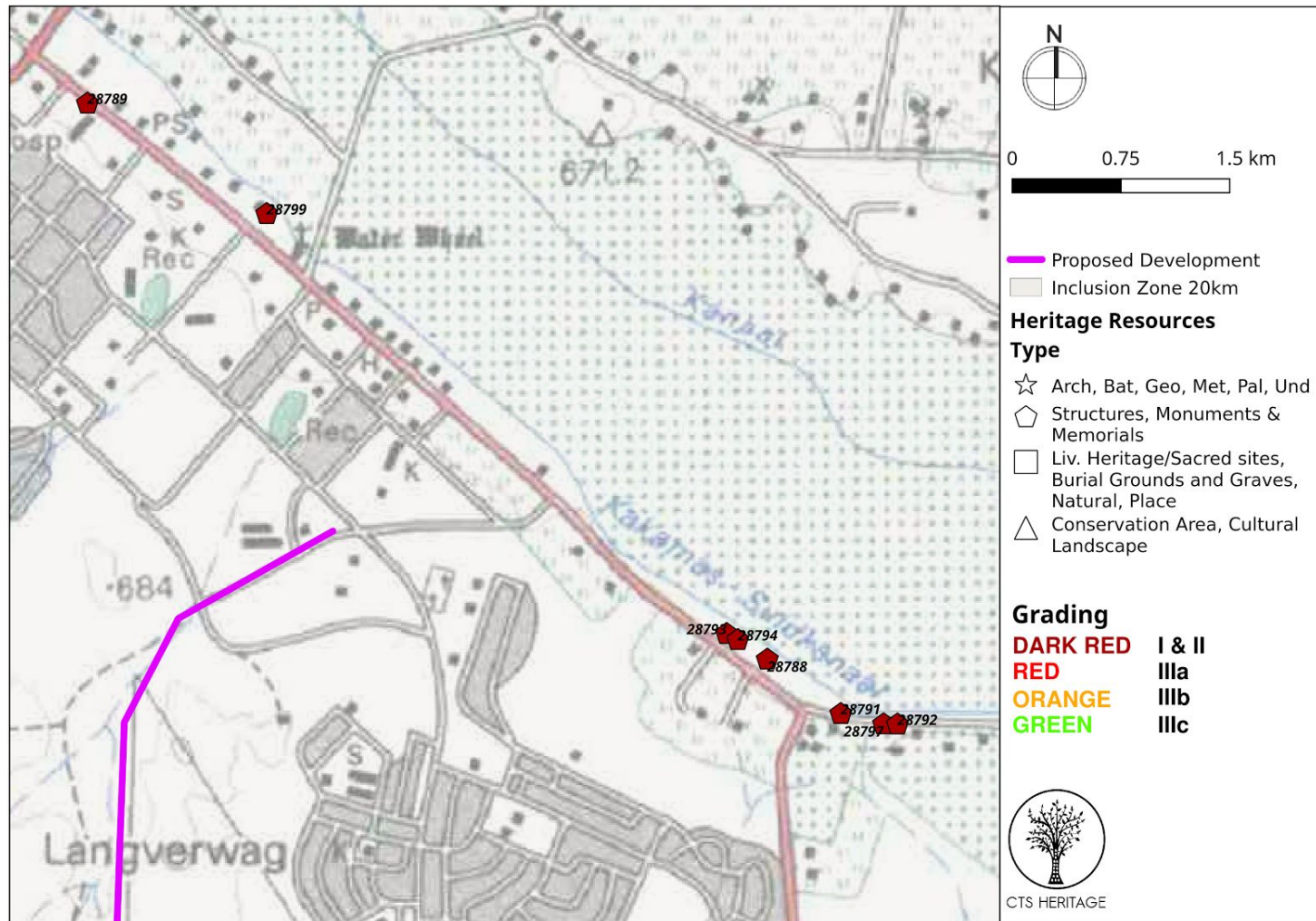
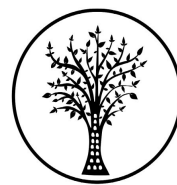


Figure 3d. Inset map.



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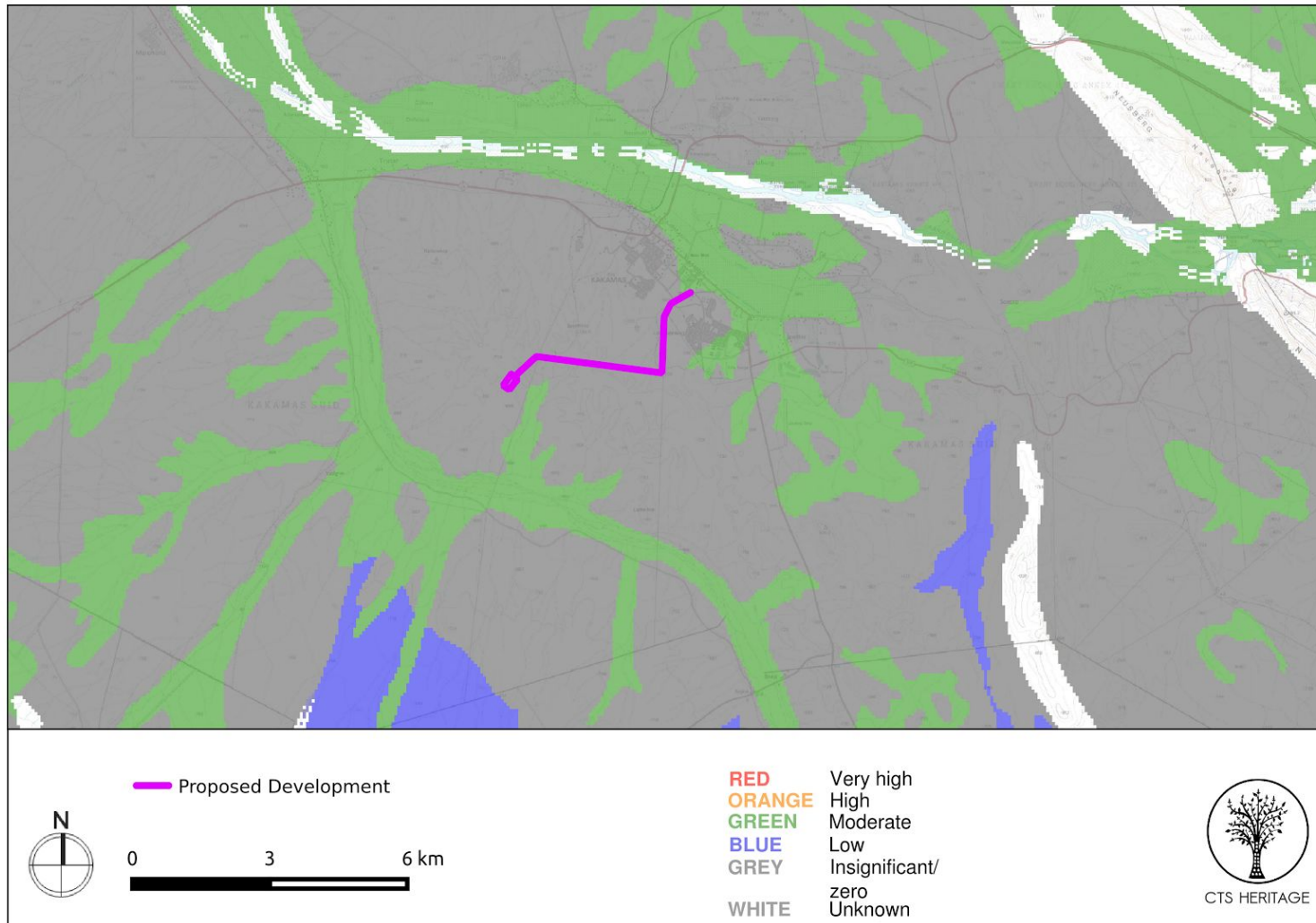
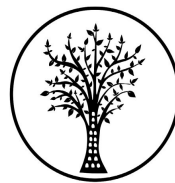


Figure 4. Palaeosensitivity Map, indicating insignificant/zero fossil sensitivity underlying the study area. See Appendix 3 for full guide to the legend.



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8. Heritage statement and character of the area

The applicant has proposed the upgrading of the existing sewer pump stations and rising mains and the construction of a new Wastewater Treatment Works (WWTW) on Erf 236 with a capacity of approximately 7Ml/d. A new sewer rising main of approximately 6km in length and 400mm in diameter will extend from the existing Hospital Pump Station to the proposed WWTW and an additional booster pump station might be required. The WWTW site is located some 4km south of Kakamas (Figure 1b), on sloping terrain with several drainage channels that drain north towards the Orange River. The development area is quite heavily degraded through overgrazing, with very little natural vegetation and heavy sheet wash.

Kakamas was established in 1898. The area had been traversed by European hunters and travellers since the 1770s and has been inhabited since the Early Stone Age. The region was affected by the Koranna Wars of 1879-1880, rebel activity in the Anglo-Boer War and an incursion of German troops from what was then South West Africa in 1915. The Riemvasmaak Community Conservancy is located some distance to the west of this development, and marks the first land restitution under the post 1994 democratic government of South Africa. While it is a significant landscape, with high social and cultural value, it will not be impacted negatively by this development.

Fourteen heritage assessments have been undertaken within a 20km radius of the development area (Figure 2). These surveys yielded isolated Early (ESA), Middle (MSA) and Later Stone Age (LSA) material (Beaumont 2008, SAHRIS NID 6188), as well as scatters of Middle Stone Age (van der Walt 2011, SAHRIS NID 7942) and Later Stone Age artefacts (Gaigher 2013, SAHRIS NID 131589). Historical remains related to irrigation canals, waterworks and structures, as well as metal, glass, ceramic and bone artefacts have also been identified (Morris 2010, SAHRIS NID 6961). Morris (2010, SAHRIS NID 6961) notes that Stone Age finds along the northern river bank are frequent, while agricultural activities on the south bank have obliterated any traces of archaeological remains, while artefact density drops rapidly the further one proceeds from the river. These surveys found no conservation worthy archaeological material south of Kakamas, with the vast majority of finds confined to surveys that took place north of the town.

Known sites in the vicinity of the development area include nine declared Provincial Heritage Sites (Figures 3a and d). Seven of these sites are water wheels and water furrows in or near Kakamas which relate to the pioneering irrigation scheme that allowed Kakamas to establish itself and flourish in an otherwise arid environment. The Kakamas Museum (SAHRIS SID 28789) and a battlefield (SAHRIS SID 28798) are the other two Grade II sites. Three burial grounds are recorded as Grade IIIa (SAHRIS SIDs 44550, 44551 and 45541), while a range of archaeological sites and scatters are recorded as either Grade IIIb, Grade IIIc or are as yet ungraded. They consist of varying densities of MSA and LSA material and are all located north of Kakamas (Figures 3a-c).

According to the SAHRIS Palaeosensitivity Map (2014), the area is underlain by Riemvasmaak Gneiss and Kenhardt Migmatite which have **zero/insignificant fossil sensitivity** (Figure 4). A recent PIA near Alheit, Kakamas (Almond 2017, SAHRIS NID 406711) indicates that the area is “underlain by ancient Precambrian basement rocks belonging to the Namaqua-Natal Province. These basement bedrocks are approximately one to two billion years old and are entirely unfossiliferous. They are mantled by Late Caenozoic sandy soils, surface gravels and possibly calcretes”. We do note, however, that Almond (2017, SAHRIS NID 406711) further notes the presence of “potentially fossiliferous ancient fluvial gravels of the Orange River drainage system” which should be taken into consideration for very large projects with high impacts along the Orange River area.

Despite screening out the need for a specialist palaeontological impact assessment, it is more than likely that possible ESA, MSA and LSA artefact scatters will be found in the area proposed for the WWTW and along the length of the pipeline. We therefore recommend a walkdown of the pipeline and WWTW by a Stone Age archaeologist over 1 day.

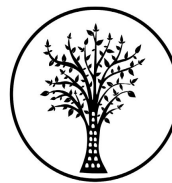
RECOMMENDATION: The heritage resources along the routes proposed for development are only partially recorded

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

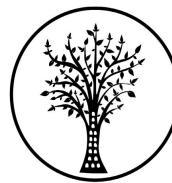
List of heritage resources within the 20km Inclusion Zone

Site ID	Site no	Full Site Name	Site Type	Grading	Declaration
5568	2830CD 028	NA	Artefacts	NA	NA
24655	ZBBA 1	Zwart Boois Berg Annex 1	Archaeological	NA	NA
24656	ZBBA 2	Zwart Boois Berg Annex 2	Artefacts	NA	NA
24657	ZBBA 3	Zwart Boois Berg Annex 3	Artefacts	NA	NA
28788	9/2/032/0009/009	Water Wheel, Plot 1467, South Furrow, Kakamas	Building	Grade II	Provincial Heritage Site
28789	9/2/032/0010	Kakamas Museum, Voortrekker Street, Kakamas	Building	Grade II	Provincial Heritage Site
28791	9/2/032/0009/006	Water wheel, Plot 68, North Furrow, Kakamas	Building	Grade II	Provincial Heritage Site
28792	9/2/032/0009/005	Water wheel, Plot 1057, North Furrow, Kakamas	Building	Grade II	Provincial Heritage Site
28793	9/2/032/0009/001	Water wheel No. 2, Plot 103, South Furrow, Kakamas	Building	Grade II	Provincial Heritage Site
28794	9/2/032/0009/004	Water Wheel No. 1, Plot 103, South Furrow, Kakamas	Building	Grade II	Provincial Heritage Site
28797	9/2/032/0005	North Furrow, Kakamas, Gordonia District	Building	Grade II	Provincial Heritage Site
28798	9/2/032/0006	Battlefield, Kakamas, Gordonia District	Place	Grade II	Provincial Heritage Site
28799	9/2/032/0008	Water wheel, near DR Church Parsonage, South Furrow, Kakamas	Building	Grade II	Provincial Heritage Site
44550	KAKA01	Kakamas Suid 01	Burial Grounds & Graves	Grade IIIa	NA
44551	KAKA02	Kakamas Suid 02	Burial Grounds & Graves	Grade IIIa	NA
45541	UPING10	Upington 10	Burial Grounds & Graves	Grade IIIa	NA
45663	SONNE001	Sonnenberg 001	Artefacts	NA	NA
45664	SONNE002	Sonnenberg 002	Artefacts	NA	NA
45665	SONNE005	Sonnenberg 005	Artefacts	NA	NA

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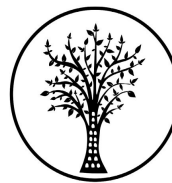
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45667	SONNE001	Sonnenberg 001	Artefacts	Grade IIIb	NA
45668	SONNE002	Sonnenberg 002	Artefacts	Grade IIIb	NA
45669	SONNE003	Sonnenberg 003	Artefacts	Grade IIIb	NA
45670	SONNE004	Sonnenberg 004	Artefacts	Grade IIIb	NA
45672	SONNE005	Sonnenberg 005	Artefacts	Grade IIIb	NA
45673	SONNE007	Sonnenberg 007	Artefacts	Grade IIIb	NA
45674	SONNE006	Sonnenberg 006	Artefacts	Grade IIIb	NA
45879	KAKA5	KAKAMAS 5	Artefacts	Grade IIIc	NA
45880	KAKA6	KAKAMAS 6	Artefacts	Grade IIIc	NA
45881	KAKA7	KAKAMAS 7	Artefacts	Grade IIIc	NA
45882	KAKA8	KAKAMAS 8	Artefacts	Grade IIIc	NA
46281	KAKA9	KAKAMAS 9	Artefacts	Grade IIIc	NA
46282	KAKA10	KAKAMAS 10	Artefacts	Grade IIIc	NA
46283	KAKA11	KAKAMAS 11	Artefacts	Grade IIIc	NA
46284	KAKA12	KAKAMAS 12	Artefacts	Grade IIIc	NA
46285	KAKA14	KAKAMAS 14	Structures	Grade IIIc	NA
46286	KAKA15	KAKAMAS 15	Deposit	Grade IIIb	NA
102655	ADA16	Augrabies sites historical graffiti	Archaeological	NA	NA

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APPENDIX 2

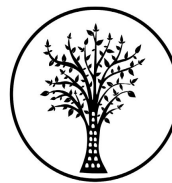
Reference List

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
4109	AIA	Peter Beaumont	23/10/2007	Phase 1 Heritage Impact Assessment Report on Adjacent Kakamas South Farms 1740, 1830, 2125 and 2149 in the Siyanda District Municipality of the Northern Cape Province
4111	AIA	Peter Beaumont	24/10/2007	Phase 1 Heritage Impact Assessment Report on a 50 Ha Portion of Steynmond Boerdery on the Kakamas North Farm 339 in the Siyanda District Municipality of the Northern Cape Province
6188	AIA	Peter Beaumont	10/06/2008	Phase 1 Archaeological Impact Assessment Report on Portions of the Farm Alheit near Kakamas, Siyanda District Municipality, Northern Cape Province
6961	AIA	David Morris	17/11/2010	Heritage Impact Assessment of the proposed hydropower station on the Orange River at Neus Island on the Farm Zwartbooisberg, east of Kakamas, Northern Cape
7014	AIA	Jonathan Kaplan	24/03/2012	Archaeological Impact Assessment
7941	AIA	Jaco van der Walt	31/07/2011	Heritage Scoping Report for the Proposed Sonnenberg Photovoltaic Plant near Keimoes, Northern Cape
7942	AIA	Jaco van der Walt	01/11/2011	AIA for the proposed Sonnenberg Photovoltaic Plant. Keimoes, Northern Cape
109690	AIA	Jayson Orton	12/01/2013	Archaeological Mitigation Of Artefact Scatters On Zwart Boois Berg Annex 475, Kakamas, Northern Cape
123001	HIA	Jayson Orton	25/06/2013	Neus Hydro: New Spoil Area
123526	AIA	Jayson Orton	01/07/2013	Archaeological Inspection Of A Spoil Heap Location For The Kakamas Hydro Electric Facility, Northern Cape
131589	AIA	Stephan Gaigher	22/02/2013	Proposed Establishment of Several Electricity Distribution Lines within the Northern Cape Province
145392	HIA	Johnny Van Schalkwyk	18/09/2013	Cultural Heritage Impact Assessment for the Proposed Township Development on a Section of the Farm Kakamas Noord 481, Cillie

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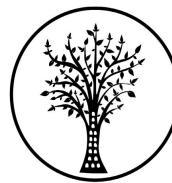
145394	HIA	Johnny Van Schalkwyk	18/09/2013	Cultural Heritage Impact Assessment for the Proposed Township Development on a Section of the Farm Kakamas Suid 28, Marchand
145396	HIA	Johnny Van Schalkwyk	18/09/2013	Cultural Heritage Impact Assessment for the Proposed Township Development on a Section of the Farm Kakamas Suid 28, Alheit

Palaeontological Impact Assessments (Not mapped)				
Nid	Report Type	Author/s	Date	Title
406711	PIA	John Almond	01/08/2017	Recommended Exemption from Further Palaeontological Studies & Mitigation: Proposed Packing Shed on Remainder of Perseel 1731 Kakamas South Settlement, Kai! Garib Local Municipality, Northern Cape

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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)
DEDEA	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

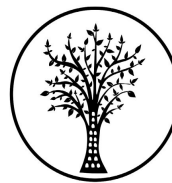
Full guide to Palaeosensitivity Map legend

	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

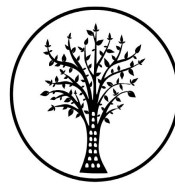
DETERMINATION OF THE COVERAGE RATING ASCRIBED TO A REPORT POLYGON

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

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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

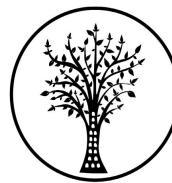
(2) The heritage resources and the area proposed for development are only partially recorded - The surveys undertaken in the area have not adequately captured the heritage resources and/or there are sites which require mitigation or management plans. Further specific heritage work is recommended for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

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