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HERITAGE SCREENER

CTS Reference Number:	CTS20_098
HWC Ref:	20100206
SAHRIS Case No.	15577
Client:	CSIR
Date:	September 2020
Title:	Proposed Square Kilometre Array (SKA) fibre optic cable between Beaufort West and Carnarvon, Northern and Western Cape
Recommendation by CTS Heritage Specialists	RECOMMENDATION: As the proposed development may negatively impact on significant archaeological and palaeontological heritage and as such, it is recommended that an HIA is required in order to assess the nature of these impacts and proposed methods for mitigating this impact.

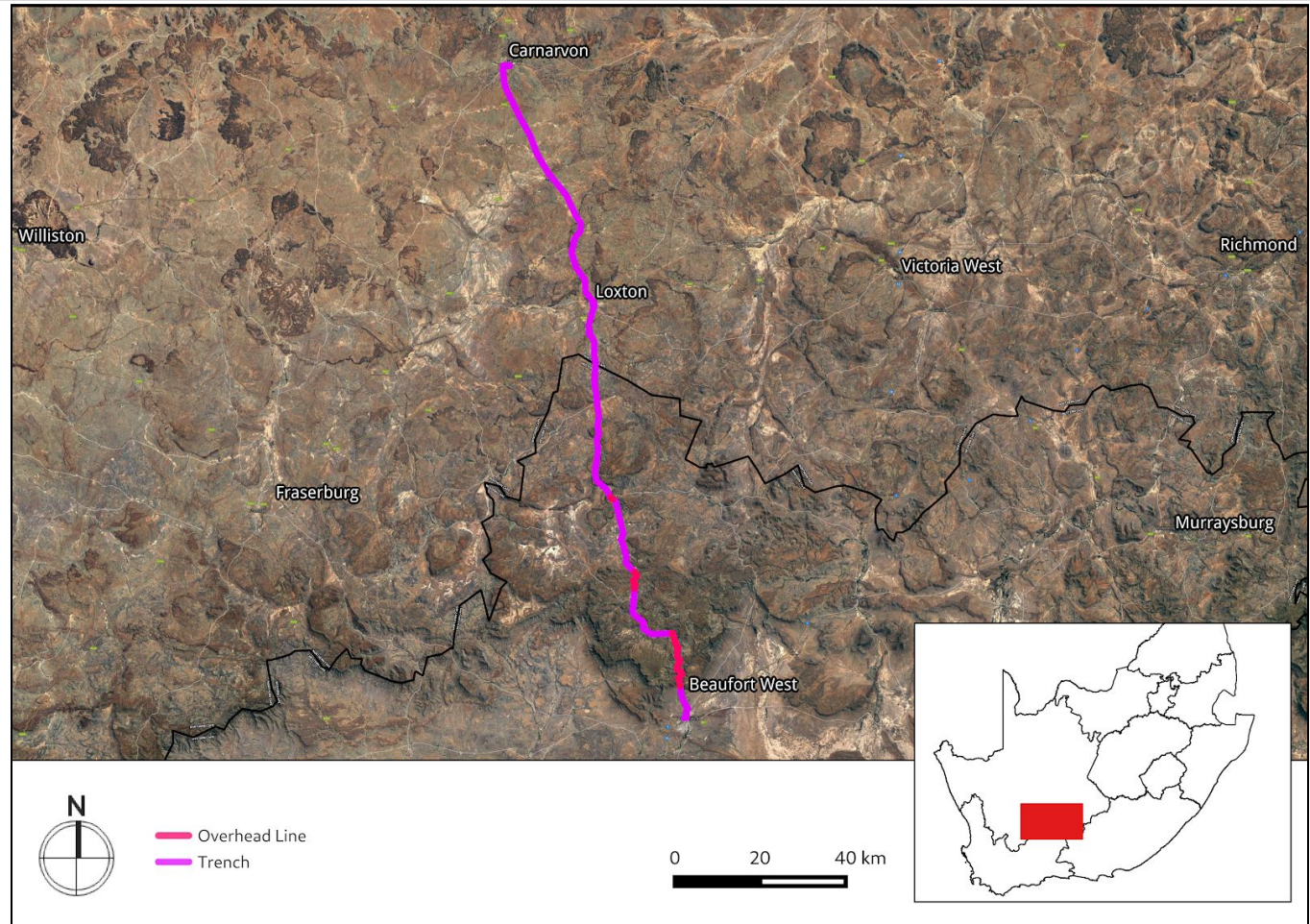
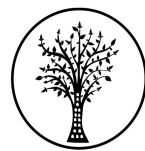


Figure 1a. Satellite map indicating the location of the proposed development in the Western and Northern Cape Province

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1. Proposed Development Summary

The South African Radio Astronomy Observatory (SARAO) spearheads South Africa's activities in the SKA Radio Telescope through engineering, science and construction. SARAO is a National Facility, managed by the National Research Foundation, which incorporates radio astronomy instruments and programmes such as the MeerKAT and KAT-7 telescopes in the Karoo, the Hartebeesthoek Radio Astronomy Observatory (HartRAO) in Gauteng, the African Very Long Baseline Interferometry (AVN) programme in nine African countries, as well as the associated human capital development and commercialisation endeavours.

Connectivity is required between the SKA core site in the Northern Cape and a data processing facility in Cape Town to transport the science data for the SKA project and its precursor, MeerKAT. Access to dark fibre is required to transport this data due to the expected data throughputs for the SKA project. SARAO has built an overhead fibre route between Carnarvon and the SKA core site. Additionally, the South African National Research Network (SANReN) has procured access to fibre between Beaufort West area and Cape Town. A fibre optic cable connection must, therefore, be built between Carnarvon and Beaufort West.

The details of the preferred and selected SKA fibre route (Route A) is as follows:

1. The fibre route starts from Beaufort West Transnet building, to a 3 m x 6 m signal repeater station at Loxton, and then on to the Carnarvon SKA Point of Presence (PoP) site (location where networking equipment may be accessed).
2. The fibre duct and cable will be laid in a 1 m deep and 300 mm wide trench and be buried by backfilling and compacting the trench.
3. The full fibre route will be installed within the road reserves of roads R381 and R63, and 1 m from the fence of the private land.
4. 155 km will be underground and 25 km will be overhead due to it not being technically or financially feasible to trench on the Molteno Pass section. The total pole length is 9 m, buried 1.5 m deep, with a resultant above-ground height of 7.5 m
5. There are several streams / rivers and associated wetlands to cross. Rivers will be crossed using directional drilling 2 m below the riverbed starting 32 m away from river banks.
6. There is only one river with solid bedrock (the Brak River near Loxton) where directional drilling is not technically or financially feasible. Here the fibre cable will be attached to the existing road bridge.

NB It may seem like the cabling ventures into private land. However, it has been confirmed that the cabling will be installed in road reserves only and will not impede on private land. As such, please consider the study area as the section between the road and the fence of private land - which in some instances may be quite wide, especially in topographically complex area such as the Molteno pass.

2. Application References

Name of relevant heritage authority(s)	Heritage Western Cape and SAHRA
Name of decision making authority(s)	Department of Environment, Forest and Fisheries (DEFF)

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3. Property Information

Latitude / Longitude	From 30°58'13.31"S 22° 8'29.23"E to 32°21'3.13"S 22°34'35.21"E
Erf number / Farm number	Western Cape Park Avenue, Beaufort West; New Street, Beaufort West; Donkin Steet (N1 / N12), Beaufort West; R381, Beaufort West to Loxton; Northern Cape R381, Beaufort West to Loxton; Fraserburg Street, Loxton; Auret Street / R381, Loxton; R63, Loxton to Carnarvon; South Street, Carnarvon; Margaretha Prinsloo Street, Carnarvon; Biblioteek Street, Carnarvon; Zahn Street, Carnarvon; Van Riebeeck Street, Carnarvon; Stasieweg Street, Carnarvon.
Province	Northern Cape and Western Cape
Current Use	Road Reserve or Private land
Current Zoning	Road Reserve or Agriculture

4. Nature of the Proposed Development

Total Surface Area of development	Total 183 km (102 km in the Western Cape, and 81 km in the Northern Cape) x 300mm
Depth of excavation (m)	1m for cable duct, 1.5m for poles and 2m below rivers
Height of development (m)	7.5m

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5. Category of Development

x	Triggers: Section 38(8) of the National Heritage Resources Act
	Triggers: Section 38(1) of the National Heritage Resources Act
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):

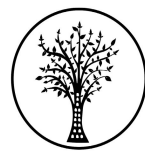
6. Additional Infrastructure Required for this Development

3 m x 6 m signal repeater station at Loxton

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

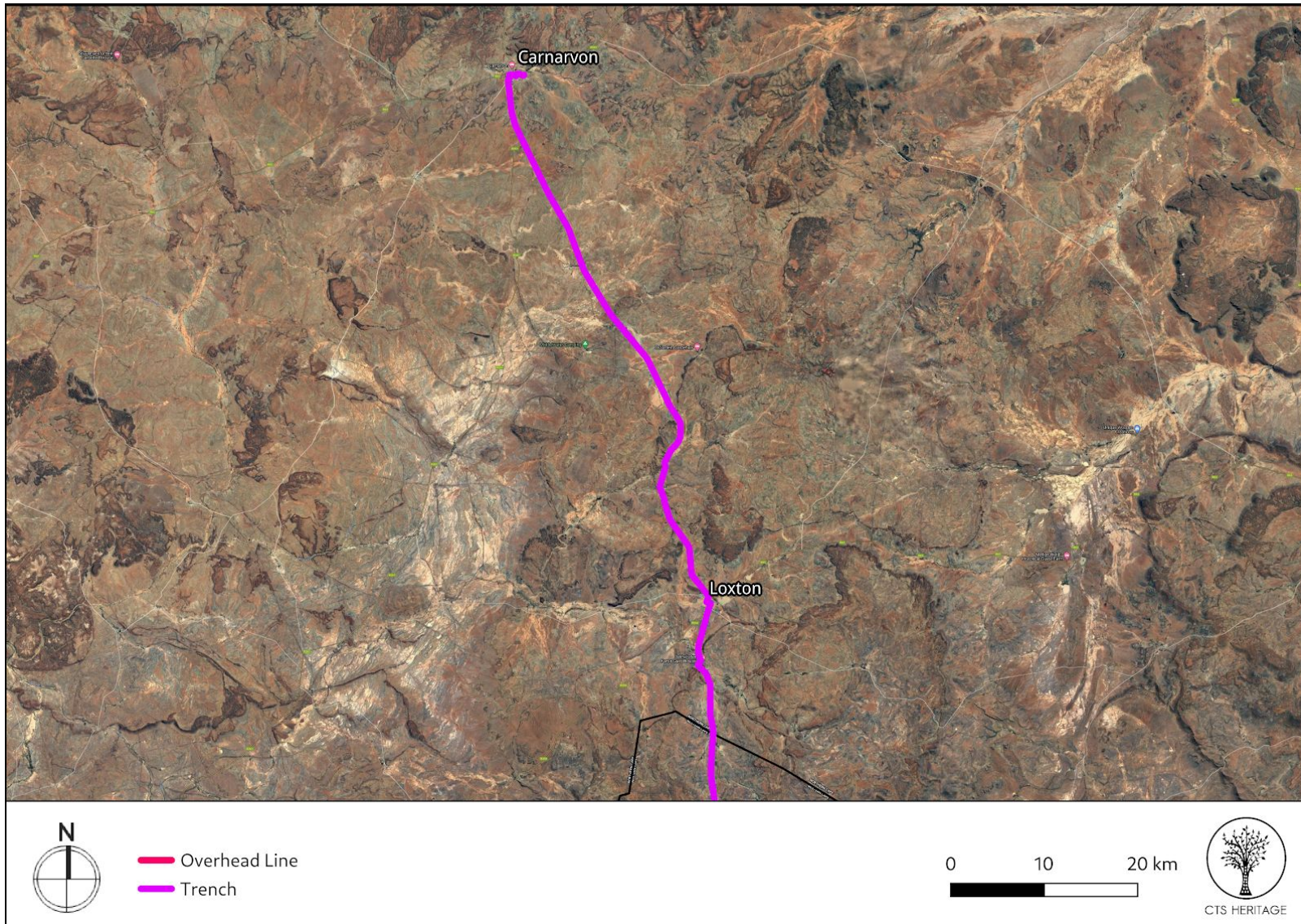
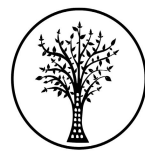


Figure 1b Overview Map. Satellite image (2017) indicating the proposed development area at closer range in the Northern Cape

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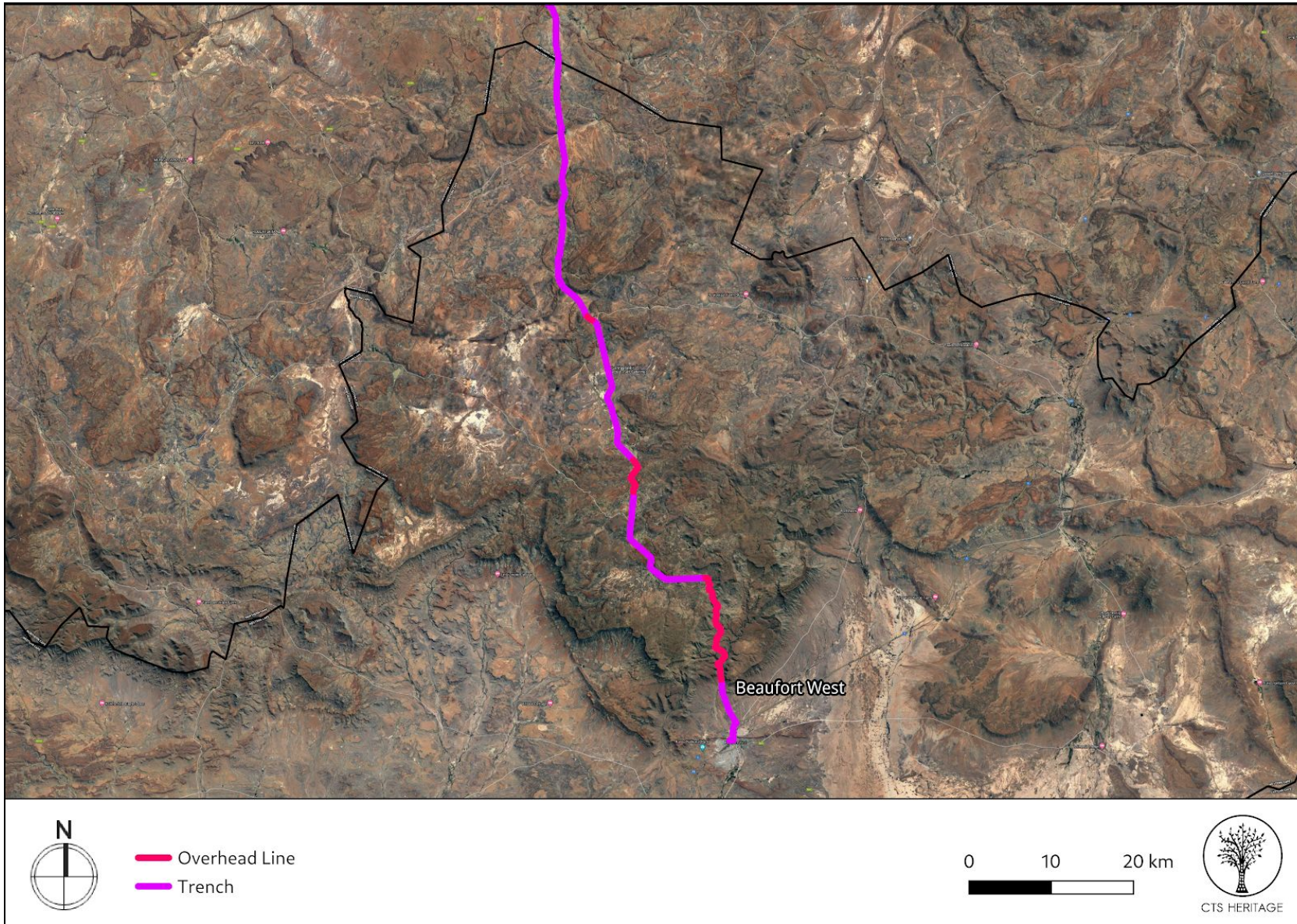
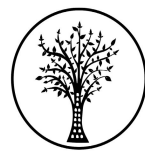


Figure 1c. Overview Map. Satellite image (2017) indicating the proposed development area at closer range in the Western Cape.

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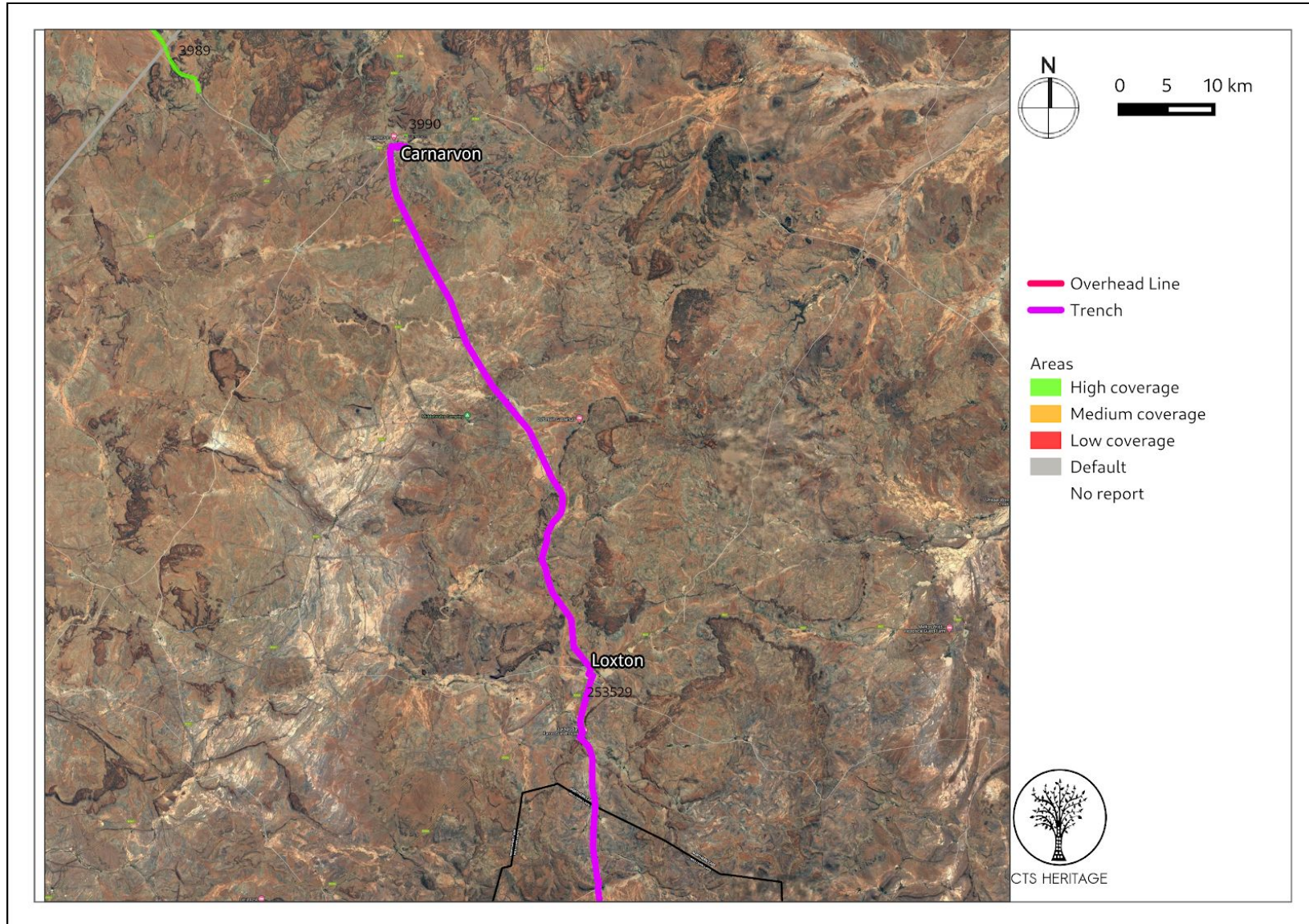
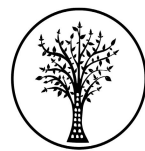


Figure 2a. Previous HIAs Map. Previous Heritage Impact Assessments surrounding the proposed development area in the Northern Cape, with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.

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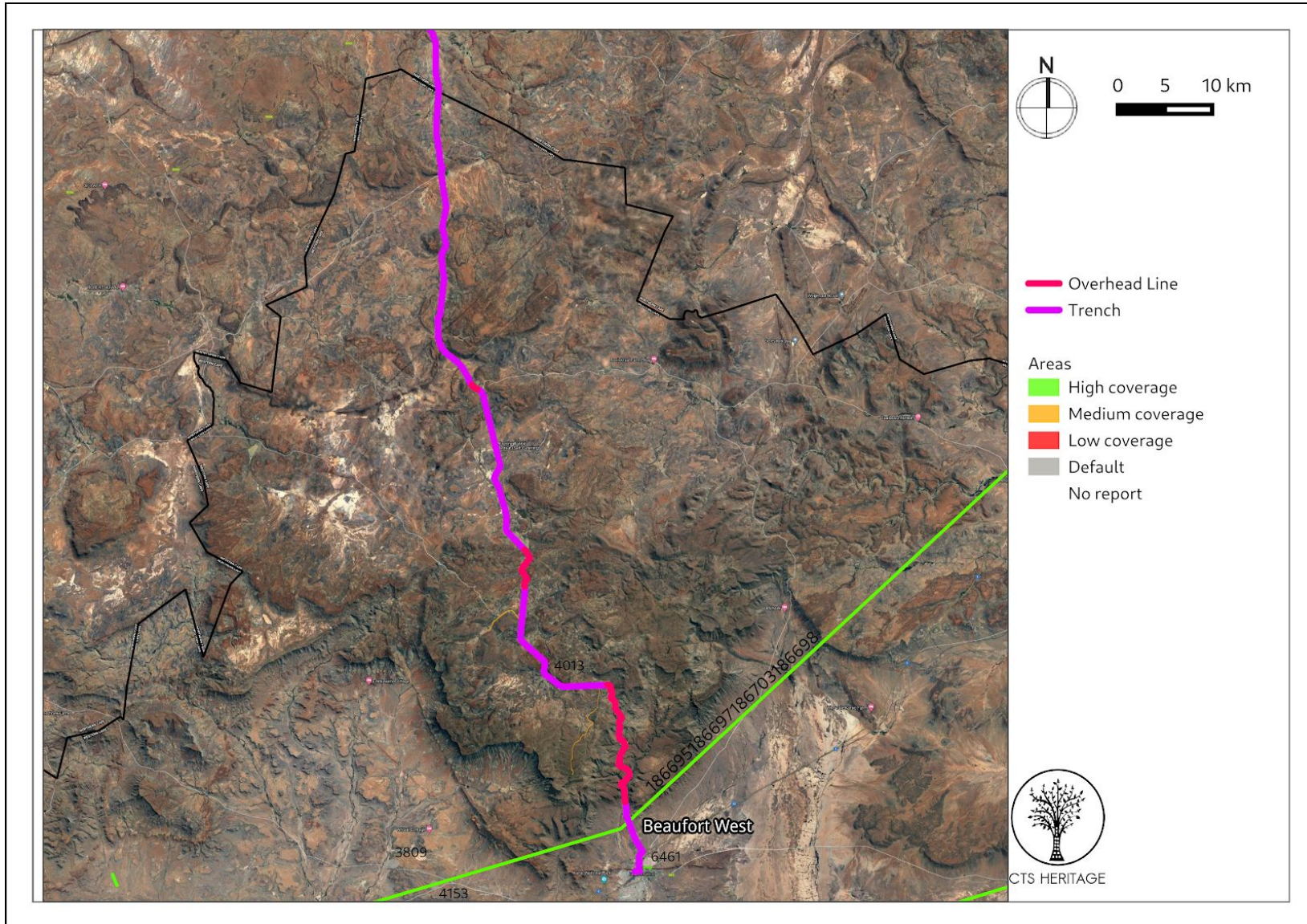
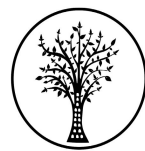


Figure 2b. Previous HIAs Map. Previous Heritage Impact Assessments surrounding the proposed development area in the Western Cape, with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.

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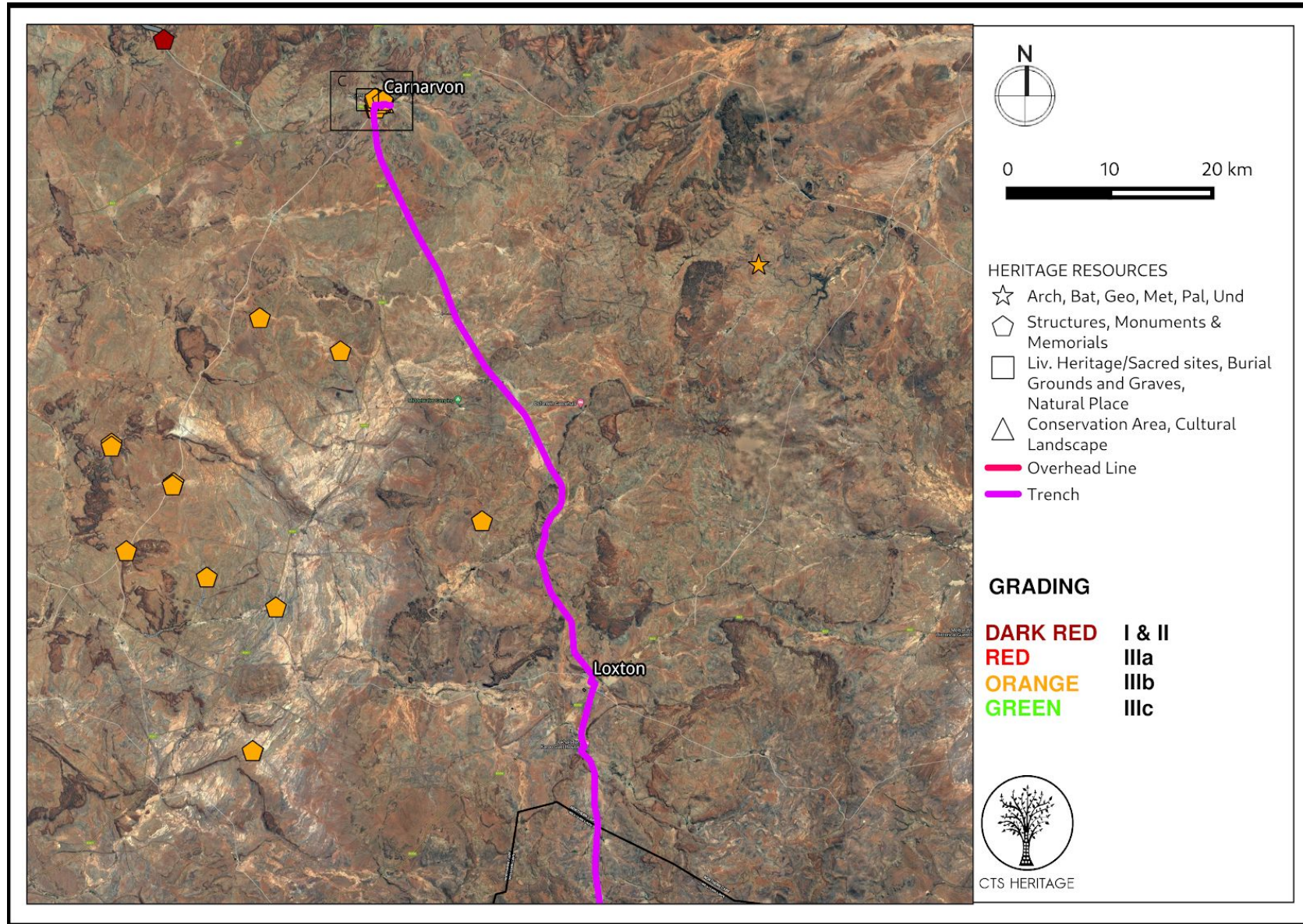
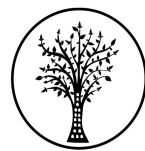


Figure 3a. Heritage Resources Map. Heritage Resources previously identified in and near the study area in the Northern Cape. Please See Appendix 4 for full description of heritage resource types.

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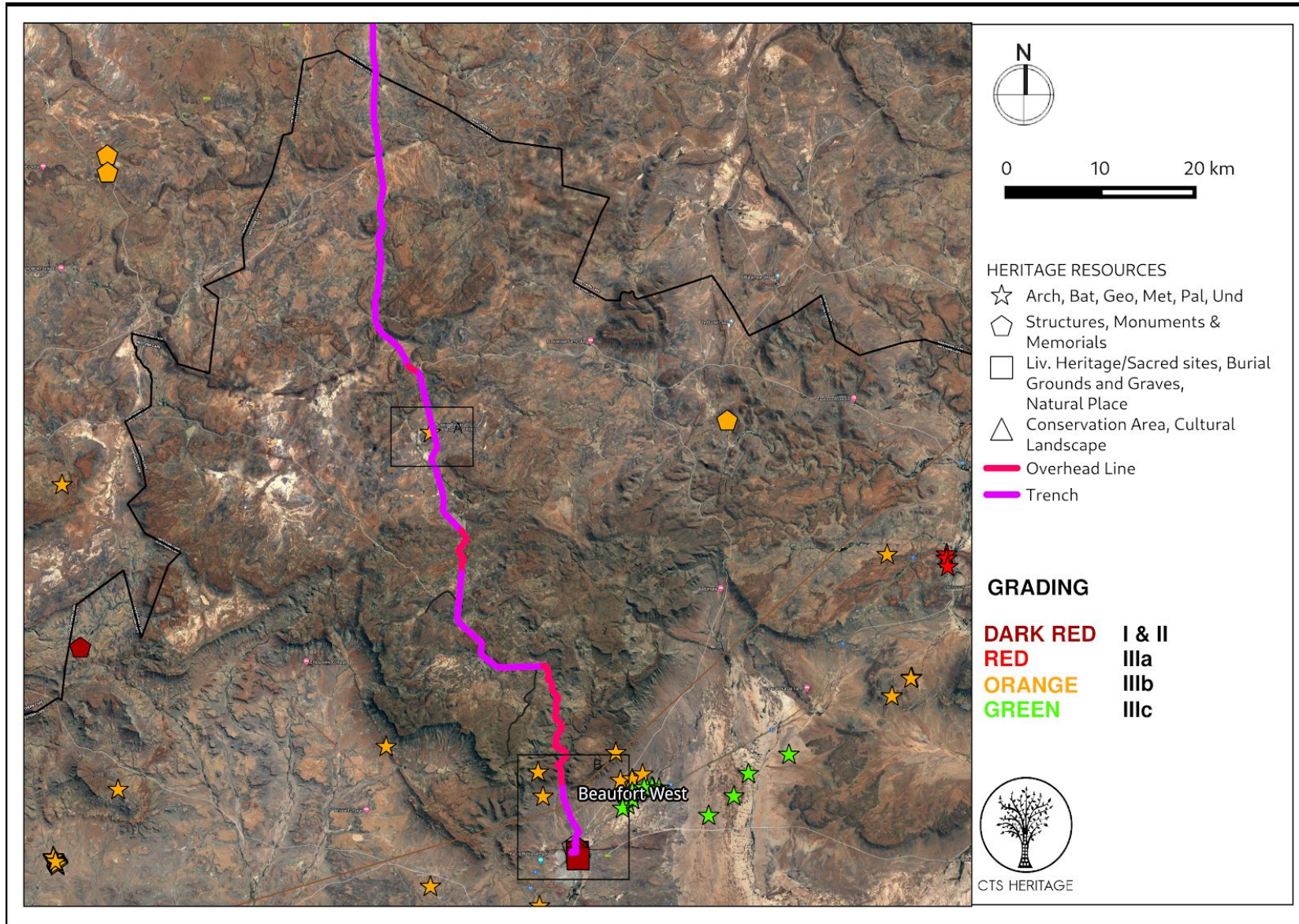
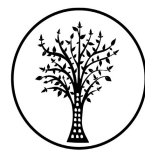


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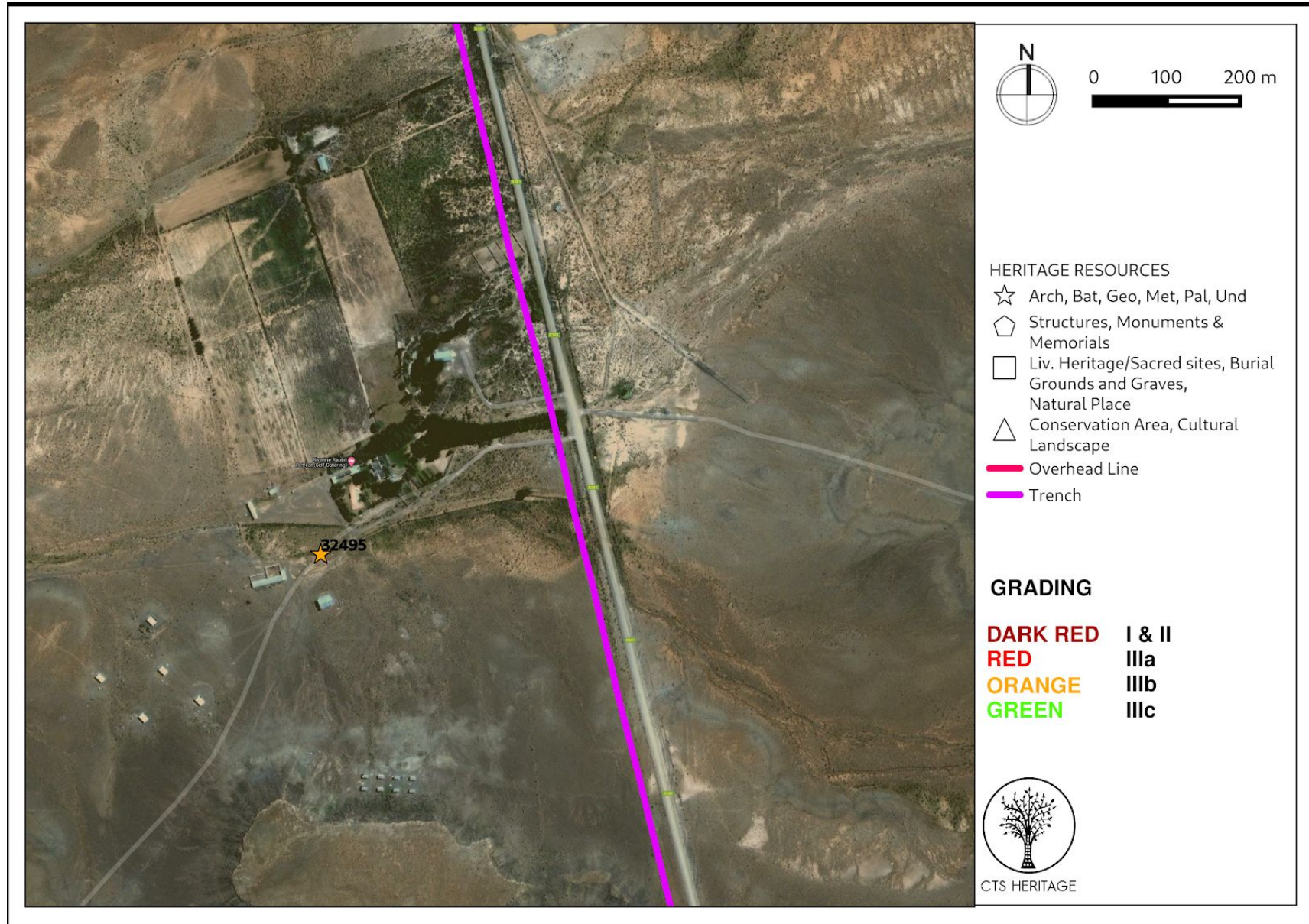
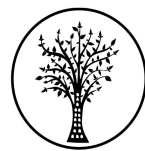


Figure 3c. Heritage Resources Map. Inset A

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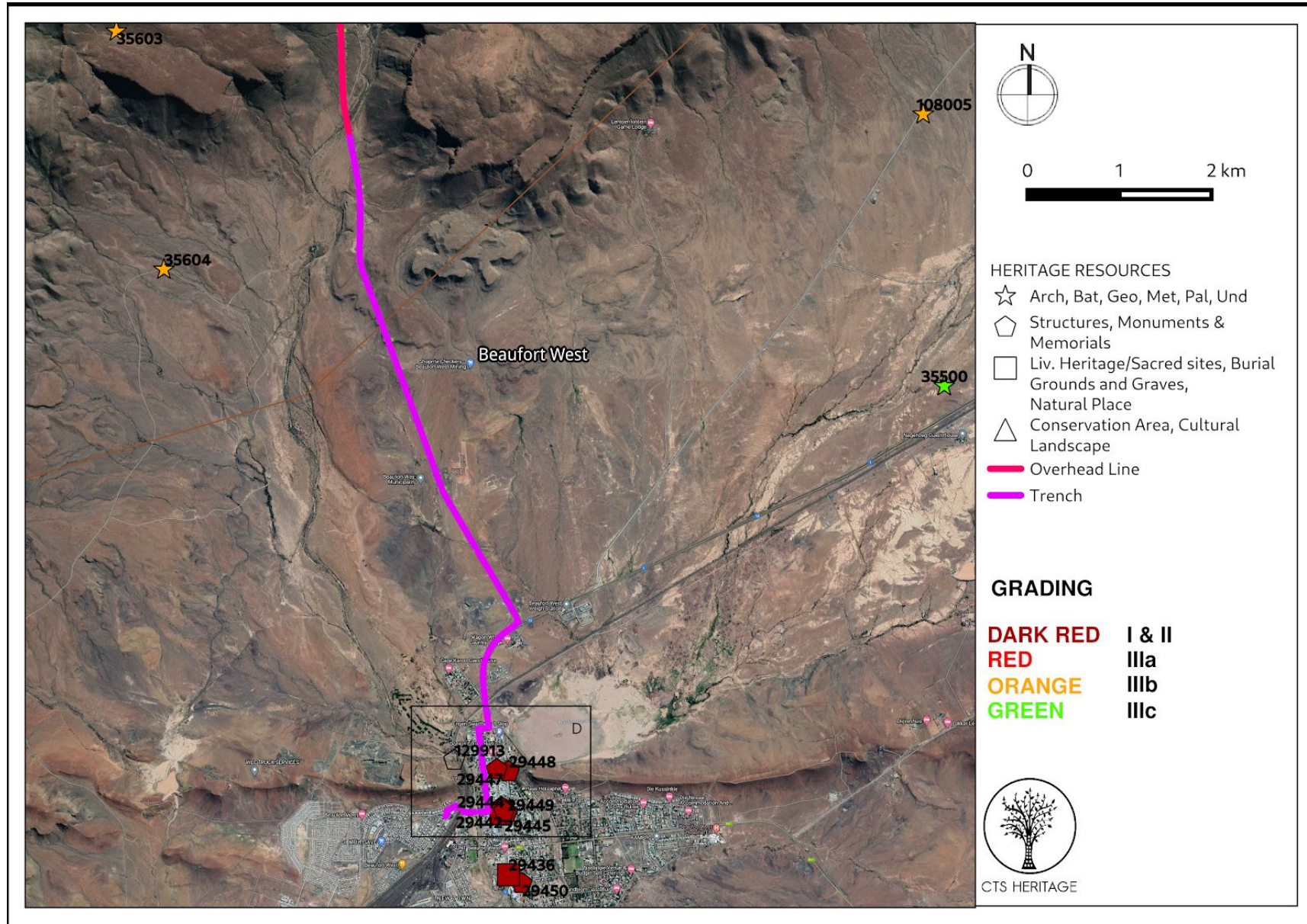
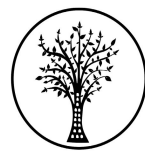


Figure 3d. Heritage Resources Map. Inset B

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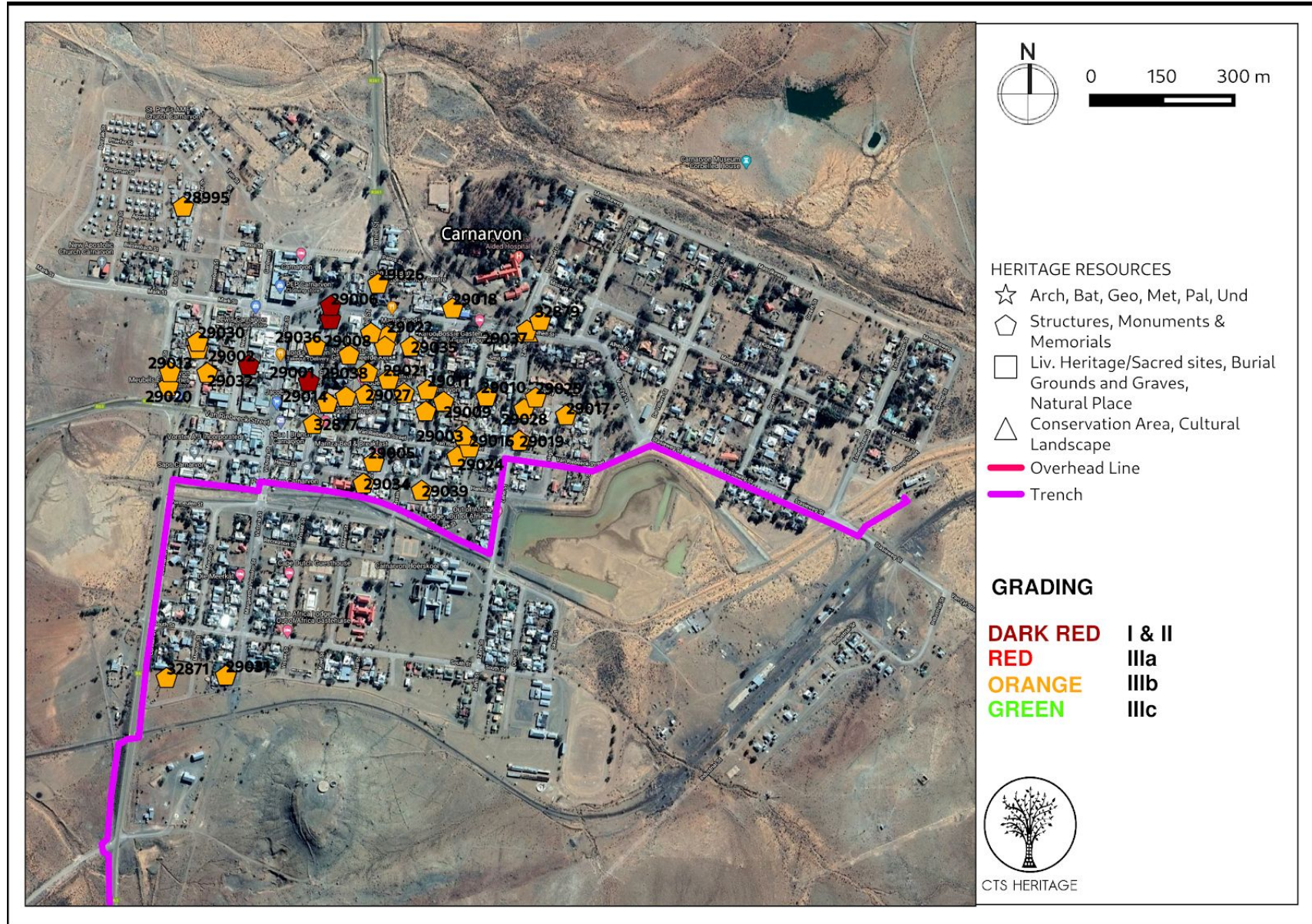


Figure 3e. Heritage Resources Map. Inset C

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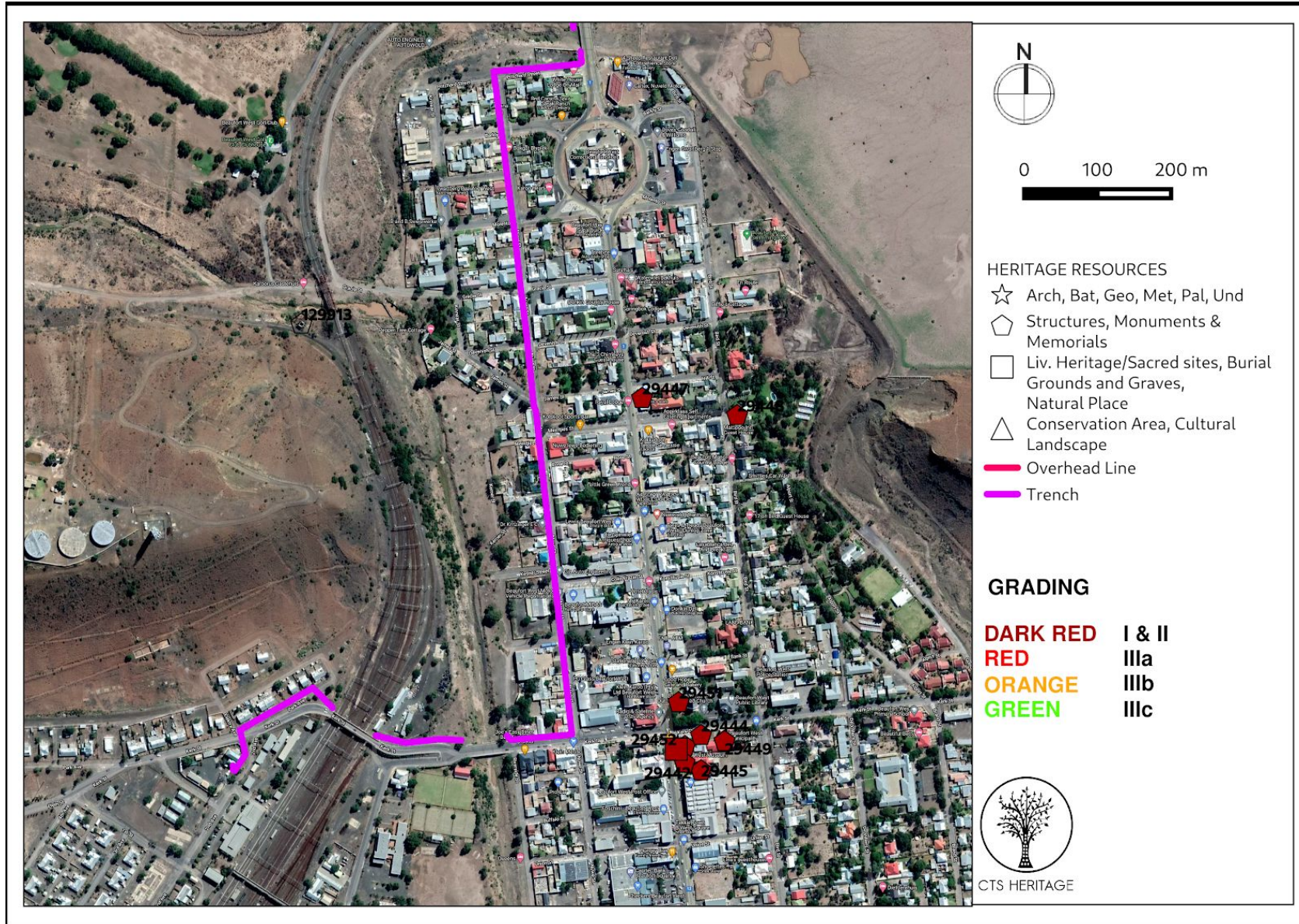
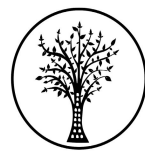


Figure 3f. Heritage Resources Map. Inset D

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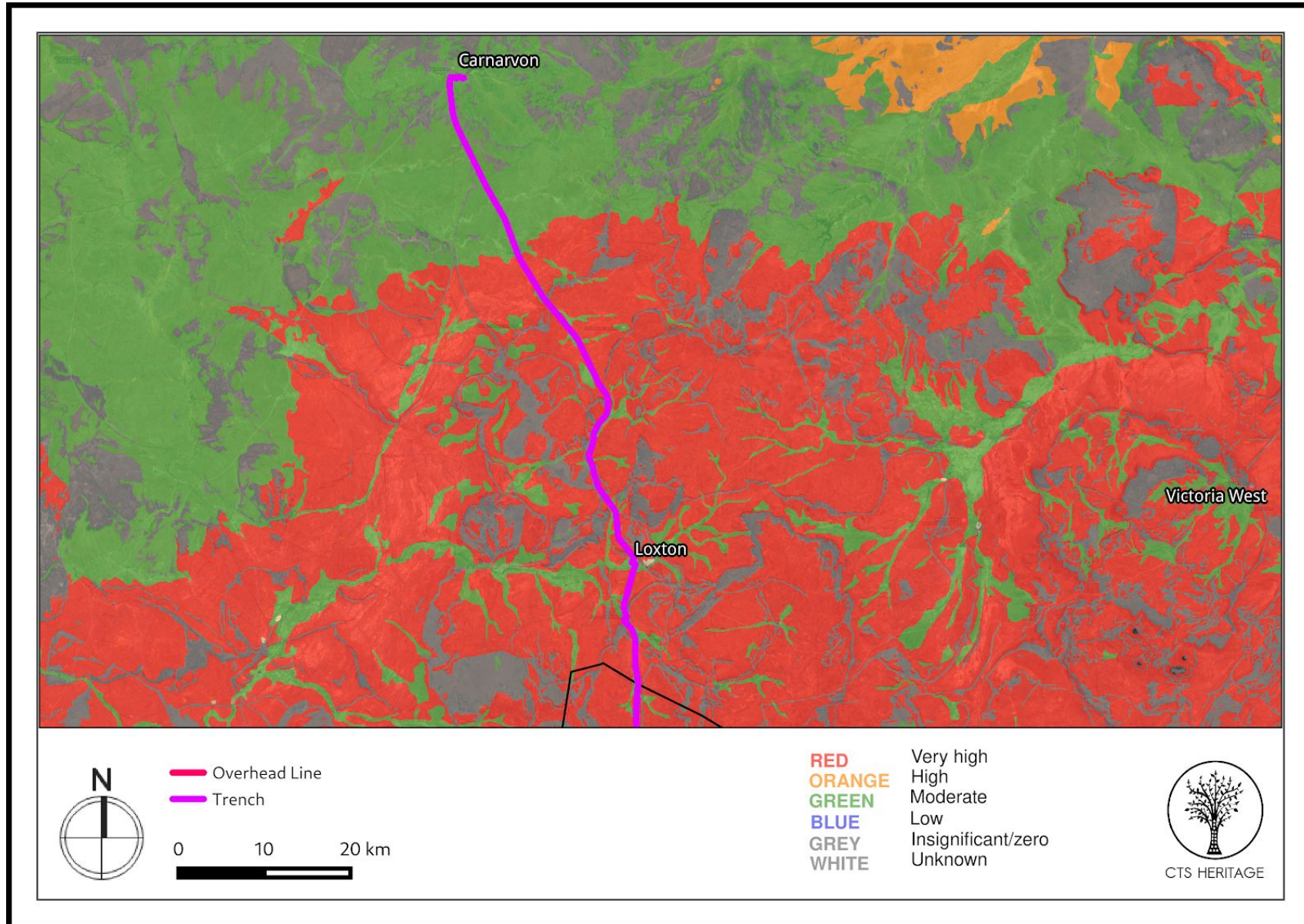


Figure 4a. Palaeosensitivity Map. Indicating fossil sensitivity underlying the study area in the Northern Cape. Please See Appendix 3 for a full guide to the legend.

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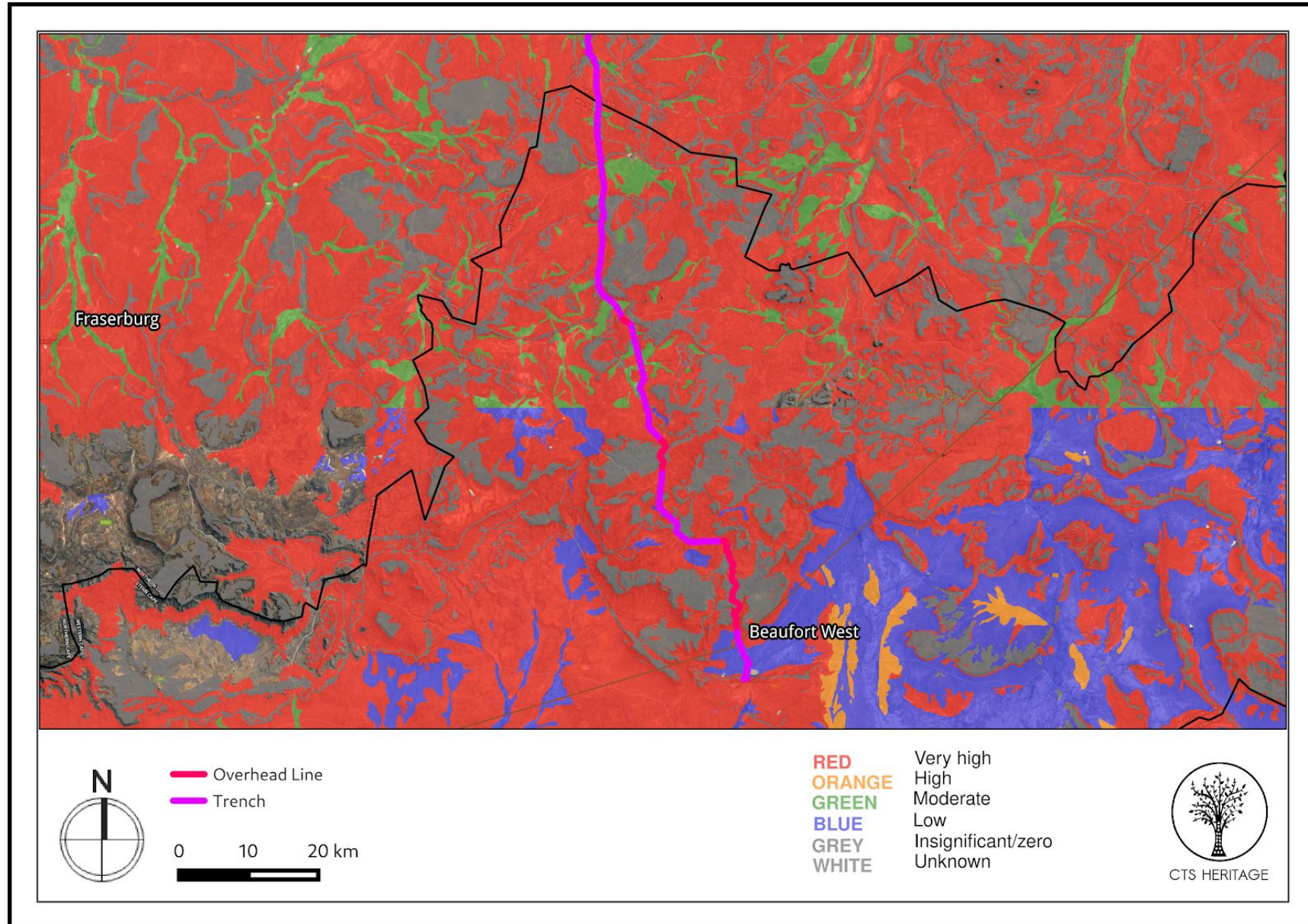


Figure 4b. Palaeosensitivity Map. Indicating fossil sensitivity underlying the study area in the Western Cape. Please See Appendix 3 for a full guide to the legend.

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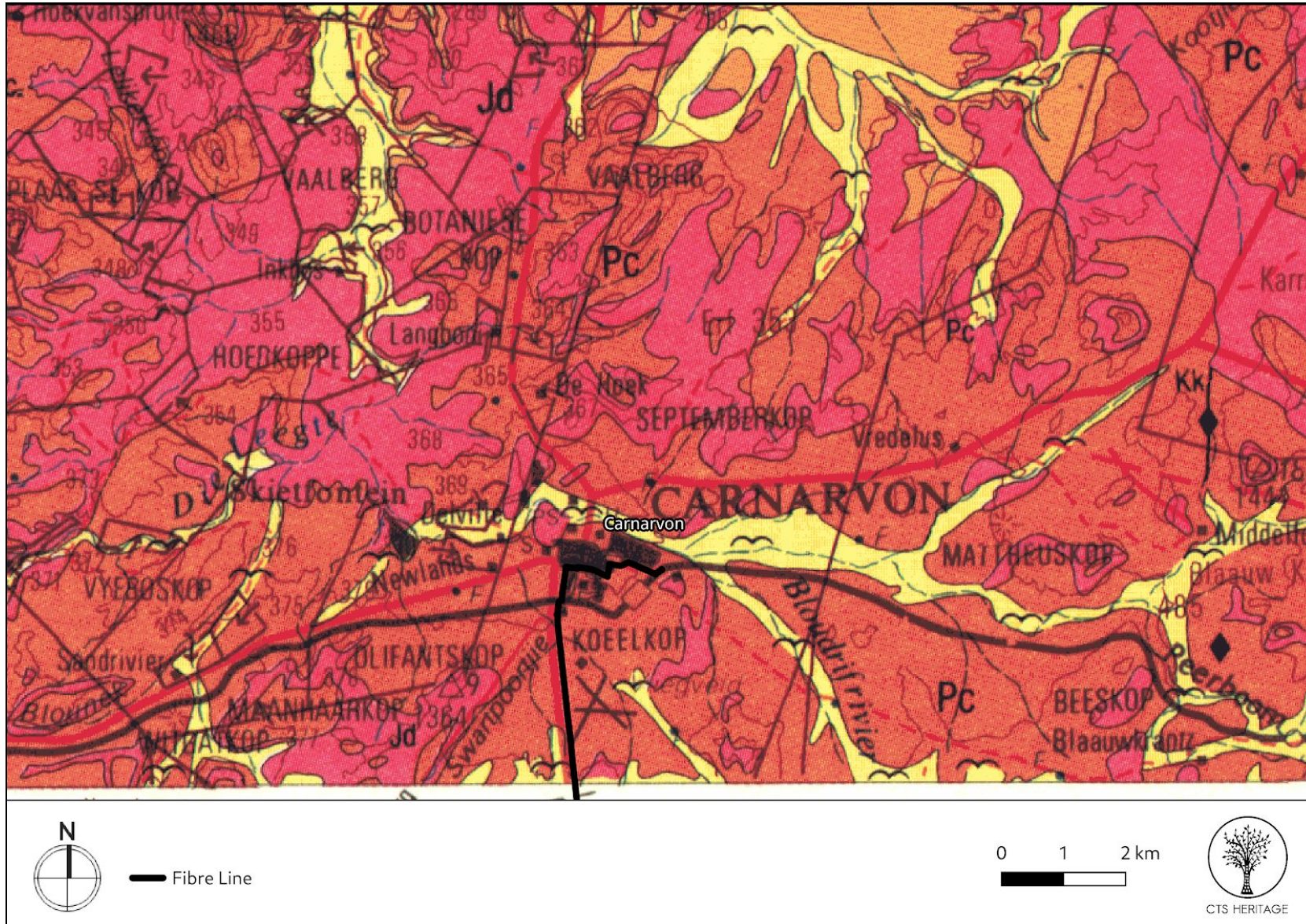
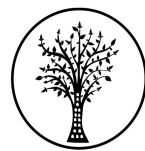


Figure 5a. Geology Map. Extract from the CGS 3022 Britstown Map indicating that the development area is underlain by Pc: Carnarvon Formation of the Ecca Group, Quaternary Sands and Jd: Jurassic Dolerite

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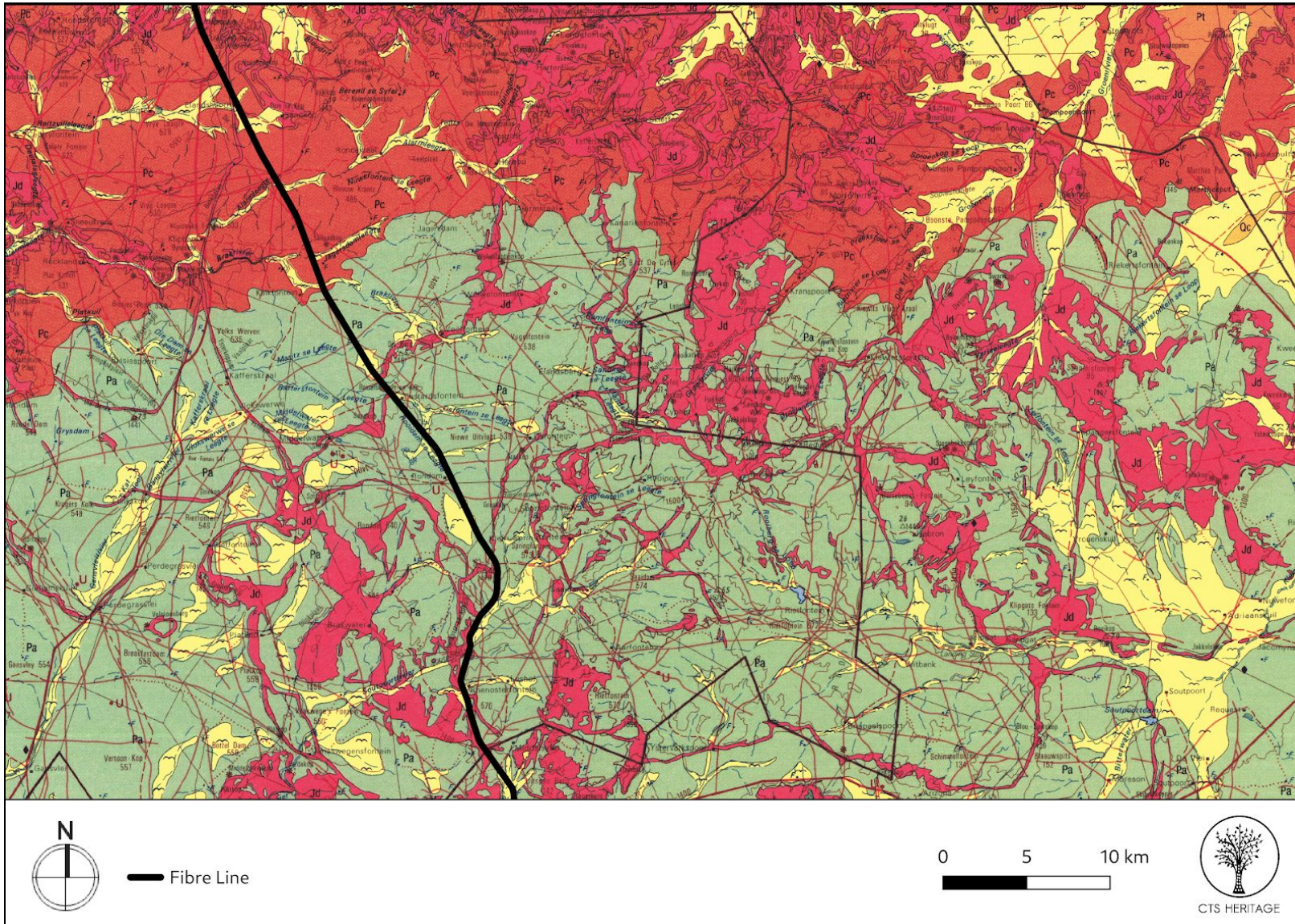
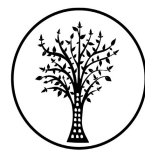


Figure 5b. Geology Map. Extract from the CGS 3122 Victoria West Map indicating that the development area is underlain by Pa: Abramskraal Formation of the Beaufort Group, Pc: Carnavon Formation of the Ecca Group, Quaternary Sands and Jd: Jurassic Dolerite

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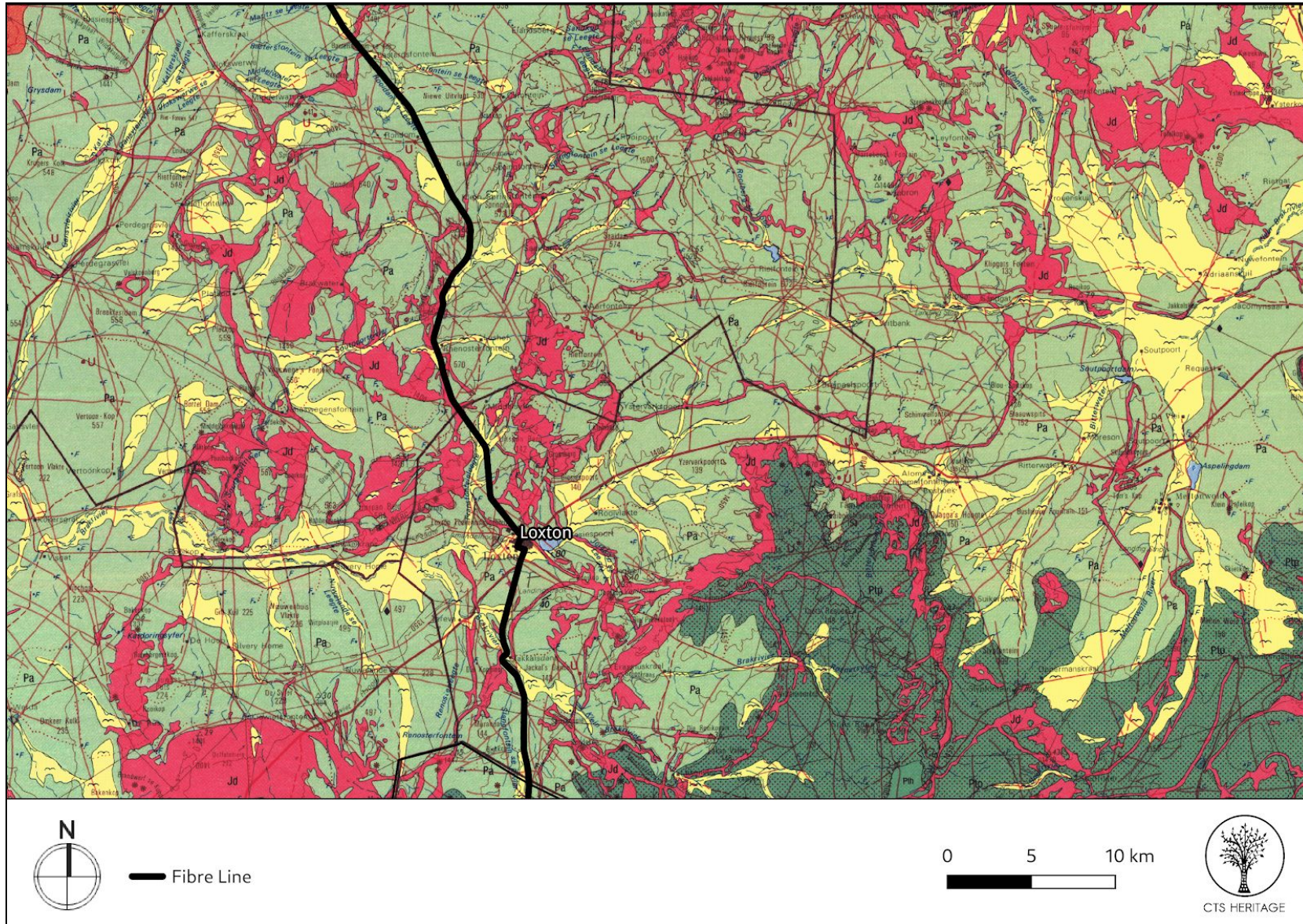


Figure 5c. Geology Map. Extract from the CGS 3122 Victoria West Map indicating that the development area is underlain by Pa: Abramskraal Formation of the Beaufort Group, Pc: Carnavon Formation of the Ecca Group, Quaternary Sands and Jd: Jurassic Dolerite

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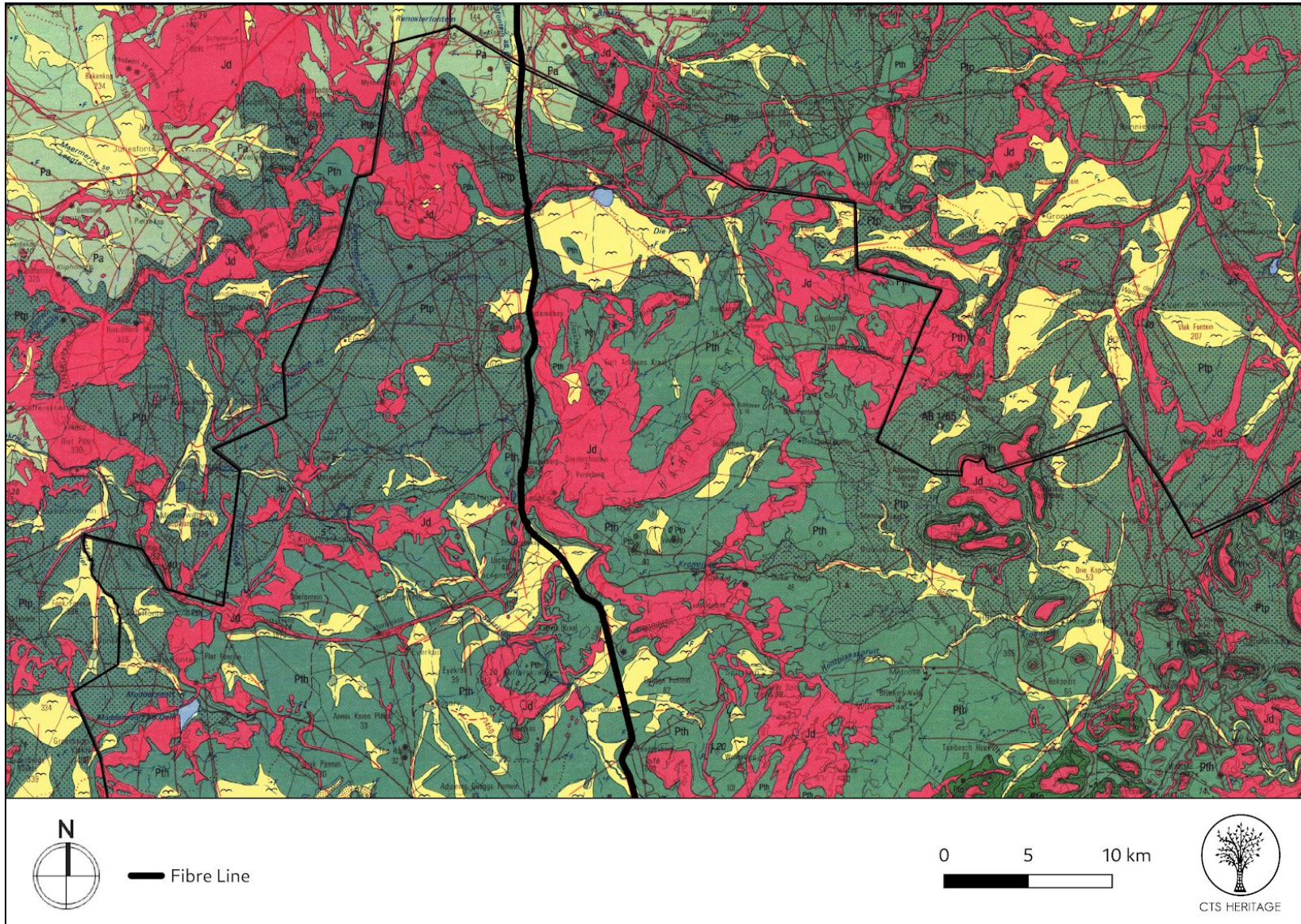
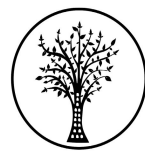


Figure 5d. Geology Map. Extract from the CGS 3122 Victoria West Map indicating that the development area is underlain by Ptp: Poortjie Member and Pth: Hoedemaker Member of the Teekloof Formation, Pa: Abramskraal Formation of the Beaufort Group, Pc: Carnavon Formation of the Ecca Group, Quaternary Sands and Jd: Jurassic Dolerite

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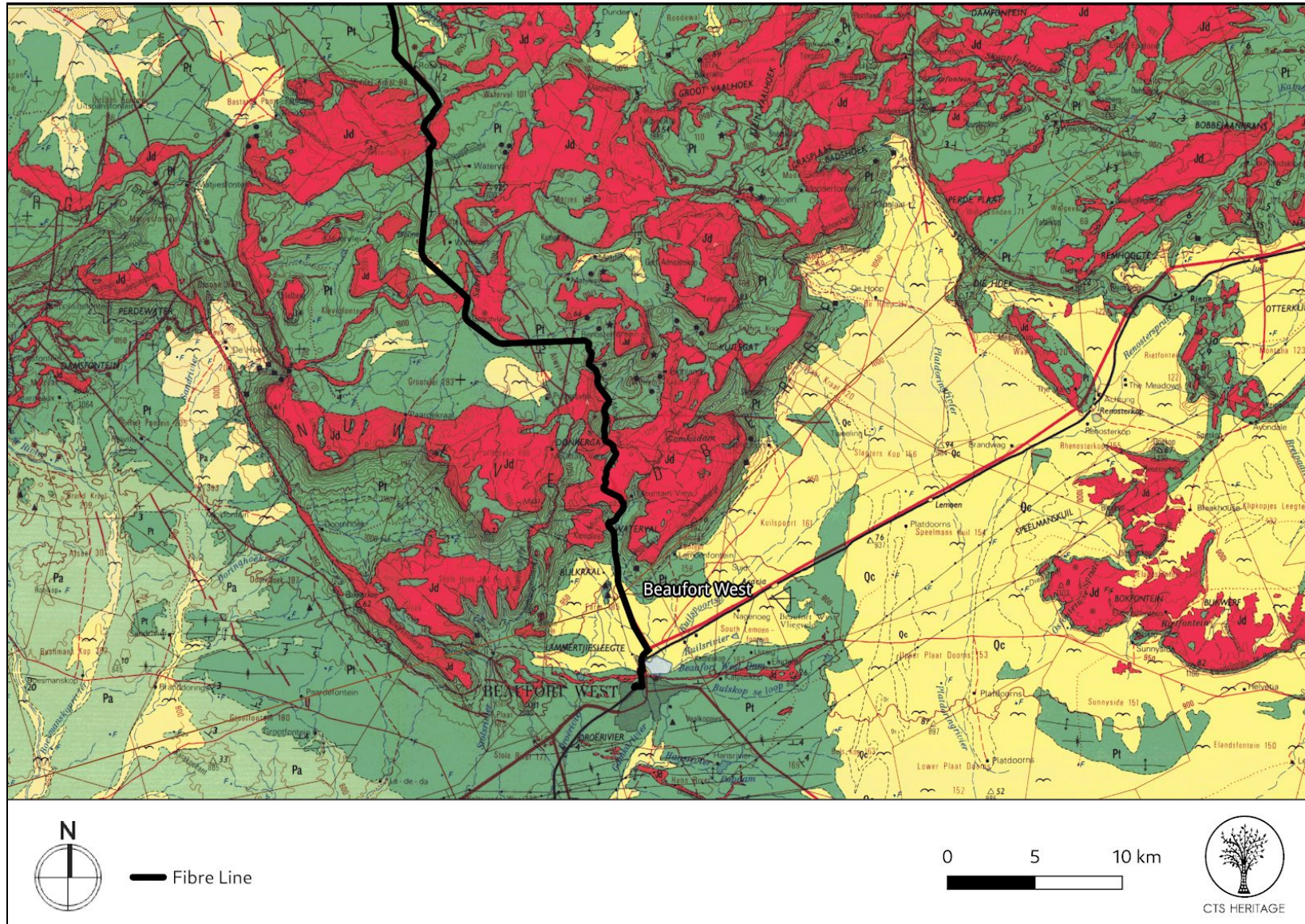
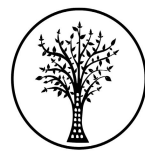


Figure 5e. Geology Map. Extract from the CGS 3222 Beaufort West Map indicating that the development area is underlain by Ptp: Poortjie Member and Pth: Hoedemaker Member of the Teekloof Formation, Pa: Abramskraal Formation of the Beaufort Group, Pc: Carnarvon Formation of the Ecca Group, Quaternary Sands and Jd: Jurassic Dolerite

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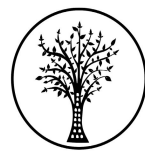


Figure 6.1. Contextual Images. From Beaufort West, facing north along the R381- Google Street View

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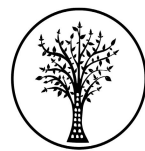


Figure 6.2. Contextual Images. Facing north along the R381 - Google Street View

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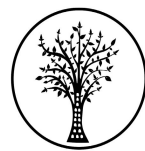


Figure 6.3. Contextual Images. Facing north along the R63 - Google Street View

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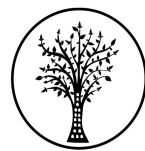


Figure 6.4 Contextual Images. Facing north along the R63 - Google Street View

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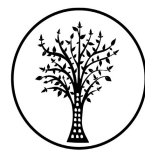


Figure 6.5 Contextual Images. Facing north towards Carnarvon along the R63 - Google Street View

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Figure 7.1 and 7.2 Infrastructure. Photos showing typical underground and overhead fibre optic cable installation

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8. Heritage statement and character of the area

This application is for the proposed installation of a fibre line from Carnarvon to Loxton in the Northern Cape, and from Loxton to Beaufort West in the Western Cape in order to connect the Square Kilometer Array (SKA) to the internet for the purposes of sending and receiving data. The proposed Fibre Line will be allocated within the existing road reserve for the majority of the route and will supplement existing overhead lines where trenching is not possible.

Carnarvon was established in 1853 on a route between Cape Town and Botswana that was followed by early explorers and traders. It was originally established as a mission station of the Rhenish Missionary Society and named Harmsfontein. Loxton's first church building and schoolhouse was built in 1900. Tree-lined streets and flood irrigation channels that run alongside the town's main roads were completed in the same year. The town became a municipality in 1905 as it developed to serve the region's sheep-farming community. The church that stands in the town's centre was constructed in 1924. Beaufort West was the first town to be established in the central Karoo. The town was founded in 1818 and became the first municipality in South Africa on 3 February 1837 and had the country's first town hall. When the railroad reached the town in 1880 it became a marshalling yard and locomotive depot and today it is the largest town in the Karoo. All of these towns have significant historic town centres with a unique sense of place. It is not anticipated that the proposed trenching for the SKA Fibre Line will negatively impact on any historic fabric or on this unique sense of place. However, care must be taken to ensure that historic features such as leiwater systems are not negatively impacted by the proposed trenches.

According to Tusenius (2012, SAHRIS NID 503050), "with the notable exception of the research done by Sampson in the Seacow Valley (1985), the rich archaeological heritage of the Karoo has not been systematically studied... Sites and scatters of Early, Middle and Late Stone Age (ESA, MSA and LSA) material have been recorded, as well as pastoralist occurrences, historical sites, rock paintings and engravings." According to a concise summary of the heritage of the area provided by Rossouw (2019, SAHRIS NID 521590), Rock engravings located to the southeast of Loxton, suggest the possibility that a giant long-horned buffalo (*Syncerus antiquus*), which became extinct more than 10 000 years ago, previously occurred in the area. Furthermore, "multiple rock engraving sites have been recorded in the region and are mainly attributed to San hunter-gatherers who inhabited the area and had done so for thousands of years (Smith et al., 2000: 4) while the pastoralist Khoekhoe had been present in the Karoo for at least 2 000 years (Smith, 2002) The historical footprint is largely represented by the vernacular architecture of the well-known corbelled houses in the region, which is related to 19th century trekboers who occupied these buildings, and whose cultural history dates back to their 18th century movement onto the VOC Cape frontier that resulted in ongoing interaction with indigenous people in the Karoo." As the proposed development is anticipated to be restricted to existing road reserve, it is not anticipated that the proposed development will have a negative impact on significant archaeological heritage. However, it is well established that ESA, MSA and LSA archaeological occurrences are prevalent throughout the broader Karoo landscape and these resources may be impacted by the proposed development.

Based on the SAHRIS Palaeosensitivity Map (Figure 4a and 4b), most of the area proposed for development is underlain by sediments that have very high palaeontological sensitivity. According to geology maps from the CGS, these sediments include the Poortjie Member and Hoedemaker Member of the Teekloof Formation, and the Abrahamskraal Formation of the Beaufort Group. According to Rossouw (2019), the study area is located within "early Permian Abrahamskraal Formation rocks of the Adelaide Subgroup (Karoo Supergroup) that is capped by severely degraded, superficial sheet wash and channel related (Quaternary) deposits bounded by Jurassic age dolerite intrusions to the north. The Loxton area lies within the outcrop area of the Tapinocephalus Assemblage Zone (AZ) which spans the middle part of the Abrahamskraal Formation. Vertebrate fossils of the Tapinocephalus AZ are not as common as in succeeding biozones and are usually found as individual specimens in the mudrock sequences in association with, and often enveloped by, brown-weathering calcareous nodular material. This faunal assemblage is mainly represented by small dicynodonts, large dinocephalians, pareiasaurs and pristerognathid therocephalians." It is therefore likely that any excavation conducted within this palaeontologically sensitive area is likely to negatively impact on significant palaeontological heritage.

RECOMMENDATION:

As the proposed development may negatively impact on significant archaeological and palaeontological heritage and as such, it is recommended that an HIA is required in order to assess the nature of these impacts and proposed methods for mitigating this impact.

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APPENDIX 1

List of heritage resources within close proximity to the proposed development

Site ID	Site no	Full Site Name	Site Type	Grading
29018	9/2/019/0002-143	14 Alheit Street, Carnarvon	Building	Grade IIIb
29019	9/2/019/0002-144	16 Zahn Street, Carnarvon	Building	Grade IIIb
29020	9/2/019/0002-145	1 End Street, Carnarvon	Building	Grade IIIb
29037	9/2/019/0002-077	Standard Bank, Alheit Street, Carnarvon	Building	Grade IIIb
29038	9/2/019/0002-080	10 Daniel Street, Carnarvon	Building	Grade IIIb
29039	9/2/019/0002-085	Erf 330, Hanau Street, Carnarvon	Building	Grade IIIb
29033	9/2/019/0002-086	17 Daniel Street, Carnarvon	Building	Grade IIIb
29034	9/2/019/0002-087	Erf 328, Hanau Street, Carnarvon	Building	Grade IIIb
29035	9/2/019/0002-125	22 Grey Street, Carnarvon	Building	Grade IIIb
29036	9/2/019/0002-128	19 Church Street, Carnarvon	Building	Grade IIIb
29028	9/2/019/0002-129	22 Zahn Street, Carnarvon	Building	Grade IIIb
29029	9/2/019/0002-130	11 Sterrenberg Street, Carnarvon	Building	Grade IIIb
29030	9/2/019/0002-131	7 Sterrenberg Street, Carnarvon	Building	Grade IIIb
29031	9/2/019/0002-134	2 Victoria Street, Carnarvon	Building	Grade IIIb
29032	9/2/019/0002-135	8 Sterrenberg Street, Carnarvon	Building	Grade IIIb
29026	9/2/019/0002-136	24 Daniel Street, Carnarvon	Building	Grade IIIb

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29027	9/2/019/0002-137	4 Daniel Street, Carnarvon	Building	Grade IIIb
29022	9/2/019/0002-138	19 Grey Street, Carnarvon	Building	Grade IIIb
29023	9/2/019/0002-139	17 Grey Street, Carnarvon	Building	Grade IIIb
29024	9/2/019/0002-140	13 Van Riebeeck Street, Carnarvon	Building	Grade IIIb
29025	9/2/019/0002-141	9 Kronkel Road, Carnarvon	Building	Grade IIIb
29017	9/2/019/0002-142	5 Kronkel Road, Carnarvon	Building	Grade IIIb
29021	9/2/019/0002-146	9-11 Grey Street, Carnarvon	Building	Grade IIIb
29013	9/2/019/0002-147	5 End Street, Carnarvon	Building	Grade IIIb
29014	9/2/019/0002-148	10 Church Street, Carnarvon	Building	Grade IIIb
29015	9/2/019/0002-149	12 Grey Street, Carnarvon	Building	Grade IIIb
29016	9/2/019/0002-150	Johanna Street, Carnarvon	Building	Grade IIIb
29010	9/2/019/0002-151	14 Johanna Street, Carnarvon	Building	Grade IIIb
29011	9/2/019/0002-152	9 River Street, Carnarvon	Building	Grade IIIb
29012	9/2/019/0002-153	5 River Street, Carnarvon	Building	Grade IIIb
29008	9/2/019/0002-154	20 Daniel Street, Carnarvon	Building	Grade IIIb
29009	9/2/019/0002-155	6 River Street, Carnarvon	Building	Grade IIIb
29003	9/2/019/0002-156	7 Johanna Street, Carnarvon	Building	Grade IIIb
29004	9/2/019/0002-157	5 Daniel Street, Carnarvon	Building	Grade IIIb
29005	9/2/019/0002-158	1 Grey Street, Carnarvon	Building	Grade IIIb

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28995	9/2/019/0014	De Bult, Carnarvon	Building	Grade IIIb
29453	9/2/010/0003	Old Town Hall, Donkin Street, Beaufort West	Building	Grade II
29452	9/2/010/0002/001	Cypress tree, Bird Street, Beaufort West	Natural	Grade II
29445	9/2/010/0017/001	Old Dutch Reformed Mission Church Parsonage, 91 Donkin Street, Beaufort West	Building	Grade II
29442	9/2/010/0017/002	Old Dutch Reformed Mission Church, 89 Donkin Street, Beaufort West	Building	Grade II
29448	9/2/010/0004	Matoppo House, 7 Bird Street, Beaufort West	Building	Grade II
29449	9/2/010/0007	Old Girls' Public School, Church Street, Beaufort West	Building	Grade II
29450	9/2/010/0008	Historic Ring-Wall of the Old Cemetery, Bird Street, Beaufort West	Structures	Grade II
29447	9/2/010/0012	Clyde House, 25 Donkin Street, Beaufort West	Building	Grade II
29444	9/2/010/0016	Old Public Library, 15 Church Street, Beaufort West	Building	Grade II
29436	9/2/010/0018	Pear trees, Donkin Street, Beaufort West	Natural	Grade II
29041	9/2/019/0002-023	Old Parsonage, Union Square, Carnarvon	Building	Grade II
29006	9/2/019/0003	Dutch Reformed Mission Church Complex, Union Square, Carnarvon	Building	Grade II
29001	9/2/019/0005	Svenskbo, 11 Church Street, Carnarvon	Building	Grade II
29002	9/2/019/0007	14 New Street, Carnarvon	Building	Grade II
32871	9/2/019/3	Sendingkerk complex	Building	Grade IIIb

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32877	9/2/019/5	House at 11 Church Street	Building	Grade IIIb
32879	9/2/019/7	14 Nuwe Street Carnarvon	Building	Grade IIIb
32495	Dunedin	Quagga Fontein 82	Palaeontological	Grade IIIb
32880	9/2/019/8	Horsemill Groot Kareebosfontein Farm	Building	Grade IIIb
35500	GK003	Gamma Kappa 003	Artefacts	Grade IIIc
35601	GK066	Gamma Kappa 066	Artefacts	Grade IIIb
35603	GK068	Gamma Kappa 068	Artefacts	Grade IIIb
35604	GK069	Gamma Kappa 069	Rock Art	Grade IIIb
32953	9/2/019/15	Buildings entered into Register Carnarvon	Conservation Area	Grade IIIb
108004	BEAUF03	Beaufort West 03	Artefacts	Grade IIIb
108005	BEAUF04	Beaufort West 04	Artefacts	Grade IIIb
108008	BEAUF07	Beaufort West 07	Artefacts	Grade IIIb
89874	Carnarvon	Carnarvon	Place	
129913	9/2/010/0010	Anglo-Boer War Blockhouse, Beaufort West	Structures	
29451	9/2/010/0002	Dutch Reformed Church, 85 Donkin Street, Beaufort West	Building	Grade II

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APPENDIX 2

Reference List from SAHRIS

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
3989	AIA Phase 1	Cobus Dreyer	19/04/2007	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Borrow Pit Sites Along the P02996 Road Between Carnarvon & the Ska Site, Northern Cape
3990	AIA Phase 1	Cobus Dreyer	17/09/2007	First Phase Archaeological and Cultural Heritage Investigation of the Proposed Upgrading of the Oxidation Pond System at Carnarvon, Northern Cape
4013	AIA Phase 1	Jonathan Kaplan	01/02/2006	Phase 1 Archaeological Impact Assessment Proposed Klavervlei Powerline Karoo National Park
6461	AIA Phase 1	Jonathan Kaplan	01/02/2008	Phase 1 Archaeological Impact Assessment: Proposed Development Remainder of Farm 185 (Now Called Plot 8419) Beaufort West, Western Cape Province
253529	HIA Phase 1	Cobus Dreyer	20/12/2014	First phase archaeological and heritage assessment of the proposed solid waste disposal site at Loxton, Northern Cape
186695	HIA Phase 1	McEdward Murimbika	01/08/2014	Proposed Gamma-Kappa 2nd 765kV Eskom Transmission Powerline and Substations Upgrade Development in Western Cape PHASE 1 HERITAGE IMPACT ASSESSMENT STUDY REPORT
186697	AIA Desktop	Foreman Bandama, Shadreck Chirikure	01/08/2014	An Archaeological Scoping and Assessment report for the proposed Gamma (Victoria West, Northern Cape) - Kappa (Ceres " Western Cape) 765Kv (2) Eskom power transmission line
186698	PIA Desktop	JF Durand	09/06/2013	GAMMA-KAPPA 765kV Transmission Line, Western Cape Province SCOPING REPORT PALAEOLOGY
186703	Visual Impact Assessment		01/01/2014	THE PROPOSED GAMMA KAPPA 2ND 765KV TRANSMISSION POWERLINE AND SUBSTATIONS UPGRADE, NORTHERN AND WESTERN CAPE (NEAS REFERENCE DEA/EIA/0001267/2012 DEA REFERENCE14/12/16/3/3/2/353) VISUAL IMPACT ASSESSMENT

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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 PALAEOONTOLOGICAL 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

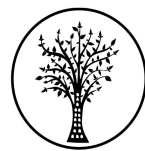
DETERMINATION OF THE COVERAGE RATING ASCRIBED TO A REPORT POLYGON

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.

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(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.

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