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HERITAGE SCREENER/ HIGH-LEVEL DESKTOP REPORT

CTS Reference Number:	CTS26_0033	
South African Heritage Resources Information System (SAHRIS) CaselD:		
Client:	Manyabe Consultancy (Pty) Ltd on behalf of Tharisa Minerals PLC	
Date:	May 2026	
Title:	Proposed Tharisa Minerals (Pty) Ltd Battery Energy Storage System, Near Marikana, North West	
Recommendation by CTS Heritage Specialists	Based on the available information, it is unlikely that the proposed development will impact on significant heritage resources and as such, it is recommended that no further heritage studies are required.	

Map A: Satellite map indicating the location of the proposed development in the North West Province.



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Although all possible care has been taken to identify sites of cultural importance during the field assessment, it is always possible that hidden or subsurface heritage remains could be overlooked. Should any evidence of archaeological sites or remains (e.g. remnants of stone-built structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils, burials, or other categories of heritage resources be uncovered during construction, work must cease in the vicinity of the find and SAHRA must be alerted immediately to determine an appropriate way forward.

1. Proposed Development Summary

Proposed Tharisa Minerals (Pty) Ltd Battery Energy Storage System, Near Marikana and Rustenburg, North West Province

Tharisa Minerals (Pty) Ltd (hereunder referred to as Tharisa), a subsidiary of Tharisa Public Limited Company (Tharisa plc) who operates Tharisa Mine, is pursuing initiatives to reduce the carbon footprint associated with its mining activities in support of Tharisa plc broader commitments to sustainability and operational decarbonisation. As part of this strategy, Tharisa Minerals (the Applicant) is implementing a photovoltaic (PV) solar power system to supply clean energy to the Administration and Training Centre facilities at the Tharisa Mine. To maximise the benefits of this renewable energy investment and to ensure reliable power availability during morning and evening peak loads, a Battery Energy Storage System (BESS) capable of storing excess solar generation is required. The BESS is designed to store electricity and provide immediate power when needed. This improves grid stability, supports renewable energy integration, offers ancillary services, helps manage network constraints, and aids in meeting peak demand.

Redox One, a developer and manufacturer of Iron Chromium (Fe Cr) flow batteries for industrial scale energy storage, is uniquely positioned to support this requirement. Arxo Metals (Pty) Ltd (hereunder referred to as Arxo Metals) currently manufactures the Fe-Cr electrolyte used in these batteries; utilising materials sourced from the Tharisa Mine. Redox One proposes to implement a demonstration project by installing its RFB 625 BESS, enabling a micro grid solution that delivers clean, reliable energy to the Administration and Training Centre facilities, while showcasing the performance of Fe-Cr flow battery technology.

The proposed BESS Facility will be located within the Tharisa Mine which is situated in both the Rustenburg Local Municipality and the Madibeng Local Municipality, forming part of the Bojanala Platinum District Municipality, North West Province. It must however be noted that the BESS footprint will be within the Rustenburg Local Municipality. The site where the installation will be undertaken is positioned on Portion 317 of Farm K/Kraal 342 JQ, which is owned by Tharisa. The BESS Facility will be deployed on the north western side of the Administration and Training Centre facilities, entirely within the existing mine boundary, on previously modified/disturbed land, thereby minimising additional land transformation.

2. Application References

Name of relevant heritage authority(s)	South African Heritage Resources Agency (SAHRA)
Name of decision making authority(s)	North West Department of Agriculture and Rural Development (NWDARD)

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3. Property Information

Latitude / Longitude	-25.74148203, 27.49272089
Erf number / Farm number	Tharisa Mine
Local Municipality	Rustenburg Local Municipality
District Municipality	Bojanala Platinum District Municipality
Province	North West
Current Use	Mining
Current Zoning	Mining and Agriculture

4. Nature of the Proposed Development

Total Surface Area of development	Approximately 1200 m ²
Footprint L x W x H	11 x 8.2 x 6.6 m

5. Category of Development

	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

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	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

The combined daily energy demand for the Administration and Training Centre facilities is 920 kilowatt per hour (kWh) over a 24-hour cycle. The BESS Facility is intended to meet this demand by storing excess solar energy generated from the solar PV panels, during daytime hours, for use during morning and evening peak load periods at the Admin and Training Centre facilities.

The BESS Facility will integrate with a 250 kilowatt (kW) solar PV system, mounted on existing infrastructure (carports) and will connect to the existing Eskom Junction Box at the Mine using cabling. No new power lines will be constructed

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



Map O1: Satellite image (2026) indicating the proposed development area.

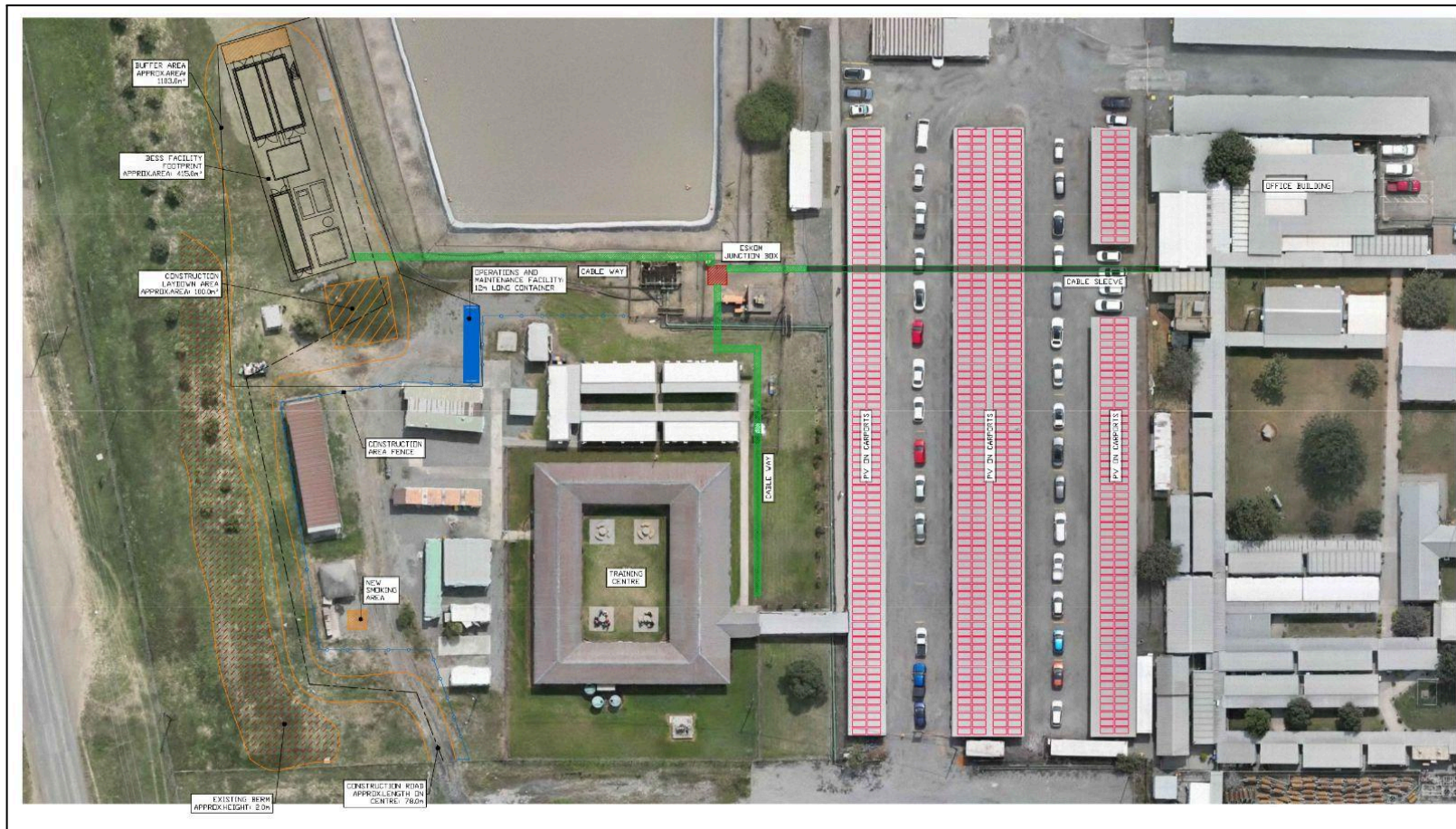
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Map O2: Satellite image (2026) indicating the proposed development at a closer range.

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Map O3: Site design layout provided by the client.

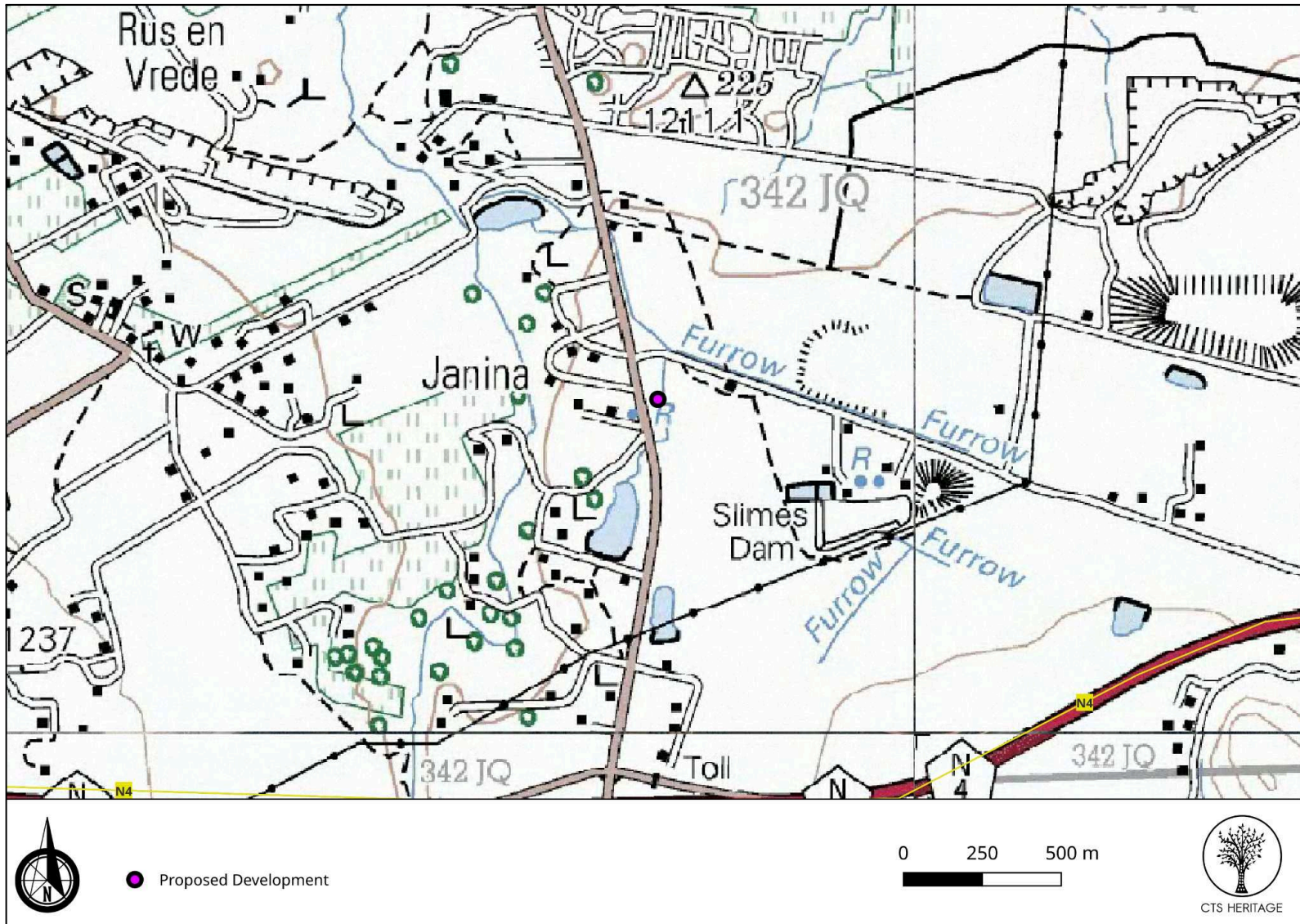
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Map O5: 1:50 000 Topographic Map for the development area.

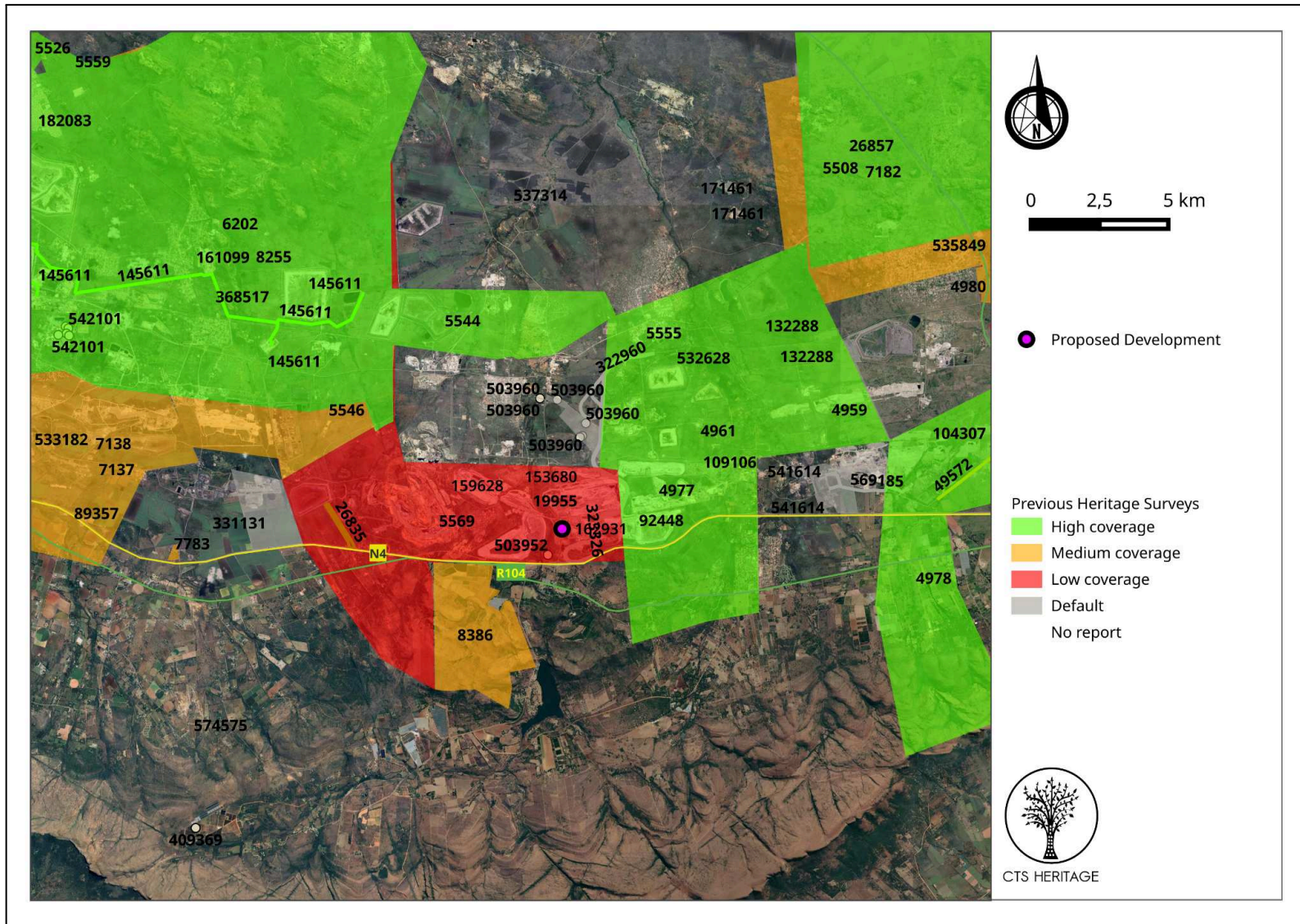
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Map HIAS1: Map of previous Heritage Impact Assessments surrounding the proposed development area, with SAHRIS NIDs indicated. Please refer to Appendix 2 for a list of references.

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- Tracks June 2025
- Proposed Development



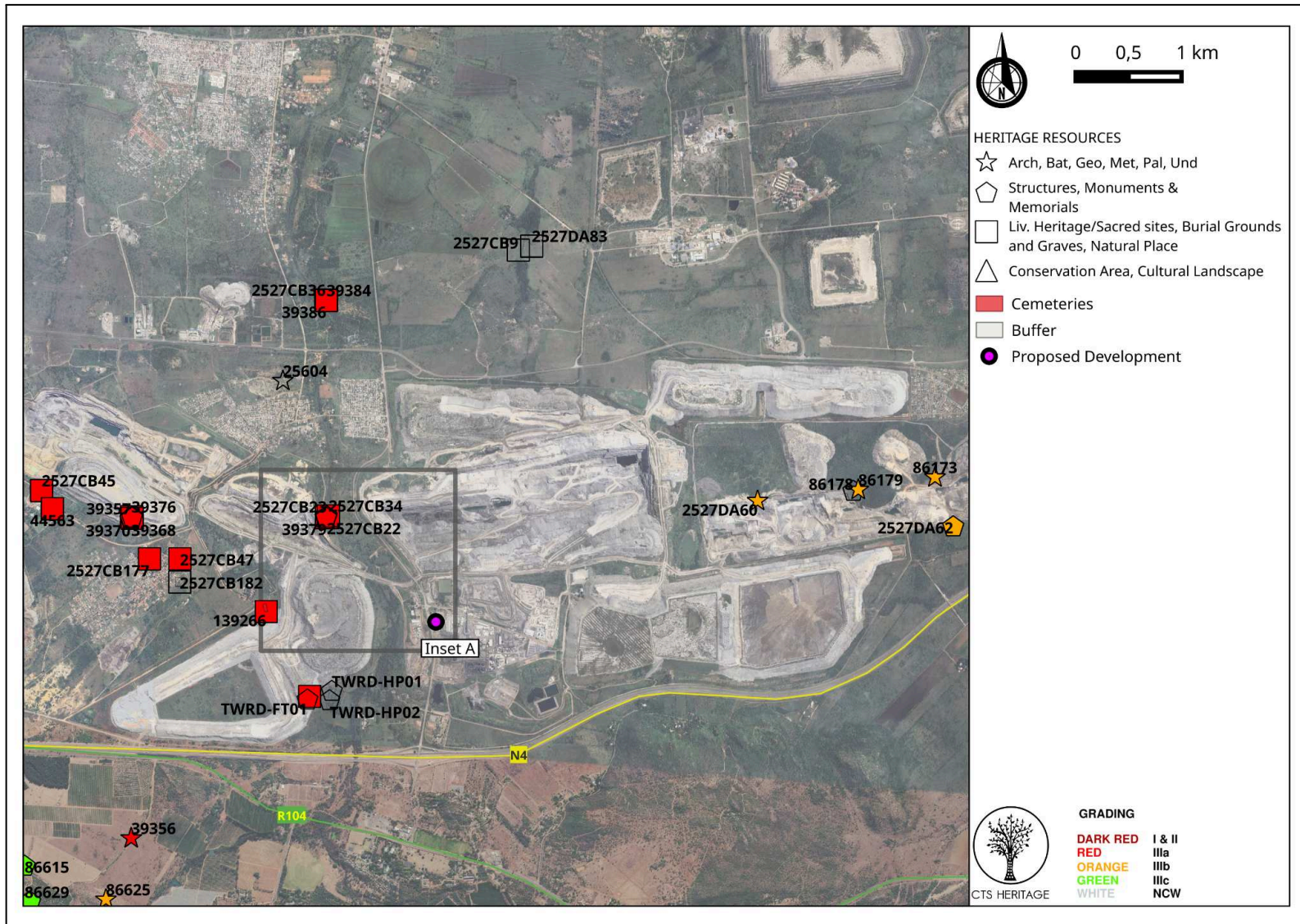
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Map HIAS2: Map of previous CTS Heritage Tracks

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Map HRSP1: Map of Heritage Resources previously identified in and near the study area, with SAHRIS InvNos indicated. Please refer to Appendix 4 for a full description of heritage resource types.

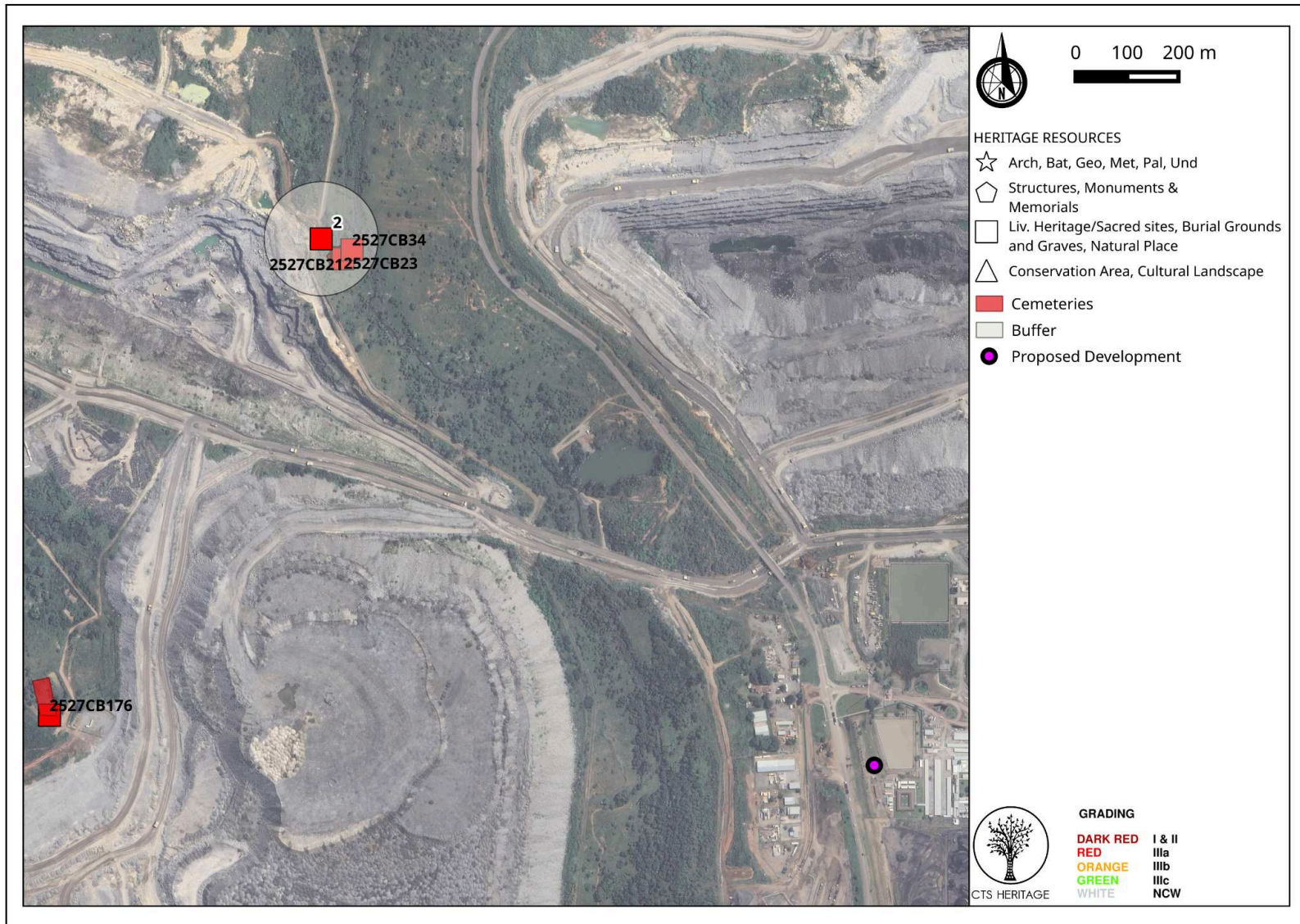
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Map HRSP2: Map of Heritage Resources previously identified in and near the study area, with SAHRIS InvNos indicated. Please refer to Appendix 4 for a full description of heritage resource types.

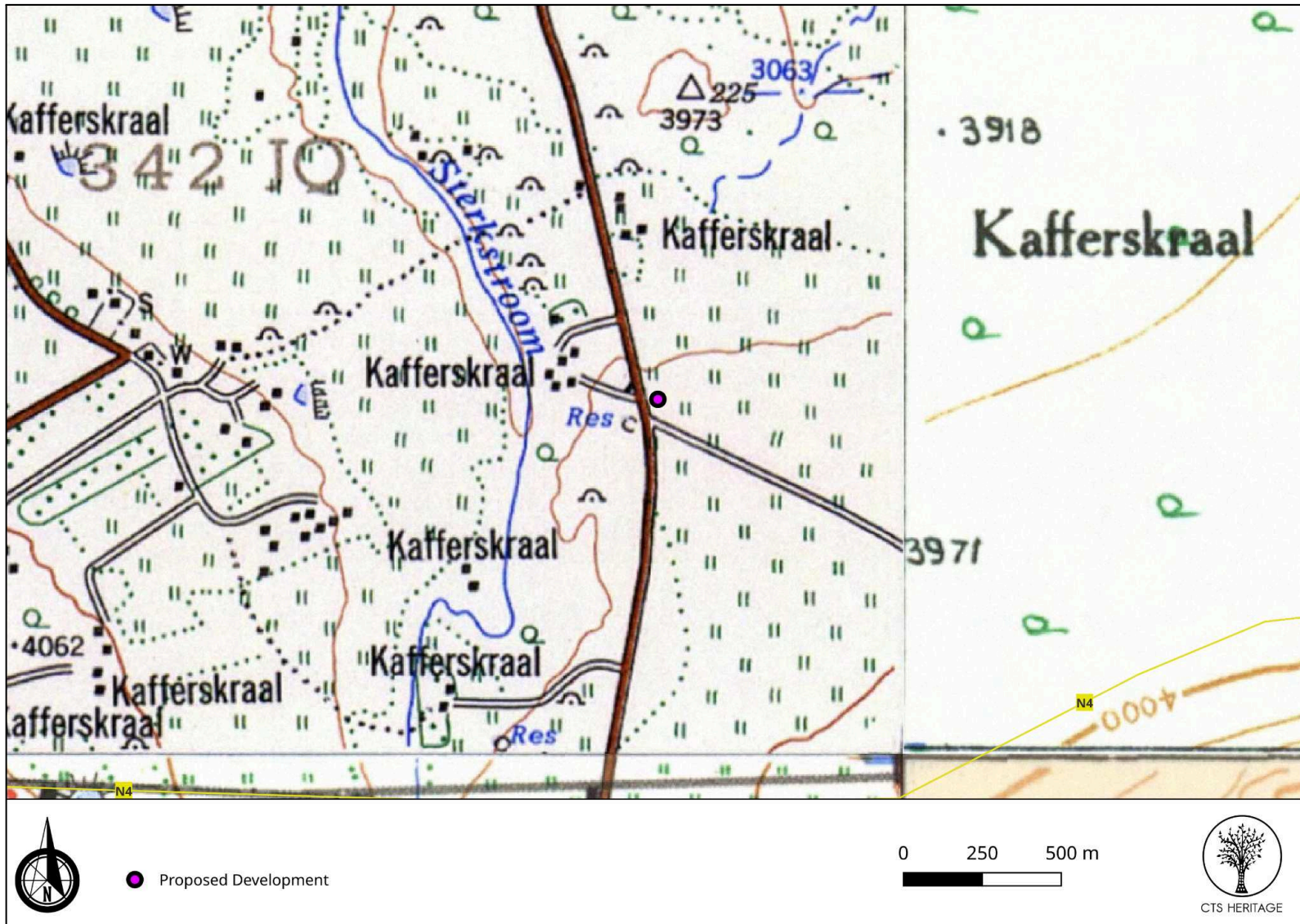
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Map FET1: First Edition Topographic Map indicating historical resources that may still exist.

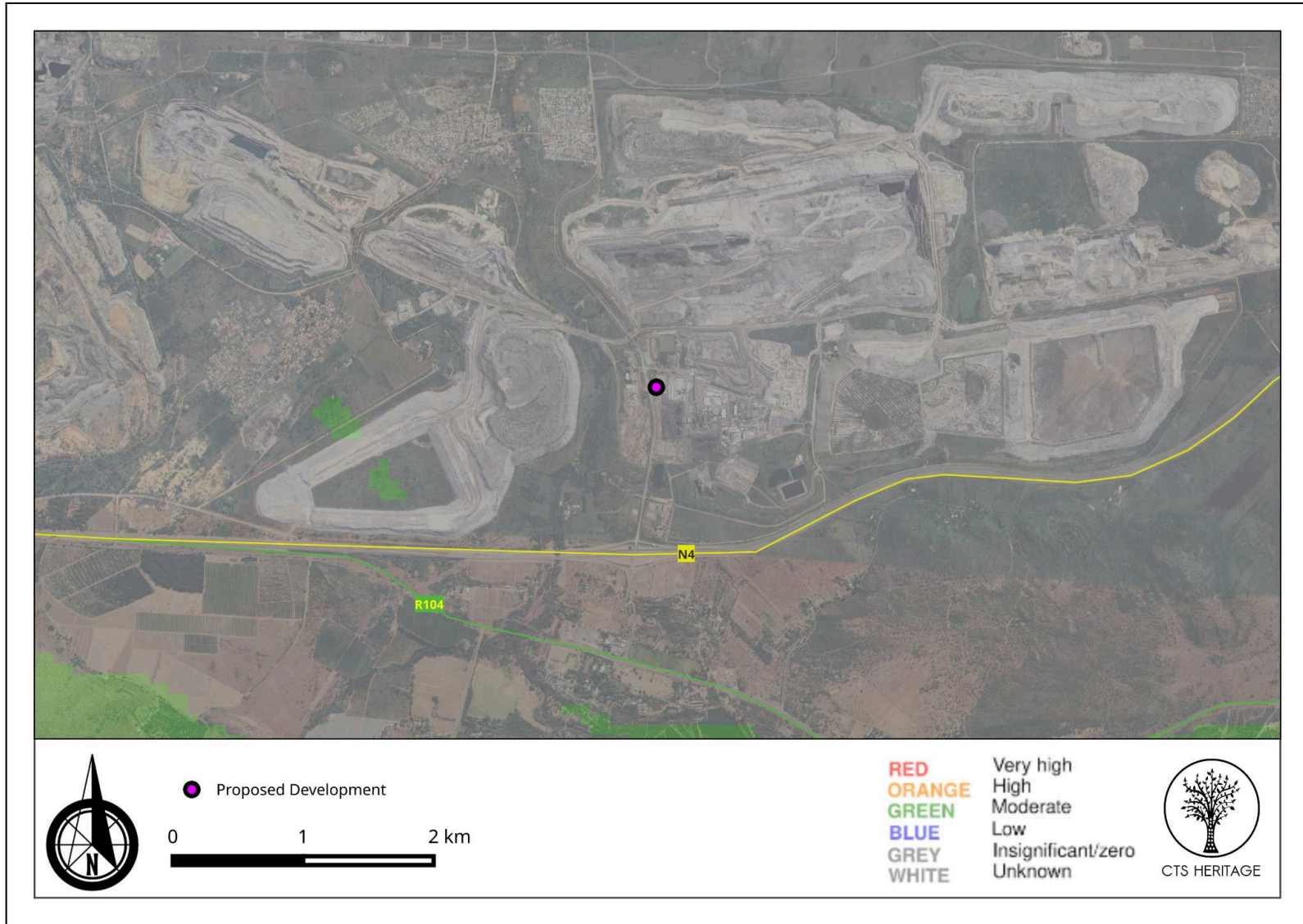
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Map PS1: SAHRIS Palaeosensitivity Map indicating insignificant fossil sensitivity underlying the study area. Please refer to Appendix 3 for a full guide to the legend.

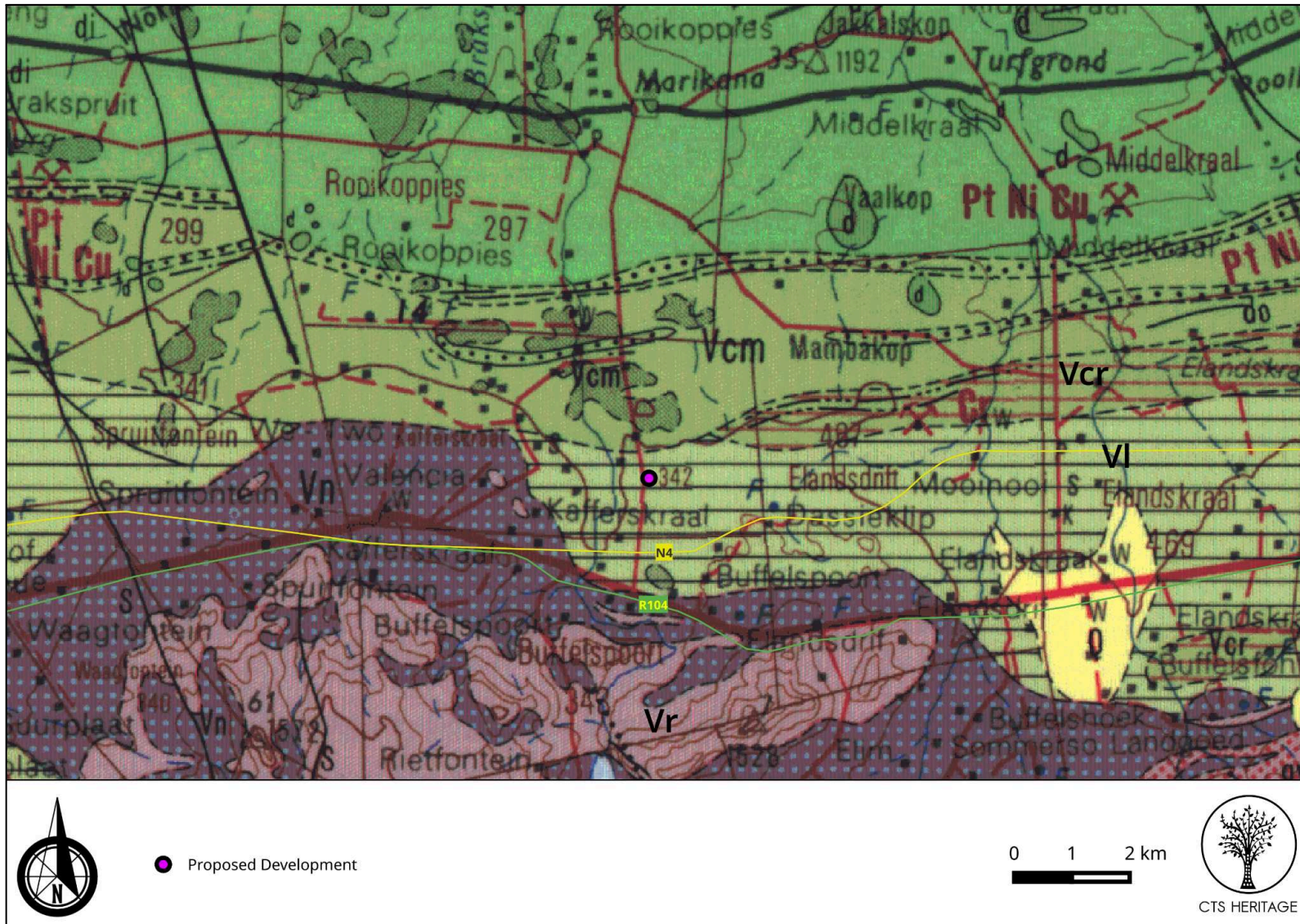
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Map GM1: Extract from the 2526 Rustenburg CGS Geology Map indicating that the development area is underlain by VI: Tweelaagte Bronzitite, Groenfontein Harzburgite, Makgope Bronzitite, Eerlyk Bronzitite and Kroondal Norite.

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8. Heritage statement and character of the area

Background

This application is for the Proposed Tharisa Minerals (Pty) Ltd Battery Energy Storage System (BESS) Development, situated in the Rustenburg Local Municipality, forming part of the Bojanala Platinum District Municipality, North West Province. The existing Tharisa Mine is located approximately 3km south of the town of Marikana. The town was laid out in 1870 on the farm Rooikoppes, and the settlement later expanded into seven farms. In 1933, the Buffelspoort Dam was built, allowing the local farmers to irrigate their crops. The farming community grew in the 1960s on the back of lucrative tobacco farming, but other diversified farming practices i.e. cattle, maize, chillies, paprika, soya, lusern and sunflower amongst the main groups were the main economic drivers of the area. In the 1970s mining was introduced and grew to become the main industry in the region. As the application is for the proposed construction of a BESS development on an existing mine, it is *unlikely to change the character of the area*.

The original farm on which Tharisa Mine falls belonged to W.C.J. van Rensburg, who was president of the Zuid-Afrikaanse Republiek (ZAR) from April 1862 to 1864. The original farmhouse's location could not be determined, and Van Rensburg and his wife's bodies were exhumed in 1974 and reburied in the "Heldeakker" in Pretoria (Pistorius 2009).

Cultural Landscape and History

Pelser (2018) and Kruger (2023) note that *"the North West Province boasts a rich archaeological landscape shaped by millions of years of interaction between climate, geology, and topography. Stone Age habitation, mostly in open-air locales or alongside water sources, is evident, alongside settlements of Bantu-speaking groups, particularly Batswana, who thrived in the Late Iron Age. Their chiefdoms, flourishing around AD 1500-1800, left behind impressive stone-built traditions, with hundreds of sites dotting the granite hills. Early travellers' accounts provide valuable insights into the region's fauna, flora, and inhabitants, including hunting and gathering groups, African farmers, and moving colonists. The area is also abundant in rock art. European farmers arrived in the mid-19th century, dividing the landscape into farms, while recent urban development, spurred by mining activities, has rapidly expanded in the region."*

The Tharisa Project Area, situated within the ecologically sensitive Central Bankeveld, has a rich historical record. Initially inhabited by hunter-gatherers, it later saw the arrival of the first farmers practising mixed agriculture, leading to the development of significant towns south of the Limpopo River. Subsequently, during the Late Iron Age, Tswana chiefdoms emerged, followed by colonists of European descent who settled along the Crocodile and Sterkstroom Rivers, establishing farms which eventually formed the village of Marikana. The discovery of the western leg of the Merensky Reef in the 1920s sparked the growth of the mining industry in the region (Pistorius, 2009). During the last few decades, the historical farming character of the area has changed as a *"result of changing agricultural practices, the expansion of mining industries near Marikana and general development in the wider region"* (Pistorius, 2009).

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Archaeology

As indicated in Map HIAS1 and Map HIAS2, the area proposed for development has been subject to several heritage impact assessments in the past. In the assessment completed by Pistorius (2009) for the Tharisa Mine, he notes the following heritage resources found within the mine area:

- Stonewalled settlements which date from the Late Iron Age;
- Historical structures such as farmhouses with outbuildings, agricultural infrastructure and the Van Rensburg School (now called the Retief Primary School);
- At least six graveyards as well as objects with heritage significance such as outdated and discarded agricultural implements.

Pistorius conducted an additional field assessment in 2014 for the proposed north-eastern waste rock dump (WRD) area which identified no heritage resources of significance. A subsequent heritage field assessment was conducted by Pelser (2018) for the proposed north-eastern WRD, which included the Lapologang Village. Pelser (2018) identified a number of sites and structures, with only 2 (cemeteries, SAHRIS Inventory Numbers 2527CB176 and 2527CB177) of any significance recorded. The others were the remains/ruins of fairly recent buildings and not deemed of any significance. Neither of the cemeteries identified by Pelser (2018) will be impacted by the BESS proposed in this application.

In June 2025, CTS Heritage visited the mine in person to conduct a Heritage Impact Assessment (HIA) for another development related to Tharisa Mine and passed by the area intended for the BESS development. The location of the proposed BESS development is on a completely transformed area next to the mine's pollution control dam (PCD).

There are currently no known sites of heritage/archaeological significance within the 500m radius of the proposed BESS development. As the area is already significantly disturbed, it is unlikely that the proposed development of BESS infrastructure will have an impact on significant heritage resources and no further assessment is recommended.

Palaeontology

According to the SAHRIS Palaeosensitivity Map (Map PS1), the area proposed for development is underlain with sediments of zero fossil sensitivity. According to the extract from the Council of GeoScience Map 2526 for Rustenburg (Map GM1), the geology of the area consists of VI: Tweelaagte Bronzite, Groenfontein Harzburgite including norite all from the Rustenburg Layered Suite, in the Bushveld Complex. Bamford (2022) in a desktop Palaeontological Impact Assessment (PIA) for the same area as the proposed mine noted that "*The northern part of the mine property is on the Mathlagame Norite (Vcm) and the southern part on the Kolobeng Norite (Vn), both of the Rustenburg Layered Suite, Bushveld Igneous Complex (Fig. 2; Cawthorn et al., 2006). These are intrusive volcanic rocks (igneous) so do not preserve any fossils at all.*"

As such, it is very unlikely that the proposed establishment of a BESS will impact on significant palaeontological heritage and no further assessment of impacts to palaeontological heritage is recommended.

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RECOMMENDATION

Based on the available information, it is unlikely that the proposed development will impact on significant heritage resources and as such, it is recommended that no further heritage studies are required.

Although all possible care has been taken to identify sites of cultural importance during the field assessment, it is always possible that hidden or subsurface heritage remains could be overlooked. Should any evidence of archaeological sites or remains (e.g. remnants of stone-built structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils, burials, or other categories of heritage resources be uncovered during construction, work must cease in the vicinity of the find and SAHRA must be alerted immediately to determine an appropriate way forward.

APPENDIX 1

List of heritage resources within close proximity to the development area from SAHRIS

SAHRIS Inventory Number	Site no	Full Site Name	Site Type	Grading
2527CB22	KAFF010	Kafferskraal 010	Building	Grade IIIa
2527CB28	KAFF015	Kafferskraal 015	Building	Grade IIIa
2527CB27	KAFF016	Kafferskraal 016	Building	Grade IIIa
2527CD5	BUFFE343/003	Buffelspoort 343/ 003	Building	
2527CD4	BUFFE343/002	Buffelspoort 343/ 002	Building	
2527CD3	BUFFE343/001	Buffelspoort 343/ 001	Building	Grade IIIc
2527CB17	KAFF005	Kafferskraal 005	Building	Grade IIIa
2527CB16	KAFF004	Kafferskraal 004	Building	Grade IIIa
2527CB21	KAFF009	Kafferskraal 009	Building	Grade IIIa
2527CD15	BUFFE343/012	Buffelspoort 343/ 012	Building	
2527CB19	KAFF007	Kafferskraal 007	Building	Grade IIIa
2527CB18	KAFF006	Kafferskraal 006	Building	Grade IIIa
2527CB29	KAFF017	Kafferskraal 017	Building	Grade IIIa
2527CB176	EDT-001	ELANDSDRIFT 467JQ	Burial Grounds & Graves	Grade IIIa
2527CB37	KAFF026	Kafferskraal 026	Burial Grounds & Graves	Grade IIIa

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2527CB36	KAFF025	Kafferskraal 025	Burial Grounds & Graves	Grade IIIa
2527CB35	KAFF024	Kafferskraal 024	Burial Grounds & Graves	Grade IIIa
2527CB47	SPRUI-KAF08	Spruitfontein to Kafferskraal 08	Burial Grounds & Graves	Grade IIIa
2527CB46	SPRUI-KAF07	Spruitfontein to Kafferskraal 07	Burial Grounds & Graves	Grade IIIa
2527CB45	SPRUI-KAF06	Spruitfontein to Kafferskraal 06	Burial Grounds & Graves	Grade IIIa
2527CB9	Rooikoppies	erf 297JQ, Rooikoppies	Burial Grounds & Graves	
2527DA83	Rooikoppies 297JQ	Grave Site on Rooikoppies 297JQ	Burial Grounds & Graves	
2527CB31	KAFF020	Kafferskraal 020	Burial Grounds & Graves	Grade IIIa
2527CB30	KAFF018	Kafferskraal 018	Burial Grounds & Graves	Grade IIIa
2527CB34	KAFF023	Kafferskraal 023	Burial Grounds & Graves	Grade IIIa
2527CB33	KAFF022	Kafferskraal 022	Burial Grounds & Graves	Grade IIIa
2527CB177	EDT-002	ELANDSDRIFT 467JQ	Burial Grounds & Graves	Grade IIIa
2527CB32	KAFF021	Kafferskraal 021	Burial Grounds & Graves	Grade IIIa
2527CB182	710GR - Pretorius Graves	Pretorius Graves	Burial Grounds & Graves	
2527DA61	ELANDS004	ELANDSDRIFT OPENCAST 004	Stone walling	Grade IIIb
2527DA60	ELANDS003	ELANDSDRIFT OPENCAST 003	Stone walling	Grade IIIb
2527DA65	ELANDS010	ELANDSDRIFT OPENCAST 010	Stone walling	Grade IIIb
2527CD12	BUFFE343/010	Buffelspoort 343/ 010	Stone walling	Grade IIIb
2527CB15	KAFF003	Kafferskraal 003	Stone walling	Grade IIIa
2527CB14	KAFF002	Kafferskraal 002	Stone walling	Grade IIIa
2527CD1	KAFF001	Kafferskraal 001	Stone walling	Grade IIIa
2527CB24	KAFF012	Kafferskraal 012	Structures	Grade IIIa
2527CB23	KAFF011	Kafferskraal 011	Structures	Grade IIIa
2527CB26	KAFF014	Kafferskraal 014	Structures	Grade IIIa
2527DA64	ELANDS009	ELANDSDRIFT OPENCAST 009	Structures	Not Conservation Worthy
2527DA62	ELANDS005	ELANDSDRIFT OPENCAST 005	Structures	Grade IIIb
2527CB20	KAFF008	Kafferskraal 008	Structures	Grade IIIa
2527CB25	KAFF013	Kafferskraal 013	Structures	Grade IIIa

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APPENDIX 2

Reference List from SAHRIS (HIAs etc)

Report Type	Author/s	Date	Title
AIA Phase 1	Julius CC Pistorius	01/09/2000	A Phase 1 Archaeological Survey of Portions 11777, 1178, 1179, 1180, 1181, 1182 of the Farm Hartebeespoort B 410 JQ in the Brits District of the North West: Addendum to the Environmental Management Programme Done for Eagle Quarries
AIA Phase 1	Julius CC Pistorius	01/05/2002	A Cultural Heritage Impact Assessment for the Proposed New Smelter for Transvaal Ferrochrome Ltd on the Farm Buffelsfontein 465 JQ
AIA Phase 1	Julius CC Pistorius	01/10/2002	A Cultural Heritage Impact Assessment of Two Alternative Railway Line Corridors for the Transvaal Ferrochrome Smelter on the Mooinooi//Marikana Area
AIA Phase 1	Julius CC Pistorius	01/11/2002	A Heritage Impact Assessment for Eskom's New Proposed 88 kV Powerline From the Middelkraal Substation to the Big Horn/Wonderkoppies Power Stations on the Farm Elandsdrif 467 JQ and Middelkraal 466 JQ Near Marikana and Mooinooi in the North West Province
AIA Phase 1	Anton van Vollenhoven, Anton Pelser	01/08/2008	A Report on a Cultural Heritage Impact Assessment for the Proposed Elandsdrif EMPR, near Mooinooi, Northwest Province
AIA Phase 1	Anton Pelser, Anton van Vollenhoven	01/09/2008	A Report on a Heritage Impact Assessment for the Buffelsfontein East & West Expansion Project on the Farm Buffelsfontein 465 JQ, near Mooinooi, North West Province
AIA Phase 1	Johnny Van Schalkwyk	01/06/1997	Reconnaissance of Four Proposed Quarry Areas in Thebrits and Odi 1 Districts, North West Province
AIA Phase 1	Udo Kusel	01/10/2007	Cultural Heritage Resources Impact Assessment of Proposed Mining Area on the Farm Leeuwkop 402 JQ North West Province
AIA Phase 1	Julius CC Pistorius	01/09/2002	A Heritage Impact Assessment for Eskom's Power Supply for the Anglo Platinum Western Limb Tailings Retreatment Project Between the Bighorn Power Station and the Turf Shaft Substation in the Rustenburg District of the North West
HIA Phase 1	Julius CC Pistorius	01/09/2003	A Heritage Impact Assessment (HIA) for Eskom's New Proposed Ikaros Integration Scheme in the Rustenburg District of the North-West Province of South Africa
AIA Phase 1	Frans Roodt	22/09/2006	Re: Application to Demolish / Damage a Site Containing archaeological Remains at a Previously Area Disturbed Atlonmin Platinum Smelter Plant: Marikana, North West Province
AIA Phase 1	Julius CC Pistorius	01/05/2007	A Phase I Heritage Impact Assessment (HIA) Study for Eskom's Proposed New 3X88 kV Power Lines Between the Marang Substation and Impala Platinum's Shaft 16 in the North West Province of South Africa

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Reference List from SAHRIS (HIAs etc)

AIA Phase 1	Johnny Van Schalkwyk, Anton Pelser	01/12/1999	A Survey of Cultural Resources on the Farms Spruitfontein 341 JQ and Kafferskraal 342 JQ, Rustenberg District
AIA Phase 1	Thomas Huffman	01/02/2005	The Archaeology of the Anglo Platinum Lease Area, Rustenburg
AIA Phase 1	Johnny Van Schalkwyk, Anton Pelser	01/04/1997	A Survey of Cultural Resources on the Farm Kroondal 304 JQ, East of Rustenburg
AIA Phase 1	Johnny Van Schalkwyk	01/06/2001	A Survey of Cultural Resources on the Farm Kroondal 304 JQ, East of Rustenburg,
AIA Phase 1	Thomas Huffman	01/10/2005	Leeuwkop Archaeological Assessment
AIA Phase 1	Frans Prins	01/12/2008	Cultural HIA of the Pandora EMPR Project
AIA Phase 1	Francois P Coetzee	01/09/2008	Cultural Heritage Survey of the Farm Rietfontein 338 JQ, Rustenburg District, North West Province
AIA Phase 1	Anton van Vollenhoven, Anton Pelser	01/02/2008	A Report on a HIA for the Proposed Development of Waterval East Extension 7 in Rustenburg, North West Province
AIA Phase 1	Thomas Huffman	01/03/2002	Archaeological Study for the Western Limb Tailings Re-Treatment Project, Rustenburg
HIA Phase 1	Wouter Fourie	12/03/2009	HIA Isotium (Pty) Ltd (Isotium) - Royalty Fair Resort on Portion 35 of the Farm Buffelspoort 343 JQ, District Rustenburg, North West Province
HIA Phase 1	Anton Pelser	31/05/2018	THARISA MINERALS MARIKAN MINE NORTH-EASTERN WASTE ROCK DUMP
HIA Phase 1	Julius CC Pistorius	01/09/2009	A Phase I HIA Study For The Proposed New Tharisa Mine On The Farms Kafferskraal 342 And Elandsdrift 467 Near Marikana In The North-West Province Of South Africa
PIA Desktop	Bruce Rubidge	29/08/2011	Palaeontological Report for RustMo1 PV Solar Energy Plant on farm Spruitfontein 341/108, near Buffelspoort.
HIA Phase 1	Julius CC Pistorius	01/06/2012	A Phase 1 HIA for Afplats' Leeuwkop Platinum Mine Project on Leeuwkraal 408JQ near Madibeng in the North-West Province with an Addendum Containing Known Heritage Sites on Wolwekraal 408JQ and Kareepoort 407JQ
HIA Phase 1	Julius CC Pistorius	01/06/2012	A Phase I HIA For Proposed Prospecting Areas On The Farm Hartbeespoort B 410jq To The West Of Madibeng In The North-West Province
HIA Phase 1	Anton Pelser	01/07/2012	A Report On A HIA For The Proposed Ifmsa Road Extension On Various Portions Of The Farm Buffelsfontein 465jq, Between Moonooi And Brits, Northwest Province
PIA Desktop	Bruce Rubidge	02/08/2011	Impala Mining Development Palaeontological Impact Assessment

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Reference List from SAHRIS (HIAs etc)

HIA Phase 1	Anton van Vollenhoven	01/10/2012	A Report On A Cultural HIA For A Proposed Filling Station Development On Portion 140 (A Portion Of Portion 73) Of The Farm Kroondal 304 Jq Close To Rustenburg, North West Province
HIA Specialist Reports	Anton van Vollenhoven	05/09/2012	A Report On A HIA For The Proposed Samancor Chrome Ltd (Western Chrome Mines) Elandsdrift Section Opencast Project, Northwest Province
HIA Phase 1	Anton Pelser	01/10/2012	A Report On An Archaeological Impact Assessment For The Proposed Phoenix Platinum Mine Tailings Dam On Portions 22 And 23 Of The Farm Buffelsfontein 465jq, Close To Moonooi, Northwest Province
Archaeological Specialist Reports	Anton Pelser	01/03/2012	A report on an Archaeological Impact Assessment for the proposed Mooinooi Development on Portion 34 and the Remaining Extent of Portion 1 of the farm Elandsdrift 467-JQ, near Mooinooi, North West
HIA Phase 1	Udo Kusel	12/06/2013	Phase I Cultural Heritage Resources Impact Assessment For The Bleskop Mine Of Anglo American Platinum Distribution Centre On A Portion Of Portion 6 Farm Waterval 303 Jq Rustenburg North West Province
PIA Phase 1	Marion Bamford	18/09/2013	Palaeontological Impact Assessment for expansion of Lonmin's Eastern Platinum (EPL) and Western Platinum (WPL) mines.
HIA Specialist Reports	Anton van Vollenhoven	30/09/2013	HIA for the proposed Waterval Retrofit E-Feed Project located in Rustenburg, North West Province.
Palaeontological Specialist Reports	Marion Bamford	02/05/2022	Palaeontological Letter of Exemption: Proposed Tharisa Waste Rock Dumps near Marikana
AIA Phase 1	Anton van Vollenhoven	01/02/2014	A Report On The Updating Of A Previous Cultural HIA For The Empr Alignment And Consolidation Process At Anglo American Platinum: Rustenburg Platinum Mines Rustenburg Section, Northwest Province
HIA Phase 1	Nelius Kruger	18/09/2023	Proposed Tharisa TSF 3 WRD 1 Extension Project on Various Portions of the Farm K/Kraal 342 QS, near Marikana, North West Province
Archaeological Specialist Reports	Munyadziwa Magoma	18/01/2016	Phase 1 Archaeological Impact Assessment Specialist Study Report For The Proposed Rustenburg Strengthening Project Within Rustenburg Local Municipality Of Bojanala Municipality. North West Province.
PIA Desktop	JF Durand	15/02/2014	Proposed construction of Marang B - a new 3 x 500MVA 400/132kV Main Transmission Substation east of Rustenburg, North West Province
PIA Desktop	John Almond	11/08/2015	Proposed Transnet Freight Rail New Railway Link Between Tharisa Mine And The Mainline (Between Marikana Station To The West And Turfgrond Siding To The East), Marikana, Northwest Province
HIA Phase 1	Julius CC Pistorius	30/06/2015	A Phase I Heritage Impact Assessment For A Proposed New Railway Line For Tharisa Platinum Mine Near Marikana In The North-West Province

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Reference List from SAHRIS (HIAs etc)

Heritage Scoping	Natasha Higgitt, Justin du Piesanie, Johan Nel	02/03/2015	Heritage Scoping Report for the Lanxess Chrome Mine: Section 102 Amendment
Heritage Impact Assessment Specialist Reports	Natasha Higgitt	02/03/2015	Notification of Intent to Develop for the Lanxess Chrome Mine: Section 102 Amendment
Heritage Impact Assessment Specialist Reports	Natasha Higgitt	04/09/2015	Addendum to the Lanxess Heritage Scoping Report
Heritage Impact Assessment Specialist Reports	Anton van Vollenhoven	03/02/2014	A Report On The Updating Of A Previous Cultural Heritage Impact Assessment For The Empr Alignment And Consolidation Process At Anglo American Platinum: Rustenburg Platinum Mines " Rustenburg Section, Northwest 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 previous CTS Heritage 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/ High Level Desktop Report will be determined by CTS based on:

- the size, nature, and extent of the development,
- the number and outcome of previous surveys existing in the area,
- the potential cumulative impact of the application.

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,
- nearby palaeontological impact assessments,
- 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.

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.

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- 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 Heritage that the area has already been assessed adequately from a heritage perspective for the type of development proposed

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

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

- improvement on some components of the heritage assessments already undertaken, for instance with a renewed field survey and/or with a specific specialist for the type of heritage resources expected in the area
- compilation of a report for a component of a heritage impact assessment not already undertaken in the area
- undertaking mitigation measures requested in previous assessments/records of decision.

(3) The heritage resources within the area proposed for the development have not been adequately surveyed yet - Few or no surveys have been undertaken in the area proposed for development. A full Heritage Impact Assessment with a detailed field component is recommended for the proposed development.

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