

HERITAGE SCREENER

		HERITAGE SCREENER
CTS Reference Number:	CTS21_128	
SAHRIS Reference:		
Client:	Savannah Environmental (Pty) Ltd	Bakerville
Date:	August 2021	All and the second seco
Title:	HERITAGE SCREENING ASSESSMENT FOR THE PROPOSED DEVELOPMENT OF A PV FACILITY NEAR LICHTENBURG, NORTH WEST PROVINCE	N Proposed Development 0 10 20 km
		Figure 1a. Satellite map indicating the location of the proposed development in the North West Province



1. Proposed Development Summary

Three 75MW PV facilities (Barleria PV, Dicoma PV and Setaria PV) are concurrently being considered on the project site (within Portion 1, Portion 9, and Portion 10 of the Farm Houthaalboomen 31) and are assessed through separate Environmental Impact Assessment (EIA) processes. These facilities are located on a site approximately 5km north west of the town of Lichtenburg in the North West Province. The solar PV facility will comprise several arrays of PV panels and associated infrastructure and will have a contracted capacity of up to 75MW. The development area is situated within the Ditsobotla Local Municipality within the Ngaka Modiri Molema District Municipality. The site is accessible via an existing gravel road which provides access to the development area off the R505, located east of the development area. A facility development area (approximately 176ha) as well as two alternative grid connection solutions (within a 100m wide corridor) have been considered in the Scoping phase.

2. Application References

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

3. Property Information

Latitude / Longitude	26° 6'17.76"S 26° 5'44.64"E	
Erf number / Farm number	Portion 1 of the Farm Houthaalboomen 31, Portion 9 of the Farm Houthaalboomen 31, Portion 10 of the Farm Houthaalboomen 31, Portion 0 of Farm Talene 25, Portion 7 of Farm Elandsfontein 34	
Local Municipality	Ditsobotla Local Municipality	
District Municipality	Ngaka Modiri Molema District Municipality	
Province	North West Province	
Current Use	Agriculture with approved PV facility	
Current Zoning	Agriculture	



4. Nature of the Proposed Development

Total Area	176ha
Depth of excavation (m)	1.5m to 3m
Height of development (m)	Panel Heights: +- 5.5m. Grid Connection: 33 kV lines are either carried on small lattice steel pylons or on wood poles.

5. Category of Development

x	Triggers: Section 38(8) of the National Heritage Resources Act		
	Triggers: Section 38(1) of the National Heritage Resources Act		
	1. Construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier over 300m in length.		
	2. Construction of a bridge or similar structure exceeding 50m in length.		
	3. Any development or activity that will change the character of a site-		
Х	a) exceeding 5 000m² in extent		
	b) involving three or more existing erven or subdivisions thereof		
	c) involving three or more erven or divisions thereof which have been consolidated within the past five years		
	4. Rezoning of a site exceeding 10 000m ²		
	5. Other (state):		

6. Additional Infrastructure Required for this Development

NA



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

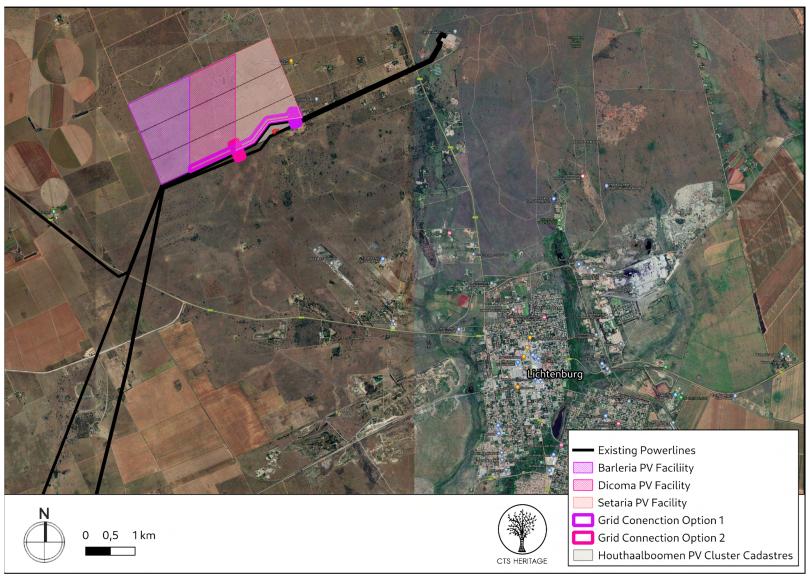


Figure 1b. Overview Map. Satellite image (2020) indicating the proposed development area relative to Lichtenburg



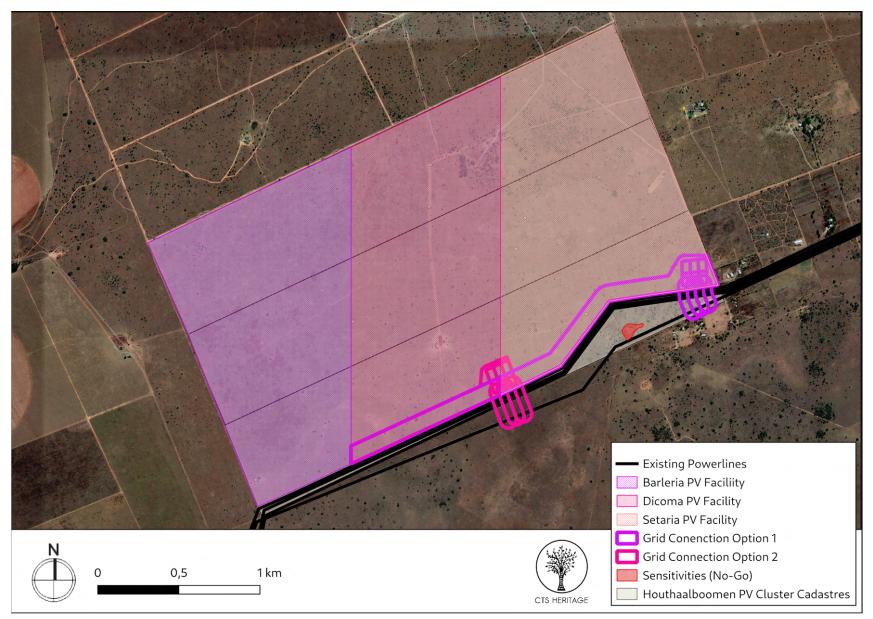


Figure 1c. Overview Map. Satellite image (2020) indicating the proposed development area



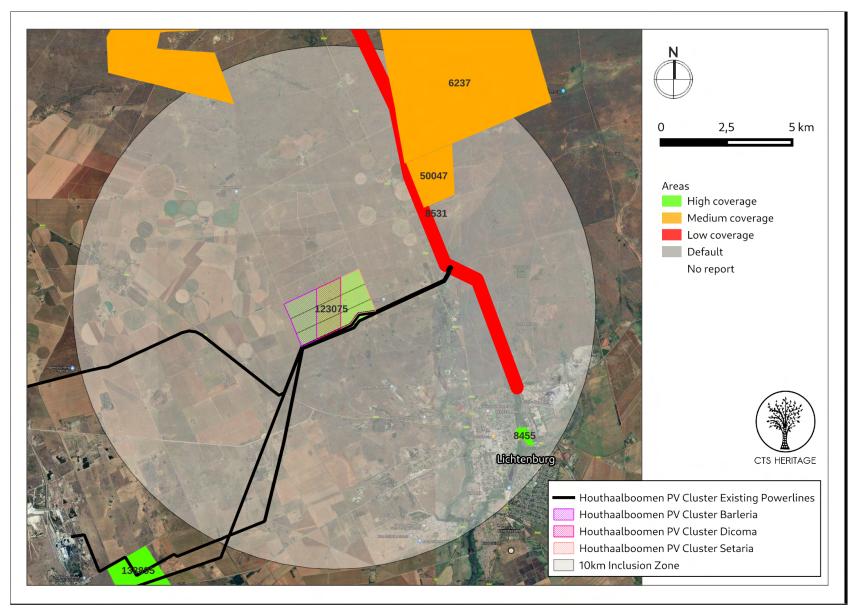


Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments covering the proposed development area with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.



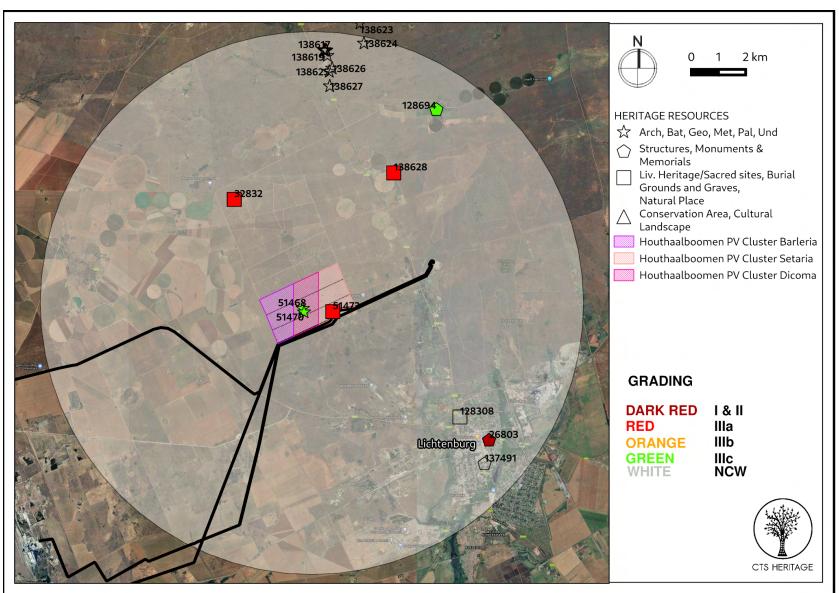


Figure 3. Heritage Resources Map. Heritage Resources previously identified within the study area, with SAHRIS Site IDs indicated in the insets below. Please See Appendix 4 for full description of heritage resource types.



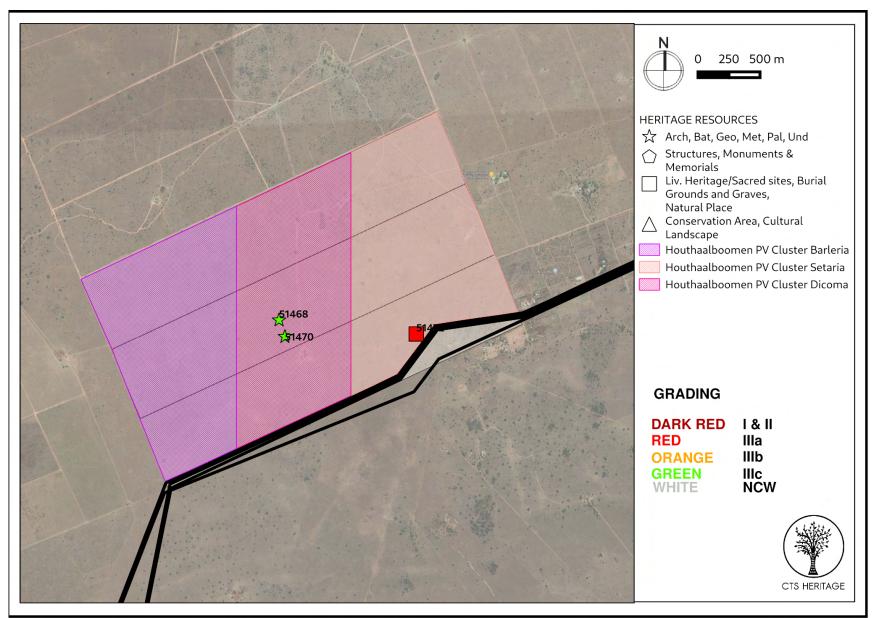


Figure 3a. Heritage Resources Map Inset A



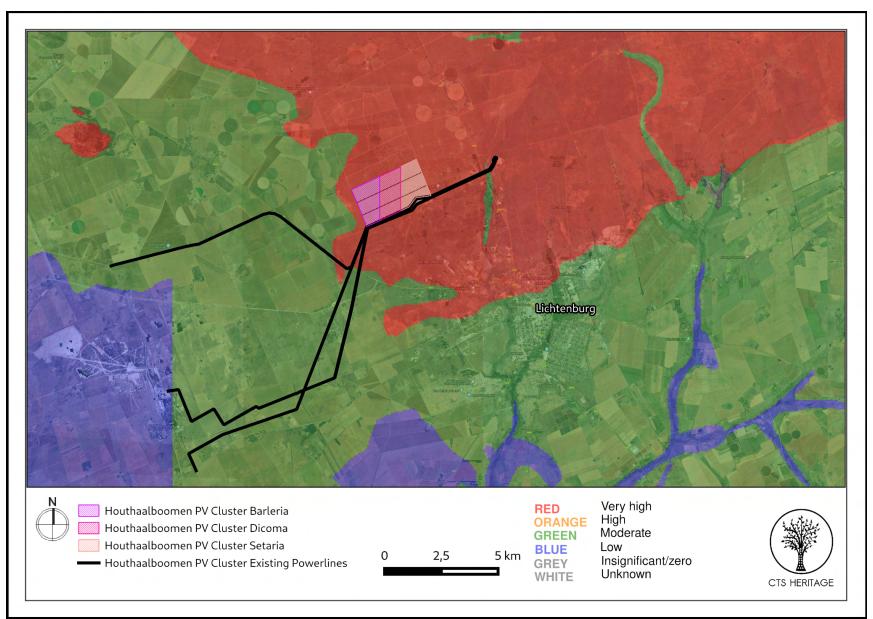


Figure 4a. Palaeosensitivity Map. Indicating fossil sensitivity underlying the study area. Please See Appendix 3 for a full guide to the legend.



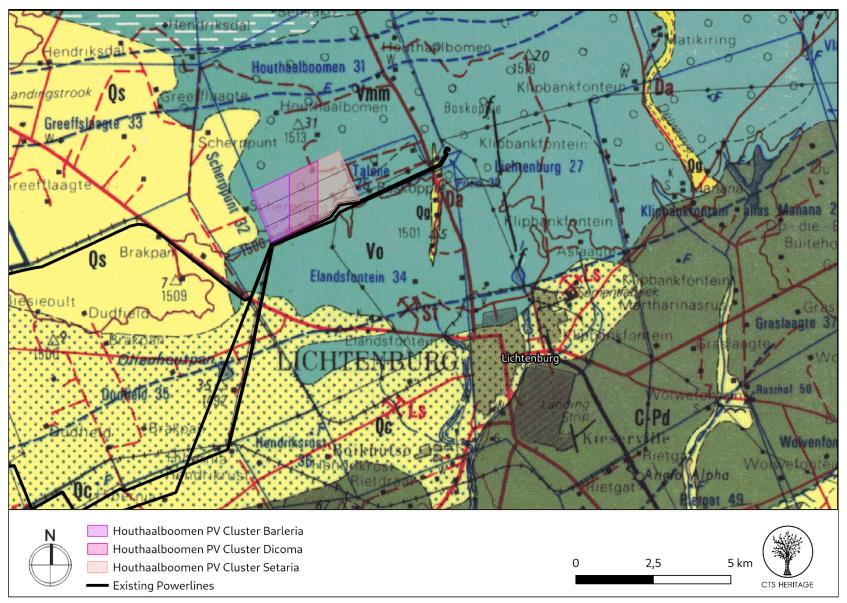


Figure 4b. Geology Map. Extract from the CGS 2626 West Rand Map indicating that the development area for the Lichtenburg PV Facility is underlain by sediments of the Monte Christo Formation assigned to the Chuniespoort group, within the Malmani Subgroup (Vmm).



8. Heritage Assessment

Introduction

Three 75MW PV facilities (Barleria PV, Dicoma PV and Setaria PV) are concurrently being considered on the project site and are assessed through separate Environmental Impact Assessment (EIA) processes. These facilities are located on a site approximately 5km north west of the town of Lichtenburg in the North West Province. The solar PV facility will comprise several arrays of PV panels and associated infrastructure and will have a contracted capacity of up to 75MW. The development area is situated within the Ditsobotla Local Municipality within the Ngaka Modiri Molema District Municipality. The site is accessible via an existing gravel road which provides access to the development area off the R505, located east of the development area. A facility development area (approximately 176ha) as well as two alternative grid connection solutions (within a 100m wide corridor) have been considered in the Scoping phase.

Archaeology and Built Environment Heritage

Lichtenburg town was established in 1873 and named "Town of Light". General Del la Rey was buried in Lichtenburg after a fatal shooting incident at Langlaagte. During the 1800's, more and more farmers settled in the area. During the Second Boer War, the strategically important town of Lichtenburg was occupied by both Boer and Briton for short spells. In November 1900, a large British force under Col. Robert Baden-Powell was transferred to Lichtenburg and secured the town, and much of the territory with it. In addition, the town is known from Rudyard Kipling's poem, Lichtenburg, which relays the story of a foreign combatant in the second South African War. In 1926, Lichtenburg experienced a gold rush that lasted approximately 10 years. Lichtenburg district is now mostly a farming area, combining cattle and crop-farming and large areas of former diamond mine diggings are now used as grazing.

According to van Schalkwyk et al (1995, SAHRIS NID 6237) in their report completed for the Bakerville Diamond Fields, "land use in the area goes back to the Early Stone Age, as can be determined by the number of stone artifacts found near the old mining commissioners office. This material seems to be disturbed from its primary context because of the mining activities. It is postulated that similar occurrences will be found in other parts of the diggings, but that this material would have been disturbed out of context." As a result of the dominant land use in the area, many of the heritage resources identified by van Schalkwyk et al (1995) are associated with past and present agriculture, and consist of farming implements, a few windmills, and dipping-troughs. One such trough, located at Elandsputte on the farm Uitgevonden 355JP, was the site where the first diamond was discovered. This structure is a proclaimed national monument (now Provincial Heritage Site). Van Schalkwyk et al (1995) identified a number of burial grounds within their surveyed area. Heritage resources known from this area include burial grounds and graves, archaeological artefacts and old structures, often associated with farming activities or diamond mining. An archaeological field assessment was conducted for the Lichtenburg PV facilities located immediately adjacent to this proposed development (CTS Heritage, 2018). The field assessment noted that the area assessed had been disturbed and transformed by agricultural activities in a similar way to the area proposed for this development. Pre-existing agricultural plough fields, grazing areas and farm buildings were identified in the development area. Furthermore, throughout the farming areas several heaps of rocks that were removed from the agricultural fields were identified in the project area assessed in CTS Heritage's report (2018).

The exact area proposed for development was previously assessed by Van der Walt (2014, SAHRIS NID 123075). Van der Walt (2014) notes that "The site lies on a featureless flat plain. The entire development footprint was extensively utilised for crop farming and ploughing through the years resulted in a lateral and downward migration of artefacts making it virtually impossible to identify knapping or manufacture sites and site extent of artefact concentrations. In some areas borrowing animals brought MSA artefacts to the surface where the sand cover is more than a meter and a half thick and the possibility of finding subsurface material cannot be excluded. Most of the Stone Age archaeology in the study area consists of low densities of scattered (and possibly mixed) MSA and LSA artefacts. These find spots are documented as "occurrences" and are of low significance but more substantial and higher density scatters of MSA material do occur, and were recorded as "sites"." The archaeological sites are described as "Medium density scatters of tools. Blades, flakes, cores. MSA mainly of chert." and are graded IIIC i.e. low local significance. Van der Walt (2014) also identified a single unmarked grave (approximately 27 years old) and farm labour housing



dating to the 1990's. He further notes that "Cultural landscape elements were noted in the northern portion of the study area consisting of the mentioned farm labourer dwelling together with a windmill, stone walled cattle kraal and a recently constructed kraal." (Van der Walt, 2014).

Palaeontology

According to the extract from the Council of GeoScience Map for the West Rand (Figure 4b), the proposed development is located on geological deposits belonging to the Monte Christo Formation of the Chuniespoort Group. The Monte Christo Formation is within the Malmani Subgroup. These deposits have a very high sensitivity for impacts to palaeontological resources. This group is known to contain a range of shallow marine to intertidal stromatolites (domes, columns *etc*) and organic-walled microfossils. In addition, it is within this group that fossiliferous Late Cenozoic cave breccias have been identified such as within the Cradle of Humankind region. The project area lies on rocks of the Malmani Subgroup, Chuniespoort Group. According to Bamford (2018), the Malmani Subgroup is up to 2000m thick and comprises five formations distinguished by the amount of chert, stromatolite morphology, intercalated shales and erosion surfaces (Eriksson et al., 2006). The basal Oaktree Formation overlies the Black Reef Formation, and is made up of carbonaceous shales, stromatolitic dolomites and locally developed quartzites. Above this is the Monte Christo Formation comprising erosive breccia, overlain by stromatolitic and oolitic platformal dolomites. Next is the Lyttleton Formation of shales quartzites and stromatolitic dolomites. The Eccles Formation comprises a series of erosional breccias and the overlying Frisco Formation is made up mostly of stromatolitic dolomites.

The palaeontological sensitivity of the area under consideration is presented in Figure 4a. Bamford (2018) notes that the site proposed for development is in the Malmani Subgroup which contains a number of stromatolitic dolomites. These were formed in warm shallow sea and are the accumulation of layer upon layer of minerals deposited by blue-green algae (also known as cyanobacteria) and rarely some filamentous algae. Minerals deposited by the algae include calcium carbonate, calcium sulphate and magnesium carbonate. Very rarely are the algal cells preserved in the stromatolites and these are microscopic. Stromatolites are essentially trace fossils and these ones are 2750 to 2650 million years old and very abundant. Based on the nature of the project, surface activities may impact upon the fossil heritage if preserved in the development footprint. The geological structures suggest that the rocks are much too old to contain fossils other than blue-green algae. Taking account of the defined criteria, the potential impact to fossil heritage resources is negligible to extremely low. As such, the proposed development is unlikely to negatively impact significant palaeontological heritage resources.

Cumulative Impacts

The proposed PV development is located within an area that has already approved PV facilities within a belt of approved renewable energy facilities. In terms of impacts to heritage resources, it is preferred that this kind of infrastructure development is concentrated in one location and is not sprawled across an otherwise culturally significant landscape. The construction of the proposed development is therefore unlikely to result in unacceptable risk or loss, nor will the proposed development result in a complete change to the sense of place of the area or result in an unacceptable increase in impact. Furthermore, Van der Walt (2014) notes that "Visual impacts to scenic routes and sense of place are not assessed to be high from a heritage perspective."

Conclusion

The heritage assessments that have previously been conducted within the area proposed for development have identified a number of significant heritage resources that may be impacted by the proposed developments. Significant archaeological resources as well as a burial were identified by Van Der Walt (2014) within the development area. It is recommended that a 10m no-go buffer is implemented around the known sites with SAHRIS IDs 51468, 51470 and 51472.



Based on the known sensitivities of the broader area, it is recommended that a specialist archaeology assessment and specialist palaeontology assessment are completed for integration into the Heritage Impact Assessment. The area proposed for development has not been identified as part of a special or recognised cultural landscape and as such, no further assessment of impacts to the cultural landscape is recommended.



APPENDIX 1

List of heritage resources within close proximity to the development area

Site ID	Site no	Full Site Name	Site Type	Grading
32832	AEPC 3	Steenkoolspruit farm,Ogies Emalahleni Mpumalanga Province MAPPED INCORRECTLY ON SAHRIS	Burial Grounds & Graves	Grade IIIa
	2626AA/ Solar/ Farm Zamenkomst 04/			
130171	Site 1	Old farm house	Structures, Structures	Grade IIIc
128694	ZKT1	Zamenkomst 1	Building	Grade IIIc
26803	9/2/235/0005	Nerderduitse Gereformeerde Church, 27 Gerrit Maritz Street, Lichtenburg	Building	Grade II
51468	WSF 01	Watershed Solar Facility 01	Artefacts	Grade IIIc
51470	WSF 02	Watershed Solar Facility 02	Artefacts	Grade IIIc
51472	WSF 03	Watershed Solar Facility 03	Burial Grounds & Draves	Grade Illa
128308	Grave of Vic Hamman	Grave of Vic Hamman	Burial Grounds & Draves	
138616	FHDN-001	FARM HOUTHAALDOORNS 2	Palaeontological	
138617	FHDN-002	FARM HOUTHAALDOORNS 2	Palaeontological	
138618	FHDN-003	FARM HOUTHAALDOORNS 2	Palaeontological	
138619	FHDN-004	FARM HOUTHAALDOORNS 2	Palaeontological	
138620	FHDN-005	FARM HOUTHAALDOORNS 2	Palaeontological	
138621	FHDN-006	FARM HOUTHAALDOORNS 2	Palaeontological	



138624	FHDN-009	FARM HOUTHAALDOORNS 2	Palaeontological	
138625	FHDN-010	FARM HOUTHAALDOORNS 2	Palaeontological	
138626	FHDN-011	FARM HOUTHAALDOORNS 2	Palaeontological	
138627	FHDN-012	FARM HOUTHAALDOORNS 2	Palaeontological	
138628	FHDN-013	FARM HOUTHAALDOORNS 2	Burial Grounds & Draves	Grade IIIa
137491	Gereformeerde kerk Lichtenburg	Gereformeerde kerk Lichtenburg	Monuments & Demorials	



APPENDIX 2

Reference List with relevant AIAs and PIAs

	Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title	
6237	AIA Phase 1	Johnny Van Schalkwyk, Robert de Jong, S Smith	01/08/1995	Reconnaissance of Remaining Cultural Resources in the Bakerville Diamond Fields	
8330	AIA Phase 1	Francois P Coetzee	01/03/2008	Cultural Heritage Survey of the PPC Slurry Operation, near Zeerust, North West Province	
8455	HIA Phase 1	Udo Kusel	25/07/2008	Cultural Heritage Resources Impact Assessment of Portion 151 of Lichtenburg Town and Townlands 27 IP (Lichtenburg Extension 10) North West Province	
8531	HIA Phase 1	Johnny Van Schalkwyk	01/11/2008	Heritage Impact Report for the Proposed 88 kV Power Line from Watershed Substation, Lichtenburg, to the Mmabatho Substation, North West Gauteng Province	
50047	HIA Phase 1	M Hutten	01/05/2012	Heritage Impact Assessment for the Proposed Lichtenburg Solar Park North of Lichtenburg, North West Province	
50048	PIA Phase 1	Bruce Rubidge	14/07/2012	Palaeontological Assessment - Lichtenburg Solar Park	
110338	HIA Phase 1	Julius CC Pistorius	01/06/2011	A PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR THE PROPOSED MAFIKENG CEMENT PROJECT NEAR ITSOSENG IN THE NORTH-WEST PROVINCE OF SOUTH AFRICA	
123075	Heritage Scoping	Jaco van der Walt	12/11/2013	Archaeological Impact Assessment Report	
138895		Jaco van der Walt, John E Almond	14/10/2013	Archaeological Impact Assessment for the Proposed Hibernia Solar Project near the town of Lichtenburg in the North West Province of South Africa & Paleontological Report: Recommended Exemption From Further Palaeontological Studies: Proposed Hibernia Pv S	



Additional Reports:

- Lavin, J. 2018. HERITAGE IMPACT ASSESSMENT In terms of Section 38(8) of the NHRA for the DEVELOPMENT OF THE LICHTENBURG 1, 2 and 3 PV SOLAR ENERGY FACILITY AND ASSOCIATED INFRASTRUCTURE ON A SITE NEAR LICHTENBURG, NORTH WEST PROVINCE. Unpublished Report.
- Lavin, J. 2018. ARCHAEOLOGICAL IMPACT ASSESSMENT In terms of Section 38(8) of the NHRA for the DEVELOPMENT OF THE LICHTENBURG 1, 2 and 3 PV SOLAR ENERGY FACILITY AND ASSOCIATED INFRASTRUCTURE ON A SITE NEAR LICHTENBURG, NORTH WEST PROVINCE. Unpublished Report.
- Bamford, M. 2018. Palaeontological Impact Assessment for the proposed DEVELOPMENT OF THE LICHTENBURG 1, 2 and 3 PV SOLAR ENERGY FACILITY AND ASSOCIATED INFRASTRUCTURE ON A SITE NEAR LICHTENBURG, NORTH WEST PROVINCE. Unpublished Report.



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

	. an garas to randocornomically map regent
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.



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 PALAEONTOLOGICAL 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.



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.

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

Note:

The responsibility for generating a response detailing the requirements for the development lies with the heritage authority. However, since the methodology utilised for the compilation of the Heritage Screeners is thorough and consistent, contradictory outcomes to the recommendations made by CTS should rarely occur. Should a discrepancy arise, CTS will immediately take up the matter with the heritage authority to clarify the dispute.

APPENDIX 5 - Summary of Specialist Expertise

Jenna Lavin, an archaeologist with an MSc in Archaeology and Palaeoenvironments, and currently completing an MPhil in Conservation Management, heads up the heritage division of the organisation since 2016, and has a wealth of experience in the heritage management sector. Jenna's previous position as the Assistant Director for Policy, Research and Planning at Heritage Western Cape has provided her with an in-depth understanding of national and international heritage legislation. Her 8 years of experience at various heritage authorities in South Africa means that she has dealt extensively with permitting, policy formulation, compliance and heritage management at national and provincial level and has also been heavily involved in rolling out training on SAHRIS to the Provincial Heritage Resources Authorities and local authorities.

Jenna is on the Executive Committee of the Association of Professional Heritage Practitioners (APHP), and is also an active member of the International Committee on Monuments and Sites (ICOMOS) as well as the International Committee on Archaeological Heritage Management (ICAHM). In addition, Jenna has been a member of the Association of Southern African Professional Archaeologists (ASAPA) since 2009. Recently, Jenna has been responsible for conducting training in how to write Wikipedia articles for the Africa Centre's WikiAfrica project.

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