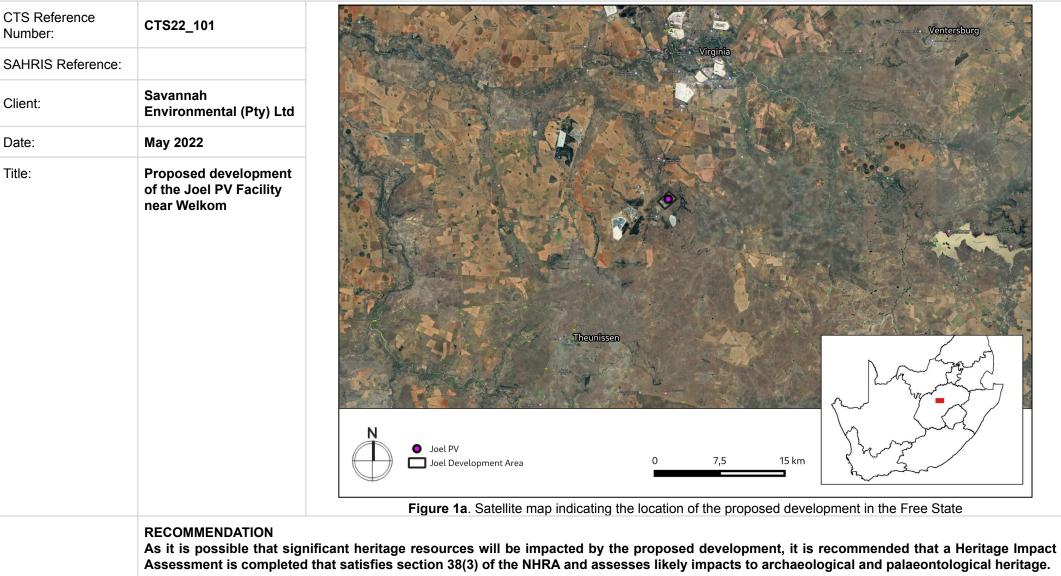


HERITAGE SCREENER





1. Proposed Development Summary

The development of a renewable energy facility, overhead powerline and associated infrastructure proposed by FREEGOLD HARMONY (PTY) LTD. The project entails the development of an 18MW solar PV over 36 ha of land and will be known as Harmony Joel Solar PV Facility, the facility will include a grid connection solution and other associated infrastructure.

The Solar PV facility is based approximately 2.3km north of the Harmony Joel mining operations, located ~20km NorthEast of the town of Theunissen within the Masilonyana Local Municipality, and within the Lejweleputswa District Municipality, Free State Province.

2. Application References

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

3. Property Information

Latitude / Longitude	28°15'26.34"S 26°49'22.81"E		
Erf number / Farm number	Leeuwbult 580	0	
	Leeuwfontein 256	0	
Local Municipality	Matjhabeng		
District Municipality	Lejweleputswa		
Province	Free State		
Current Use	Mining		
Current Zoning	Agriculture		



4. Nature of the Proposed Development

Total Area	36ha
Depth of excavation (m)	<2m
Height of development (m)	Max 20m pylons

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
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)

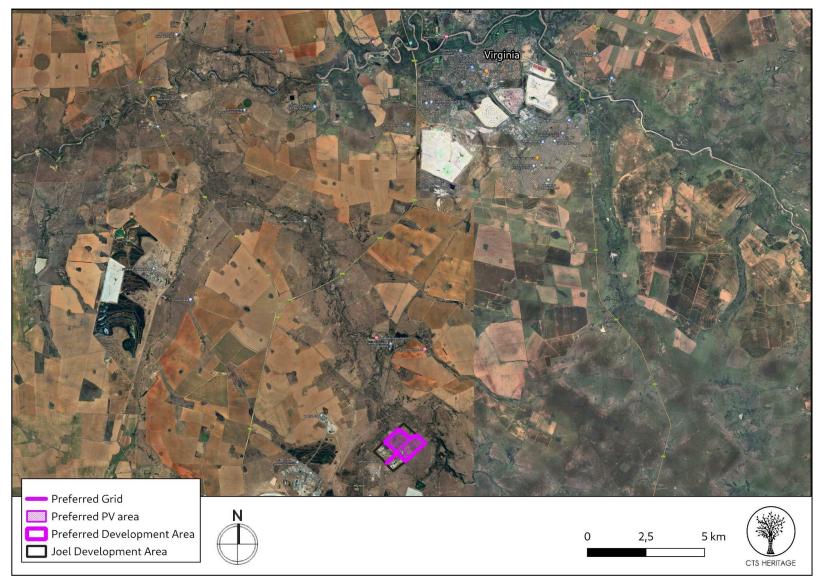


Figure 1b. Overview Map. Satellite image (2022) indicating the proposed development area



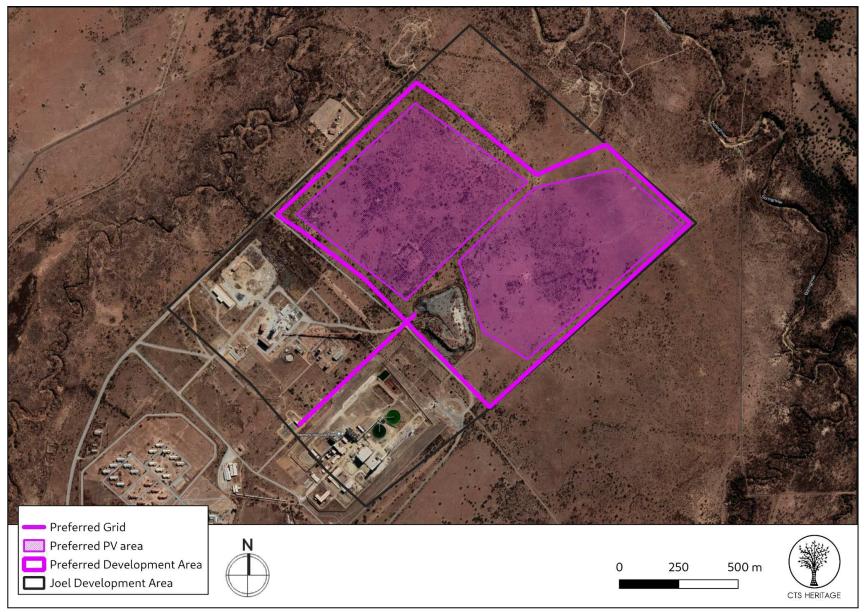


Figure 1c. Overview Map. Satellite image (2022) indicating the proposed development area



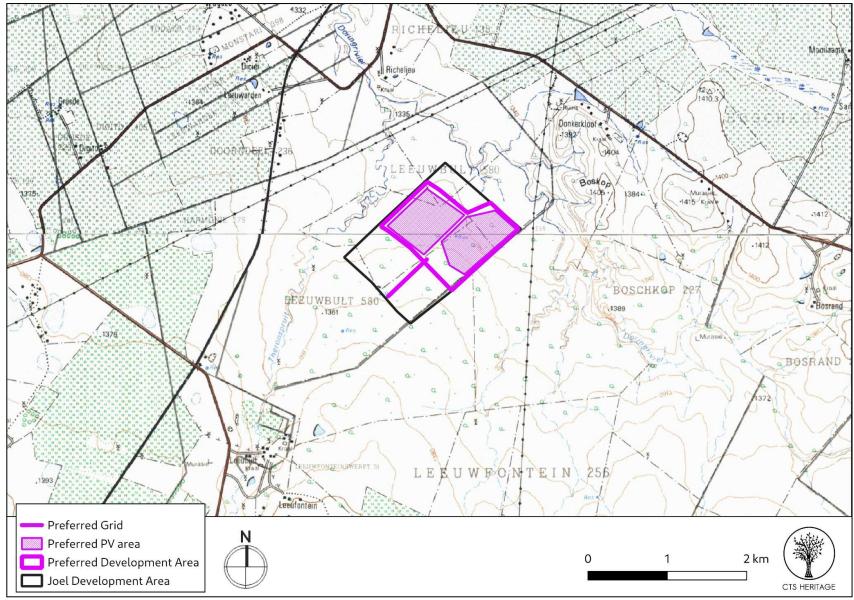


Figure 1d. Overview Map. Extract from 1:50 000 Topo



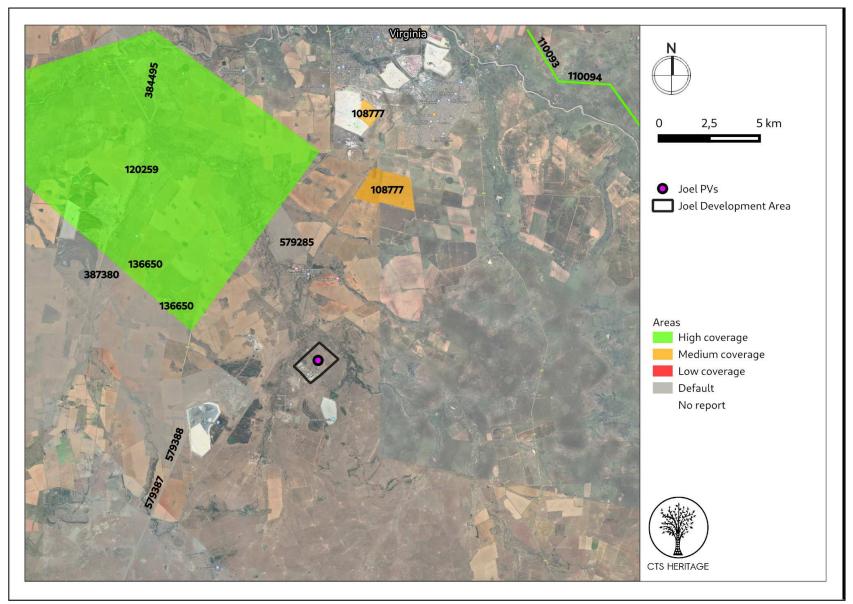


Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments covering the proposed development area with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.



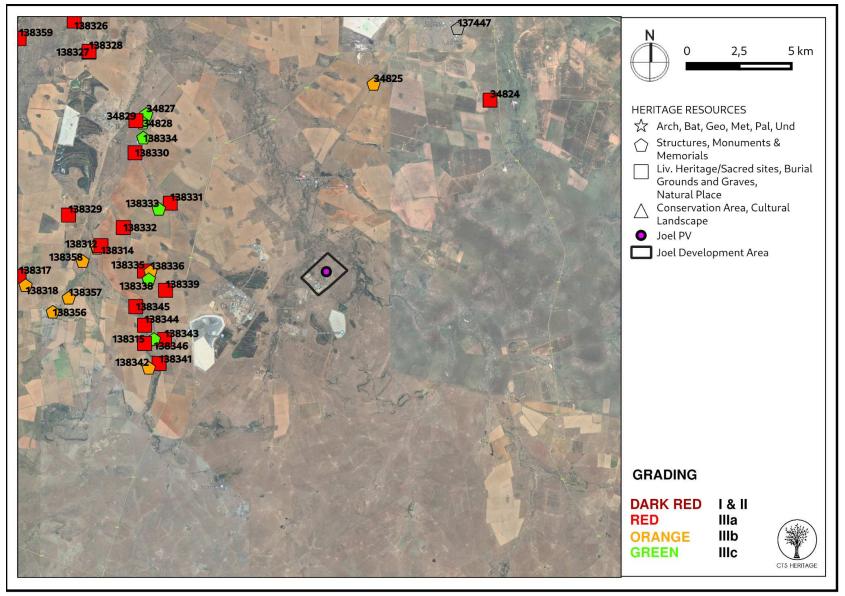


Figure 3. Heritage Resources Map. Heritage Resources previously identified within the study area, with SAHRIS Site IDs indicated in the insets below. Please See Appendix 4 for full description of heritage resource types.



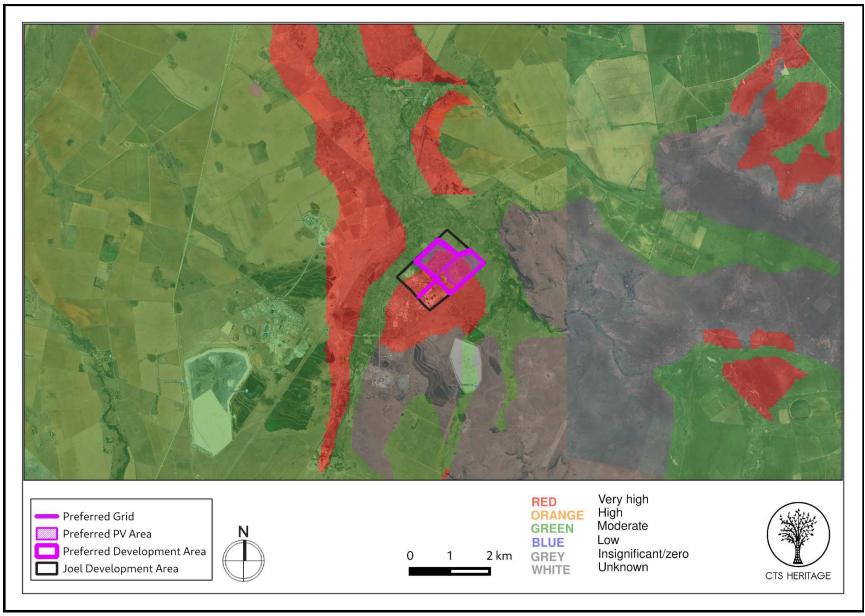


Figure 4a. Palaeosensitivity Map. Indicating fossil sensitivity underlying the study area. Please See Appendix 3 for a full guide to the legend.



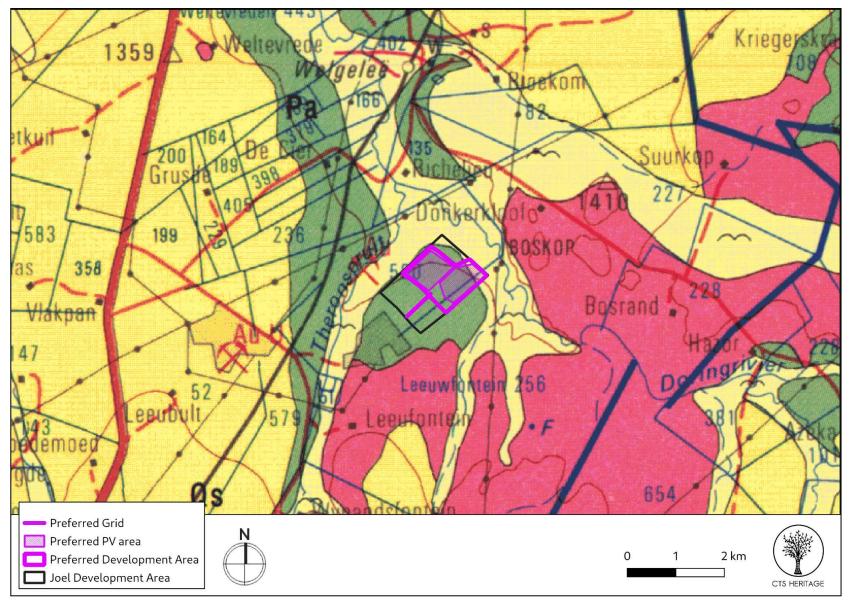


Figure 4b. Geology Map. Extract from the CGS 2826 Winberg Geology Map indicating that the development area is underlain by sediments of the Adelaide Subgroup of the Beaufort Group (Pa) and Quaternary Sands (Qs)



8. Heritage Assessment

Background

This application is for the proposed development of a PV facility and associated grid infrastructure located approximately south of Virginia in the Free State Province. In 1890, two railway surveyors from the state of Virginia in the United States etched the name of their birthplace on a boulder near the farm Merriespruit. When a railway siding was eventually established at this spot, the name was adopted, and it stuck after the discovery of gold in 1949 which resulted in a mushrooming settlement on the banks of the Sand River.

According to Van der Walt (2013) who conducted an assessment on a nearby property, "The study area falls within the bioregion described by Mucina et al (2006) as the Dry Highveld Grassland Bioregion with the vegetation described as Vaal-Vet Sandy Grassland within a Grassland Biome. Land use in the general area is characterized by mining and agriculture, dominated by crops and cattle farming. The study area is characterised by deep sandy to loamy soils based on the extensive agricultural activities."

Archaeology

According to Fourie (2021), "The Free State has a rich archaeological and historical history going back millions of years and includes significant aspects such as Later Stone Age rock art, Battlefields and Iron Age stonewalled enclosures. The general surroundings of the study area became a melting pot of contact and conflict as it represents one of many frontiers where San hunter-gatherers, Nguni and Sotho-Tswana agro-pastoralists, Dutch Voortrekkers and British Colonists all came together. The ravages of war also swept across these plains, and in particular the South African War (1899-1902) as well as the Boer Rebellion (1914-1915)." No heritage resources of significance were identified by Van der Walt (2013) in his assessment of a nearby farm. Van der Walt (2013) notes that "some MSA finds might be possible around pans on the farm. It is important to note that the lack of sites can be attributed to a lack of sustainable water sources (no pans exist in the development footprint) in the development area as well as the lack of raw material for the manufacturing of stone tools. No Sites dating to the Early or Middle Iron Age have been recorded or are expected for the study area. The same goes for the Later Iron Age period where the study area is situated outside the western periphery of distribution of Late Iron Age settlements in the Free State. However to the north of the study area, ceramics from the Thabeng facies belonging to the Moloko branch of the Urewe tradition were recorded at Oxf 1 and Platberg 32/71 (Maggs 1976, Mason 1986)".

Based on the known archaeological sensitivity of the broader context, it is unlikely that the proposed development will impact on significant Stone Age or Iron Age archaeological heritage however it is possible that informal or unmarked graves may be present within the development area.

Palaeontology

According to the SAHRIS Palaeosensitivity Map the development sites are underlain by sediments of moderate and very high fossil sensitivity (Figure 4a). The Adelaide Subgroup of the Beaufort Group is the very highly sensitive formation and caenozoic regolith is the moderately sensitive formation underlying the development area according to the extract from the CGS 2826 Winberg Geology Map (Figure 4b). According to the updated biostratigraphy (Smith et al., 2020), the whole of the Adelaide Subgroup has been divided into five Assemblage Zones based on the dominant or temporally exclusive vertebrate fossils. If vertebrate fossils were common in this region and had been well mapped then the specific Assemblage Zone would have been indicated in the literature. Common names for the fossils that could occur here are fish, amphibians, reptiles, therapsids, terrestrial and freshwater tetrapods, as well as freshwater bivalves, trace fossils including tetrapod trackways and burrows. Where the vertebrates do not occur it is possible to find sparse to rich assemblages of vascular plants of the late Glossopteris Flora, including some petrified logs), and insects are also prevalent at some sites.

A desktop Palaeontological assessment (2013) was completed by Millsteed for an adjacent development which is of relevance here. Millsteed (2013) notes that "The Cainozoic regolith and the Adelaide Subgroup are both potentially fossiliferous and their stratigraphic equivalents are known to contain scientifically important fossil assemblages elsewhere in South Africa. Accordingly, it may be reasonably expected that significant fossils may be present within the project area." He goes on to note that "Thus, the historical farming processes have probably destroyed any fossil materials that may have been present at surface in these areas. Similarly, where present the regolith cover would hide any fossils contained within the underlying Adelaide Subgroup from discovery. The potential for a negative impact on the fossil heritage of the area can be quantified in the following manner. Any fossil materials that



may have been present at/or near the surface in the cultivated regolith will have been historically destroyed and the likelihood of any negative impact is categorised as negligible. The possibility of a negative impact on the depth interval between the maximum depth of ploughing and the maximum depth of excavations within the regolith is categorised as low (due to the scarcity of fossils in general)."

Since there is a very small chance that fossils from the Adelaide Subgroup below the ground surface may be disturbed, it is recommended that a Fossil Chance Find Protocol be implemented during development.

RECOMMENDATION

As it is possible that significant heritage resources will be impacted by the proposed development, it is recommended that a Heritage Impact Assessment is completed that satisfies section 38(3) of the NHRA and assesses likely impacts to archaeological and palaeontological heritage.



9. Scoping Assessment Impact Table

Impact

- Impact to archaeological and built environment resources
- Impact to palaeontological resources
- Impact to Cultural Landscape
- Cumulative Impact

Desktop Sensitivity Analysis of the Site

- Impact to significant archaeological resources such as Stone Age artefact scatters, remnants of Iron Age settlements, burial grounds and graves, historical artefacts, historical structures and rock art engravings through destruction during the development phase and disturbance during the operational phase is possible.
- Impacts to palaeontological resources are unlikely.
- There is the potential for the cumulative impact of proposed solar energy facilities to negatively impact the cultural landscape due to a change in the landscape character from rural and mining to semi-industrial, however, due to the density of mining activities in the area, the impact on the experience of the cultural landscape is not foreseen to be significant.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Impact to significant heritage resources through destruction during the development phase and disturbance during the operational phase.	Destruction of significant heritage resources	Local scale with broader impacts to scientific knowledge	None known at present

Gaps in knowledge & recommendations for further study

The heritage resources in the area proposed for development are not yet sufficiently recorded

Based on the available information, including the scale and nature of the proposed development, it is likely that significant heritage resources will be impacted by the proposed development and as such it is recommended that further heritage studies are required in terms of section 38 of the NHRA with specific focus on impacts to archaeological heritage.



APPENDIX 1

List of heritage resources within the development area

Site ID	Site no	Full Site Name	Site Type	Grading
34825	DBM002	Wits Gold DBM 002	Building	Grade IIIb
34827	ORY001	Oryx 001	Building	Grade IIIc
34828	ORY002	Oryx 002	Building	Grade IIIc
34829	ORY003	Oryx 003	Burial Grounds & Graves	Grade IIIa
34824	DBM001	Wits Gold DBM 001	Burial Grounds & Graves	Grade IIIa
138312	TRC1-001	TETRA4 CLUSTER 1	Structures	Grade IIIb
138313	TRC1-002	TETRA4 CLUSTER 1	Structures	Grade IIIb
138314	TRC1-003	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138315	TRC1-004	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138316	TRC1-005	TETRA4 CLUSTER 1	Building	Grade IIIb
138317	TRC1-006	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138318	TRC1-007	TETRA4 CLUSTER 1	Structures	Grade IIIb
138319	TRC1-008	TETRA4 CLUSTER 1	Structures	Grade IIIb
138320	TRC1-009	TETRA4 CLUSTER 1	Stone walling	Grade IIIb
138321	TRC1-010	TETRA4 CLUSTER 1	Structures	Grade IIIb
138322	TRC1-011	TETRA4 CLUSTER 1	Structures	Grade IIIb
138323	TRC1-012	TETRA4 CLUSTER 1	Building	Grade IIIc



138324	TRC1-013	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138325	TRC1-014	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138326	TRC1-015	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138327	TRC1-016	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138328	TRC1-017	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138329	TRC1-018	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138330	TRC1-019	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138331	TRC1-020	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138332	TRC1-021	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138333	TRC1-022	TETRA4 CLUSTER 1	Building	Grade III
138334	TRC1-023	Visserspan PV	Building	Grade III
138335	TRC1-024	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138336	TRC1-025	TETRA4 CLUSTER 1	Building	Grade III
138338	TRC1-026	TETRA4 CLUSTER 1	Structures	Grade III
138339	TRC1-027	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138341	TRC1-029	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138342	TRC1-030	TETRA4 CLUSTER 1	Building	Grade III
138343	TRC1-031	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138344	TRC1-032	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
138345	TRC1-033	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa



138346	TRC1-034	TETRA4 CLUSTER 1	Building	Grade IIIc
138356	TRC1-044	TETRA4 CLUSTER 1	Building	Grade IIIb
138357	TRC1-045	TETRA4 CLUSTER 1	Structures	Grade IIIb
138358	TRC1-046	TETRA4 CLUSTER 1	Building	Grade IIIb
138359	TRC1-047	TETRA4 CLUSTER 1	Burial Grounds & Graves	Grade IIIa
137447	Wasgoed spruit Totius Garden of remembrance	Wasgoed spruit Totius Garden of remembrance	Monuments & Memorials	



APPENDIX 2

Reference List with relevant AIAs and PIAs

	Heritage Impact Assessments				
Nid	Nid Report Type Author/s Date Title		Title		
108777	Heritage Impact Assessment Specialist Reports	Anton van Vollenhoven	30/11/2011	A REPORT ON A CULTURAL HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED WITS GOLD DBM PROJECT CLOSE TO VIRGINIA, FREE STATE PROVINCE	
120259	PIA Desktop	Barry Millsteed		Desktop Palaeontological Heritage Impact Assessment Report for the Oryx Solar Energy Facility	
124729	Heritage Scoping	Jaco van der Walt	08/05/2013	Archaeological Scoping Report for the Proposed Oryx Energy Facility	
136650	Archaeological Specialist Reports	Jaco van der Walt	30/08/2013	Archaeological Impact Assessment report for the Oryx Solar Energy Facility	
110093	PIA Desktop	Job M. Kibii		Palaeontological Impact Assessmnent Deskop Study Report for the Proposed Merapi (Excelsior) PV Solar Energy Facilities	
110094	HIA Phase 1	Nkosinathi Godfrey Tomose		Heritage Imapct Assessment Study for the Proposed PV Solar Energy Facilities, near Excelsior, Free State Province	
384495	Heritage Scoping	Nkosinathi Godfrey Tomose	20/12/2016	Heritage Scoping Study for the Proposed Prospecting Rights Application on Farms Adamsons Vley 655, Jonkers Rust 72, Du Preez Leger 324 and Stillewoning 703	



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.



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, 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 a member 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 50 Heritage Impact Assessments throughout South Africa.