

# HERITAGE SCREENER

		TIERTITIOE CONCENTENT
CTS Reference Number:	CTS18_221	
SAHRIS Reference:	8383	Gulledad
Client:	Savannah	Sutherland
Date:	25 February 2019	
Title:	Proposed amendment to the Gunstfontein Wind Farm to be located on Portion 1 of the farm Gunstfontein 131, Northern Cape.	Farm Gunstfontein 131  0 5 10 km  Figure 13 Satellite man indicating the location of the proposed development in the Northern Cane
		Figure 1a. Satellite map indicating the location of the proposed development in the Northern Cape



## 1. Proposed Development Summary

This project is for the development of a wind energy facility with a contracted capacity of up to 200MW and associated infrastructure including wind turbines, concrete foundations to support the turbines, cabling between the turbines, laydown areas, internal access roads, an on-site sub-station, buildings and dedicated areas for workshops, control systems, maintenance and storage with parking areas where required, and temporary construction compound and temporary site offices. The proposed site is located ~20km south of Sutherland within the Karoo Hoogland Local Municipality, of the Namakwa District Municipality. The site includes the farm Remainder of the farm Gunstfontein 131. It is requested that the Department of Environmental Affairs (DEA) amend the wind farm layout, the project description, turbine specifications, wind turbine foundations and laydown areas, as described in the environmental authorisation dated 25 July 2016 (as amended) for the proposed Gunstfontein WEF (SAHRIS NID: 8383), and in the associated Environmental Impact Assessment Report (EIAR) dated April 2016, as follows:

- Increase hub height to up to 150m;
- Increase rotor diameter to up to 180m;
- Increase rated power of turbines to up to 6.5MW per wind turbine;
- Potential increase to wind turbine foundation areas and laydown areas;
- Update the layout as required (including revised turbine positions and an additional access road).

## 2. Application References

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

## 3. Property Information

Latitude / Longitude	32°34'35.79"S 20°40'7.44"E
Erf number / Farm number	Remainder of the farm Gunstfontein 131
Local Municipality	Karoo Hoogland Local Municipality
District Municipality	Namakwa District Municipality
Previous Magisterial District	Sutherland
Province	Northern Cape
Current Use	Agriculture
Current Zoning	Agriculture
Total Extent	7534.8319ha



# 4. Nature of the Proposed Development

Total Surface Area	7534.8319ha
Depth of excavation (m)	Approximately 2m-3m
Height of development (m)	150m hub-height and 90m blade
Expected years of operation before decommission	NA NA

# **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
х	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 <sup>2</sup>
	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)

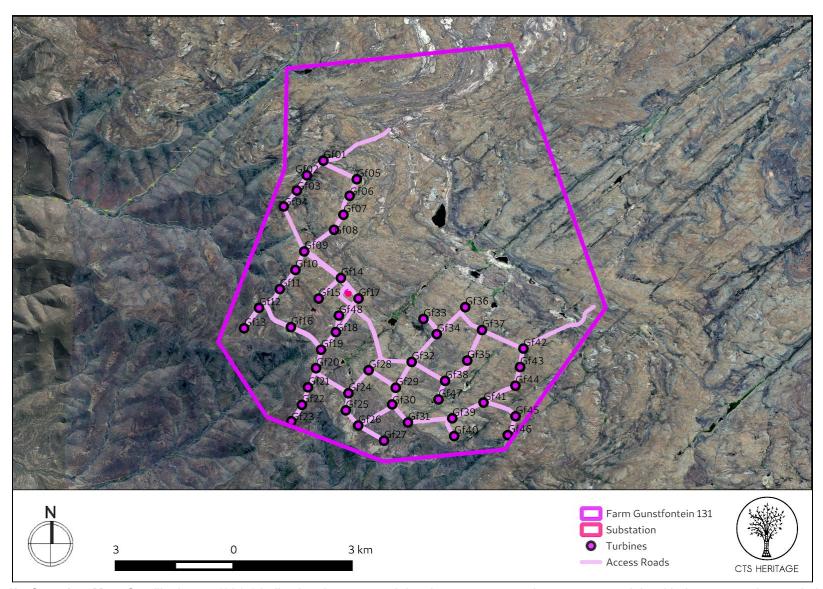


Figure 1b. Overview Map. Satellite image (2017) indicating the proposed development area at closer range overlain with the proposed amended layouts



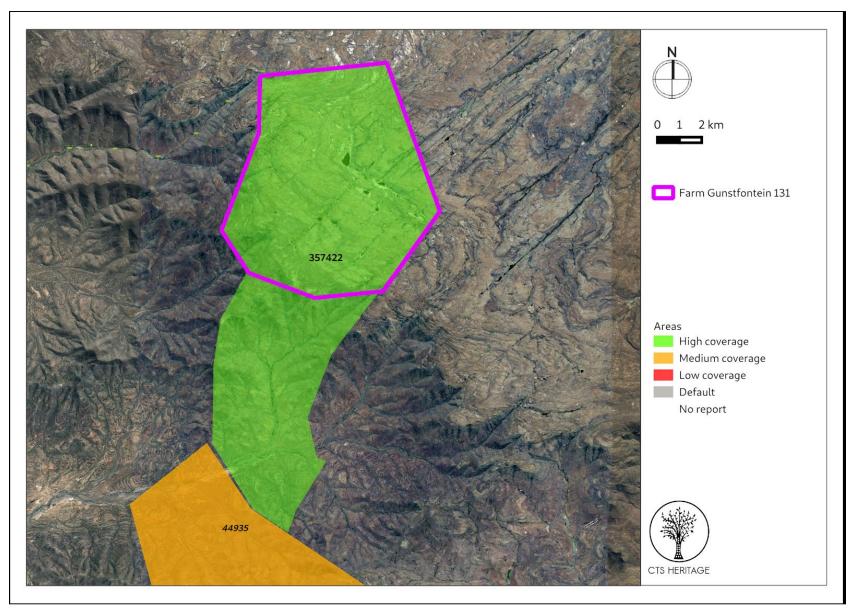


Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments covering the proposed development area with SAHRIS NIDS indicated. Please see Appendix 2 for full reference list.



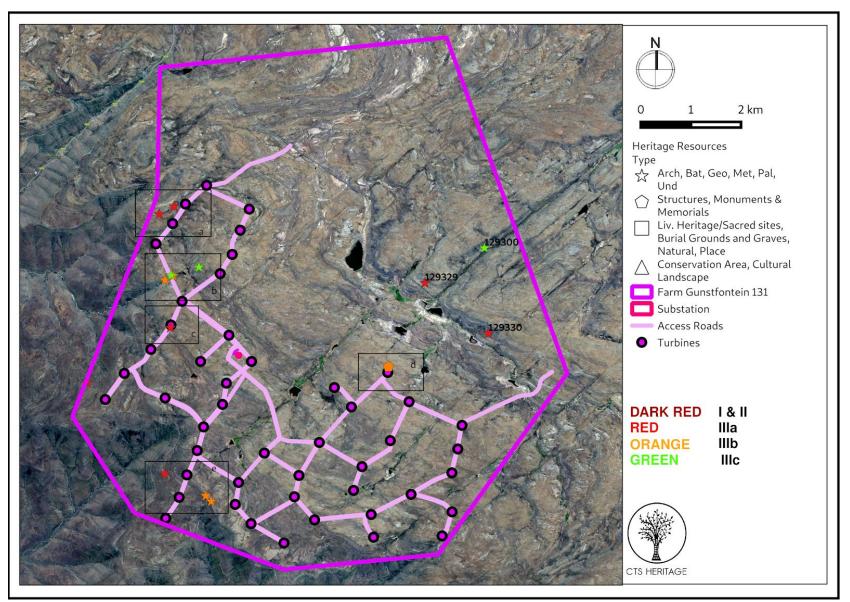


Figure 3. Heritage Resources Map. Heritage Resources previously identified within the study area, with SAHRIS Site IDs indicated in the insets below. Please See Appendix 4 for full description of heritage resource types.





Figure 3a. Heritage Resources Map. Inset



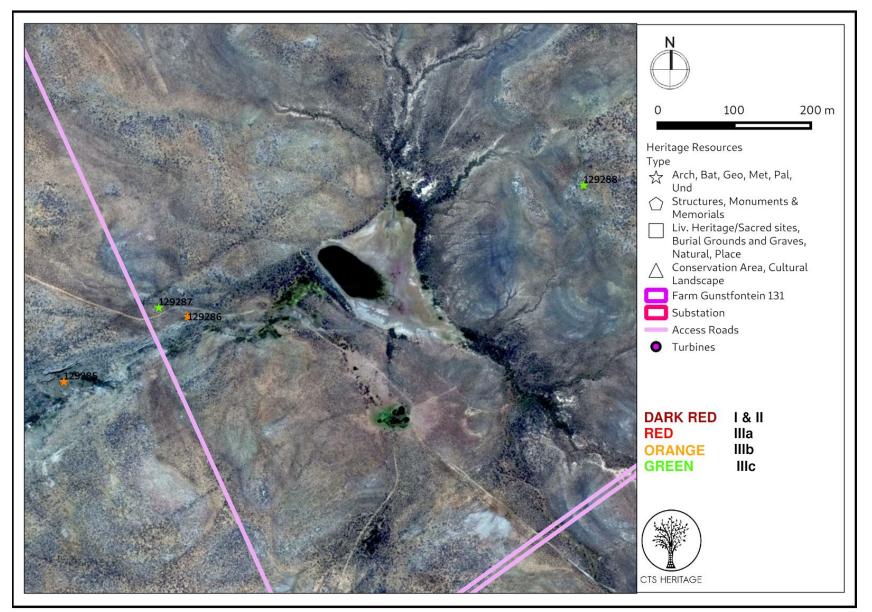


Figure 3b. Heritage Resources Map. Inset





Figure 3c. Heritage Resources Map. Inset



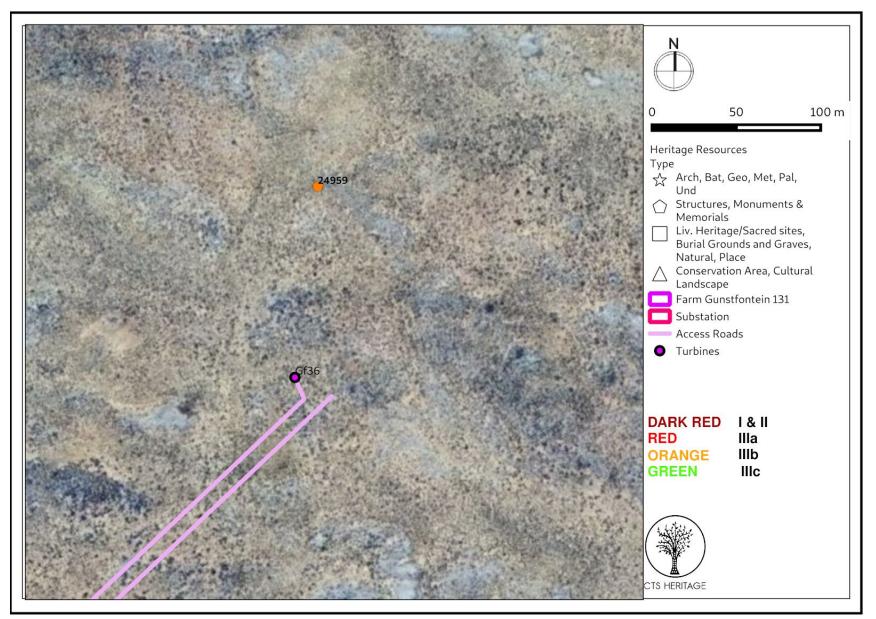


Figure 3d. Heritage Resources Map. Inset



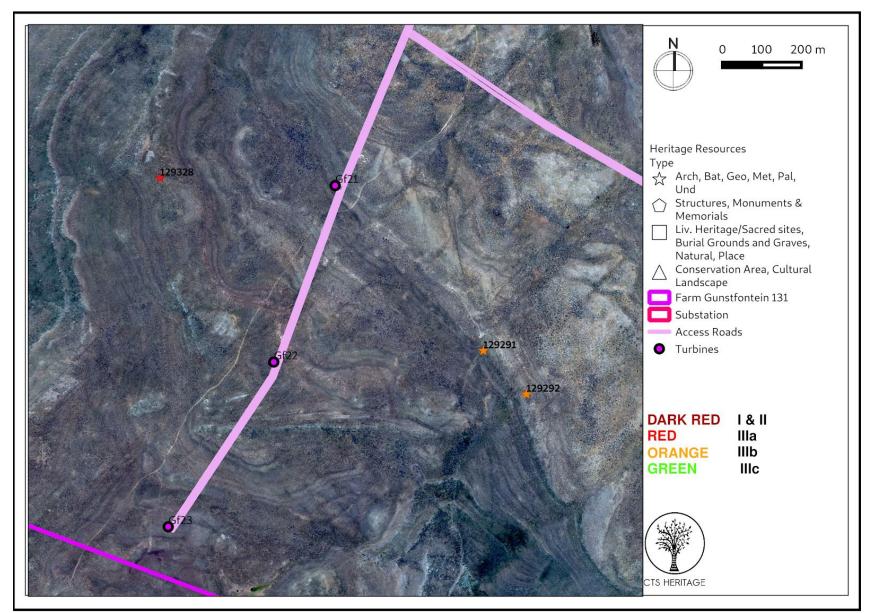


Figure 3e. Heritage Resources Map. Inset



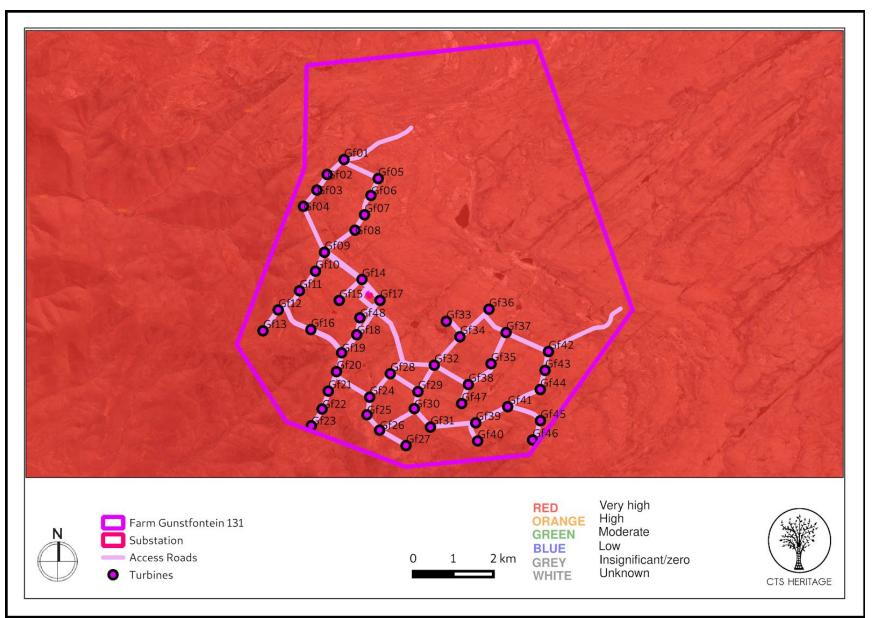
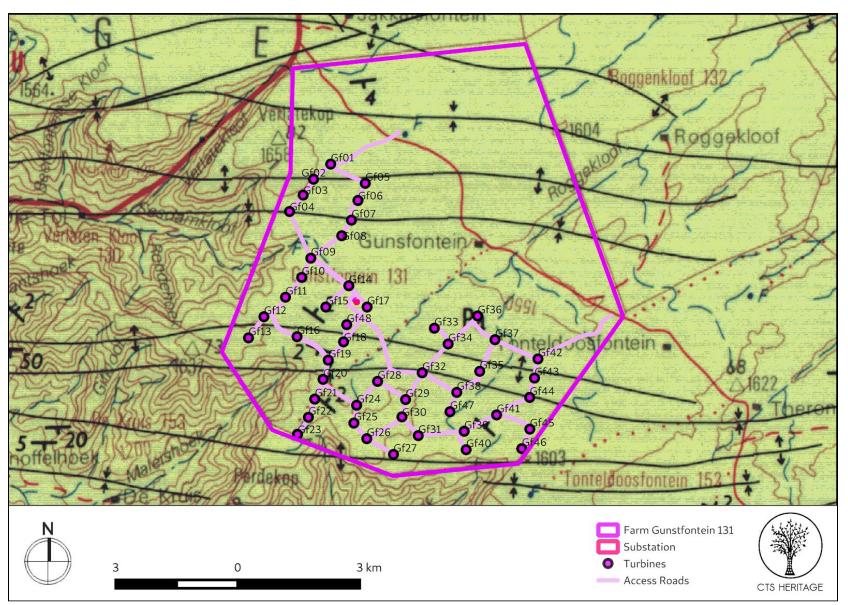


Figure 4a. Palaeosensitivity Map. Indicating fossil sensitivity underlying the study area. Please See Appendix 3 for full guide to the legend.





**Figure 4b. Geology Map**. Extract from the CGS 3220 Sutherland Map indicating that the development area is underlain by sediments of the Karoo Supergroup assigned to the Beaufort group, within the Abrahamskraal Formation of the Adelaide Subgroup.



### 8. Heritage Assessment

### **Background**

This project is for the development of a wind energy facility with a contracted capacity of up to 200MW and associated infrastructure including wind turbines, concrete foundations to support the turbines, cabling between the turbines, laydown areas, internal access roads, an on-site sub-station, buildings and dedicated areas for workshops, control systems, maintenance and storage with parking areas where required, and temporary construction compound and temporary site offices. The proposed site is located ~20km south of Sutherland within the Karoo Hoogland Local Municipality, of the Namakwa District Municipality. The site includes the farm Remainder of the farm Gunstfontein 131. It is requested that the Department of Environmental Affairs (DEA) amend the wind farm layout, the project description, turbine specifications, wind turbine foundations and laydown areas, as described in the environmental authorisation dated 25 July 2016 (as amended) for the proposed Gunstfontein WEF (SAHRIS NID: 8383), and in the associated Environmental Impact Assessment Report (EIAR) dated April 2016, as follows:

- Increase hub height to up to 150m;
- Increase rotor diameter to up to 180m;
- Increase rated power of turbines to up to 6.5MW per wind turbine;
- Potential increase to wind turbine foundation areas and laydown areas;
- Update the layout as required (including revised turbine positions and an additional access road).

The purpose of this assessment is therefore to assess the change in impact on heritage resources associated with the implementation of the proposed amendments and to ensure that the proposed amendments to the Gunstfontein WEF development do not negatively impact on heritage resources based on the field assessments already conducted.

### Archaeology and built environment heritage

The Remainder of the farm Gunstfontein 131 has been thoroughly assessed by Van der Walt in his report dated January 2016. In his assessment, he identified 8 sites of heritage significance which need54 to be considered for the development of the Gunstfontein WEF. These sites have been mapped in Figures 3a to 3e and documented in Appendix 1. In addition, these are tabled below with impacts as per the previous layout and new impacts:

Table 1: Anticipated impacts to archaeology and built environment heritage 2016 and 2019

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Site ID:	Grading	Туре	2016 Impacts and mitigation (van der Walt 2016)	2019 Impacts and mitigation			
129285	Grade IIIb	Rock Art	No impact anticipated	No impact anticipated A 60m no-go buffer must be implemented around the sites and no impact is permitted			
129286	Grade IIIb	Fort	No impact anticipated	Potential impact from overhead powerline between GF04 and GF09, however no impact on the ground is anticipated.  A 60m no-go buffer must be implemented around the sites and no impact is permitted.			
129287	Grade IIIc	Fort	No impact anticipated	Potential impact from overhead powerline between GF04 and GF09, however no impact on the ground is anticipated.  A 60m no-go buffer must be implemented around the sites and no impact is permitted.			



129288	Grade IIIc	Stone Cairn (possible grave)	No impact anticipated	No impact anticipated This site must be demarcated and fenced off with a perimeter buffer zone of 60m
129289	Grade IIIa	Fort	Impact from tower 14 and access road The sites should be preserved and demarcated as a no-go area	Impact from GF10 and access road A 60m no-go buffer must be implemented around the sites and no impact is permitted
129290	Grade IIIc	Ruin	No impact anticipated	No impact anticipated A 60m no-go buffer must be implemented around the sites and no impact is permitted
129291	Grade IIIb	Fort	No impact anticipated	No impact anticipated A 60m no-go buffer must be implemented around the sites and no impact is permitted
129292	Grade IIIb	Fort	No impact anticipated	No impact anticipated A 60m no-go buffer must be implemented around the sites and no impact is permitted

In addition, concern was noted regarding the impact of the proposed development on the Verlatenkloof Pass. In their comment dated 20 June 2018, SAHRA required that a no-go buffer of 1.6km be implemented around the Verlatenkloof Pass, and that no turbines should be placed within 1.6km of the pass. The new proposed alignment complies with this requirement and all turbines are proposed to be located more than 2km from the Verlatenkloof Pass.

As such, the proposed changes to the EA and site layout will NOT increase the significance of impacts to archaeological and built environment heritage resources originally identified in the EIA report or lead to any additional impacts

### **Palaeontology**

Almond (2015) conducted a detailed palaeontological assessment for the proposed development and concluded that "the Lower Beaufort Group bedrocks within the Gunstfontein WEF study area are generally of low palaeontological sensitivity, and this also applies to the overlying late Caenozoic superficial sediments. Construction of the proposed Gunstfontein WEF is unlikely to entail significant impacts on local heritage resources. Due to the general scarcity of well-preserved fossil remains as well as the extensive superficial sediment cover observed within the study area, the overall impact significance of the construction phase of the proposed Gunstfontein WEF is assessed as LOW."

Almond (2015) noted that 5 uranium core occurrences had previously been identified on Gunstfontein Farm 131 (SAHRIS Site ID 129326 to 129330). Almond (2015) notes that these uranium occurrences may well be associated with fossil plant material. In addition, Almond (2015) identified a site that features concentrations of woody plant fossils and koffieklip (SAHRIS SIte ID 129325). Both the uranium sites and the plant fossil site have been mapped in Figures 3a to 3e. Almond (2015) recommends that a 30m no-go buffer be implemented around both the uranium sites (SAHRIS Site ID 129326 to 129330) and the plant fossil site (SAHRIS Site ID 129325). SAHRA recommended that this buffer be enlarged to 60m as per



their comments dated 10 March 2016 and 20 June 2016. In the new layout that is currently proposed, all infrastructure is located more than 100m away from the identified uranium anomalies (see Figures 3a to e, and Appendix 1).

As such, the proposed changes to the EA and site layout will NOT increase the significance of impacts to palaeontological heritage resources originally identified in the EIA report or lead to any additional impacts

#### Conclusion

The proposed changes to the EA and site layout will NOT increase the significance of impacts originally identified in the EIA report or lead to any additional impacts. The proposed amendments will have zero or negligible effect on the significance of impacts identified in the EIA report as long as the recommendations contained in Van der Walt (2016) and Almond (2015), and repeated above are implemented.

In addition to the above, the following recommendations were endorsed by SAHRA in their letter dated 18 March 2016 and 20 June 2016, and still apply:

- A bufferzone of 60 m must be maintained from all identified heritage and palaeontological resources. Micro adjustment of all relevant proposed infrastructure must occur in order to achieve this. These buffer zones have been mapped in Figures 5a and 5b in the areas where impact is likely.
- The stone cairn/possible grave (Site ID 129288), should be demarcated and fenced off with a perimeter buffer zone of 60m;
- A Conservation Management Plan must be developed to ensure the on-going conservation of identified heritage resources during the life of the development. The report must include a map of all identified heritage and palaeontological resources with buffer zones of 60 m in relation to the proposed development. This report must be submitted to SAHRA if the EA has been approved and must form part of the final EMPr; and
- On-site monitoring of excavations deeper than 1m must be conducted by a qualified palaeontologist during the construction phase of any infrastructure located within the Abrahamskraal formation. Site monitoring reports must be submitted to SAHRA upon completion.



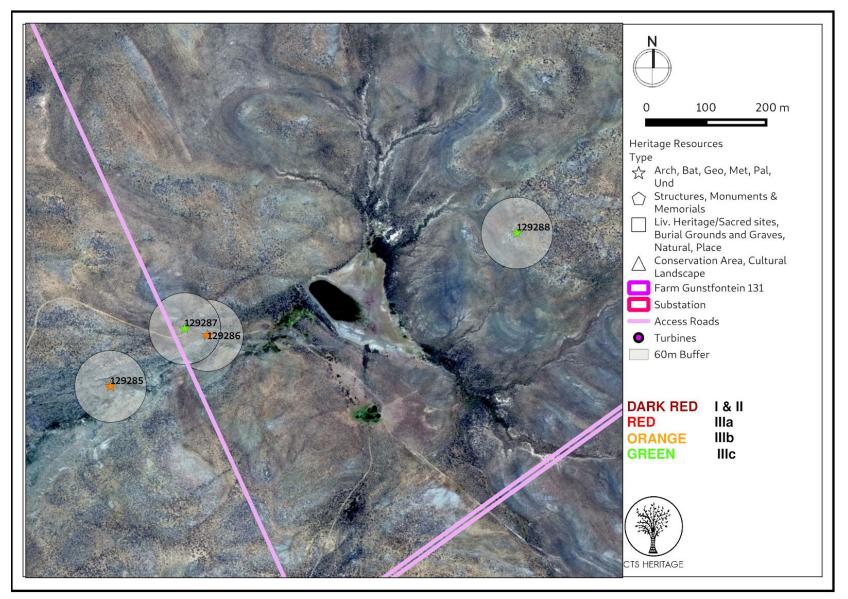


Figure 5a. Heritage Resources Map. With 60m Buffer indicated



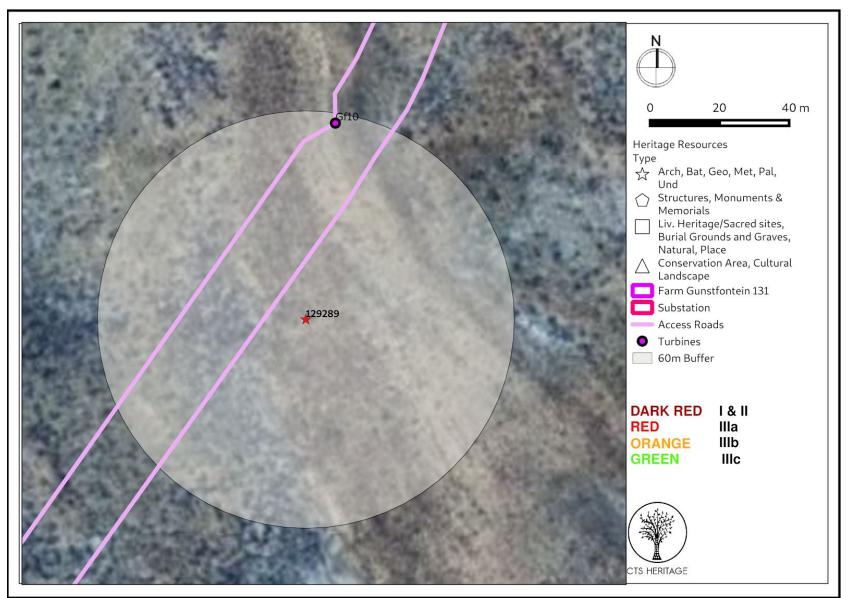


Figure 5b. Heritage Resources Map. With 60m Buffer indicated



### **Table 2: Impact Assessment Table**

**NATURE:** Significant archaeological, built environment and palaeontological heritage resources were identified during the field assessment. These resources may be impacted by the construction phase of the proposed development

Concardonom prideo or	T .			Polos autolo mi
		Archaeology		Palaeontology
MAGNITUDE	L (2)	A number (8) of significant heritage resources were identified, however negative impact is only anticipated at one of these sites (Site ID 128289). Two sites may be impacted by overhead power lines (Site IDs 128286 and 128287) however no impacted to the ground is anticipated.	L (2)	Almond (2015) conducted a detailed palaeontological assessment for the proposed development and concluded that "the Lower Beaufort Group bedrocks within the Gunstfontein WEF study area are generally of low palaeontological sensitivity, and this also applies to the overlying late Caenozoic superficial sediments. Construction of the proposed Gunstfontein WEF is unlikely to entail significant impacts on local heritage resources. Due to the general scarcity of well-preserved fossil remains as well as the extensive superficial sediment cover observed within the study area, the overall impact significance of the construction phase of the proposed Gunstfontein WEF is assessed as LOW
DURATION	H (5)	Where manifest, the impact will be permanent.	H (5)	Where manifest, the impact will be permanent.
EXTENT	L (1)	Localised within the site boundary	L (1)	Localised within the site boundary.
PROBABILITY	L (4)	Impact is likely at Site 128289	L (3)	It is possible that fossils Abrahamskraal formation would be impacted
SIGNIFICANCE	L	(2+5+1)x4=32	L	(2+5+1)x3=24
STATUS		Neutral		Neutral
REVERSIBILITY	L	Any impacts to heritage resources that do occur are irreversible	L	Any impacts to heritage resources that do occur are irreversible
IRREPLACEABLE LOSS OF RESOURCES?	L	Possible	L	Possible
CAN IMPACTS BE MITIGATED		Yes, a no-go buffer zone of 60m is recommended for all identified resources		Yes, a no-go buffer zone of 60m is recommended for all identified resources

#### MITIGATION:

- A bufferzone of 60 m must be maintained from all identified heritage and palaeontological resources. Micro adjustment of all relevant proposed infrastructure must occur in order to achieve this. These buffer zones have been mapped in Figures 5a and 5b in the areas where impact is likely.
- The stone cairn/possible grave (Site ID 129288), should be demarcated and fenced off with a perimeter buffer zone of 60m;
- A Conservation Management Plan must be developed to ensure the on-going conservation of identified heritage resources during the life of the development. The report must include a map of all identified heritage and palaeontological resources with buffer zones of 60 m in relation to the proposed development. This report must be submitted to SAHRA if the EA has been approved and must form part of the final EMPr; and
- On-site monitoring of excavations deeper than 1m must be conducted by a qualified palaeontologist during the construction phase of any infrastructure located within the Abrahamskraal formation. Site monitoring reports must be submitted to SAHRA upon completion.

#### **RESIDUAL RISK:**

Impact is unlikely as long as the proposed mitigation measures are implemented.



## **APPENDIX 1**

## List of heritage resources within the development area

Site ID	Site no	Full Site Name	Site Type	Grading
129330	GFT 173	Gunsfontein 173	Geological	Grade IIIa
129329	GFT 172	Gunsfontein 172	Geological	Grade IIIa
129328	GFT 171	Gunsfontein 171	Geological	Grade IIIa
129327	GFT 170	Gunsfontein 170	Geological	Grade IIIa
129326	GFT 169	Gunsfontein 169	Geological	Grade IIIa
129325	GFT 09	Gunsfontein 09	Palaeontological	Grade IIIa
129300	GFT 092	Gunstfontein 092	Geological	Grade IIIc
129292	GFT 08	Gunsfontein 08	Archaeological	Grade IIIb
129291	GFT 07	Gunsfontein 07	Stone walling	Grade IIIb
129289	GFT 05	Gunsfontein 05	Archaeological	Grade IIIa
129288	GFT 04	Gunsfontein 04	Archaeological	Grade IIIc
129287	GFT 03	Gunsfontein 03	Archaeological	Grade IIIc
129286	GFT 02	Gunsfontein 02	Archaeological	Grade IIIb
129285	GFT 01	Gunsfontein 01	Rock Art	Grade IIIb
24959	Gunstfontein	Corbelled building at Gunstfontein	Structures	Grade IIIb



# **APPENDIX 2**

## Reference List with relevant AIAs and PIAs

	Heritage Impact Assessments				
Nid	Nid Report Type Author/s Date Title				
357422	AIA	Jaco van der Walt	21/12/2015	Archaeological Impact Assessment Report for the Proposed Gunstfontein WEF near Sutherland, Karoo Hoogland Local Municipality, NC Province	
357423	PIA	John Almond	21/12/2015	Palaeontological Heritage Assessment: Combined Desktop and Field Based Report for the Proposed Gunstfontein WEF near Sutherland, Karoo Hoogland Local Municipality, NC Province	



# **APPENDIX 3 - Keys/Guides**

## **Key/Guide to Acronyms**

Archaeological Impact Assessment  DARD Department of Agriculture and Rural Development (KwaZulu-Natal)  DEADP 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) Department of Economic Development and Tourism (Mpumalanga) DEDTEA DEPAT Department of Environment and Nature Conservation (Northern Cape) DENC Department of Environment and Nature Conservation (Northern Cape) DMR Department of Mineral Resources (National) GDARD Gauteng Department of Agriculture and Rural Development (Gauteng) Hartiage Impact Assessment LEDET LEDET MPRDA Mineral and Petroleum Resources Development Act, no 28 of 2002 NEMA NATIONAL Hartiage Resources Act, no 25 of 1999 Palaeontological Impact Assessment SAHRA SAHRA SOuth African Heritage Resources Information System Visual Impact Assessment Visual Impact Assessment		Royrediae to Actionyme
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SAHRIS South African Heritage Resources Information System	PIA	Palaeontological Impact Assessment
·	SAHRA	South African Heritage Resources Agency
VIA Visual Impact Assessment	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.

The compilation of the Heritage Screener will not include any field assessment. The Heritage Screener will be submitted to the applicant within 24 hours from receipt of full payment. If the 24-hour deadline is not met by CTS, the applicant will be refunded in full.