

HERITAGE CONSERVATION MANAGEMENT PLAN

for the approved Rietkloof WEF near Matjiesfontein in the
Western Cape



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Prepared by CTS Heritage

October 2021



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1. INTRODUCTION

Rietkloof Wind Farm (Pty) Ltd, a subsidiary of G7 Renewable Energies (Pty) Ltd, has received approval to develop a 140 megawatt (MW) Wind Energy Facility (WEF) near Matjiesfontein, in the Western Cape Province in South Africa. The authorised WEF is located in the Laingsburg Local Municipality, which falls within the Central Karoo District Municipality. It comprises up to 58 turbines, with a generating capacity of between 1.5MW and 4MW each.

The Rietkloof Wind Energy Facility (WEF) is proposed in the Western Cape at the border with the Northern Cape along the R354 road which connects Matjiesfontein to Sutherland. An inclusion zone of 10km was assessed around the proposed WEF in order to better characterise the heritage resources of the area. Several WEFs have previously been proposed within the 10km inclusion zone, including the Hidden Valley Phase 1 Karusa, the Hidden Valley Phase 2 Soetwater, the Hidden Valley Phase 3, Great Karoo, Roggeveld Wind Farm Phase 1 and Kareebosch Wind Project (Roggeveld Phase 2). The Brandvalley WEF (a phase of the Roggeveld Wind Farm) is proposed contemporaneously to the Rietkloof WEF on some overlapping properties. This WEF is also a part of Roggeveld Wind Energy Facility

The authorised Rietkloof Wind Energy Facility (WEF) falls entirely within the Western Cape and as such, falls under the jurisdiction of Heritage Western Cape (HWC).

On 20 October 2016, HWC issued a Final Comment on the Rietvally WEF development in terms of section 38(8) of the NHRA, and made a number of recommendations (see below). The validity of this final comment was reiterated in correspondence from HWC dated 6 July 2018. As such, the requirements of section 38(8) of the NHRA have been satisfied. In their Final Comment, the IACom of HWC noted that:

- There are concerns that the archaeological assessment was not sufficiently comprehensive in order to understand the extent and significance of the archaeological heritage resources. However, it would appear from both the HIA and the prior experience of a committee member that the area proposed for the turbines is not likely to be archaeologically rich. The importance of identifying and recording any potential resources is emphasized.
- The built environment assessment was not thorough. However, none of these buildings are to be directly impacted by the proposed turbines.
- The cumulative impacts upon the R354 scenic route will be equally significant and this is an important tourist route into the region. These impacts are inevitable and cannot be mitigated.

- The Wind Energy Facilities proposed in this area are included in the renewable energy development zone (REDZ). It is understood that an SEA was conducted as part of the process of identifying the REDZ's. HWC has not had the opportunity to input into the SEA nor has it had sight of the document.

HWC resolved to support the recommendations of the HIA subject to the following conditions:

- The 20-30 metre buffers proposed in the archaeological specialist study for the graveyard (RK_GI) should be implemented and respected throughout the lifetime of the project;
- The standard buffer of 500 meters from any wind turbine that applies to occupied buildings must be equally applied to all unoccupied buildings older than 60 years on the site.
- All stone walled sites, regardless of whether they have been identified prior to construction or not, should be regarded as no-go areas. If they cannot be avoided then they should be reported to an archaeologist who would advise on the need for mitigation;
- The small area on Kranskop, Wilgehout Fontein 87, outlined in green on figure 2 of the palaeontological study by J. E. Almond (2016), "features palaeontologically important, well-preserved fossil wood from the Waterford Formation and must be safeguarded from development". Once the final WEF layout is determined and before construction commences, the two areas of Waterford Formation outcrop nearby, that are outlined in red (figure 2 of palaeontological study by J.E. Almond) must be surveyed by a professional palaeontologist to record, safeguard and sample any well preserved fossil material.
- A targeted walk-down of the final layout must be conducted by an archaeologist approved by the responsible heritage authority (and with relevant qualifications and experience and professional standing in heritage management in terms of S 38 (2) (a)), at least six months prior to construction in order to determine whether any archaeological recording and mitigation measures may still be required and to identify any further sites in proximity to the footprint that need to be mitigated or treated as no-go areas during all phases of the project. A report to HWC is required for approval;
- The ECO must be briefed on what to look out for in terms of archaeological and palaeontological heritage resources that might be revealed during construction;
- The ECO must report as described below. If any archaeological material, palaeontological material or human burials are uncovered during the course of development then work in the immediate area must be halted and the find protected in situ as far as is possible. The find would need to be reported to the heritage authorities and may require inspection by an appropriate heritage practitioner. Such heritage is the property of the state and may require excavation and curation in an approved institution.

EA was granted for the Rietvalley WEF on 17 September 2019. In the EA, various requirements were stipulated in terms of impacts to Historical, Cultural and Palaeontological sites (Table 1 below).

Table 1: EA requirements for Heritage

<i>EA Requirements</i>	<i>Implementation</i>
All wind turbines must avoid all areas designated as "no-go" areas as well as their buffers	Addressed
The final placement of turbines must follow a micro siting procedure involving a walk-through and identification of any sensitive areas by ecological, avifaunal, bat, surface water and heritage specialists	Addressed
If archaeological heritage material, fossils and human remains are uncovered during construction, all work must cease immediately and be reported to the South African Heritage Resources Agency (SAHRA) so that a systematic and professional investigation / excavation can be undertaken.	During construction
Exclusion of sensitive ecological, heritage and paleontological areas from construction activities must inform micro siting of all development activities.	At construction
A 60m buffer must be applied around all identified archaeological sites.	Addressed
Pre-construction archaeological monitoring is required. The appointed archaeologist must keep a list documenting all identified farm infrastructure.	Addressed
If concentrations of archaeological heritage material, fossils and human remains are uncovered during construction, all work must cease immediately and be reported to the South African Heritage Resources Agency (SAHRA) so that a systematic and professional investigation / excavation can be undertaken.	During construction
Construction managers/foremen must be informed before construction starts of the possible types of heritage sites and cultural material that may be encountered and the procedures to follow when they find sites.	To be completed
All buffers and no-go areas stipulated in the EIAR must be adhered to for both the facilities and all roads and powerlines	Addressed
Should any human remains be uncovered during development they must be immediately protected in situ and reported to the heritage authorities or to an archaeologist. The remains will need to be exhumed at the cost of the developer	During construction
All construction and maintenance crew and vehicles (except small vehicles which may use existing farm tracks) must be kept out of the buffer zones.	During construction



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The final layout must be shown to the appointed archaeologist before implementation to confirm that all significant heritage resources have been adequately protected.	Addressed
A conservation management plan must be drafted and submitted to SAHRA for review and comment	Addressed in this report

1.1 Location of Site

The Rietkloof WEF is nearly 18km north of Matjiesfontein on the western side of the R354 that connects Sutherland to Matjiesfontein. This WEF is one of a number of other WEFs that are proposed in the area between Sutherland, Matjiesfontein, the Ceres Karoo and the Moordenaars Karoo. The WEF can be accessed from the south via Rietkloof and Volstruisfontein farms or via Fortuin farm in the northeast section of the WEF. Hartjeskraal lies in the centre of the WEF and most of the turbine positions can be accessed from there as well as from Barendskraal farm towards the northwest end.

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1.2 Ownership and responsibility for site

Landowners

Land Owners	Farm Name	Property	Email	Address
Ou Mure Boerdery c/o Polla van der Westhuizen	Ou Mure	1/74	polla@tempowp.co.za	PO Box 835, Stellenbosch 7599/ Dombeya St. 11, Heldervue, Somerset West 7130
A D V Le Roux Family Trust	Fortuin	3/74 and RE/74	fortuin@roggeveld.co.za ; klipfontein@breede.co.za	PO Box 30, Laingsburg 6900/ Fortuin plaas, Laingsburg 6900
Mooi Nooientjies Trust c/o Christo Mathee	Barendskraal	1/76	christom@vodamail.co.za	PO Box 57, Stellenbosch 7599/ Draailaan 13, Dalsig, Stellenbosch, 7600
Du Toit Thiersen (Pty) Ltd c/o Johan du Toit	Hartjieskraal	1/77	johan@capitalharvest.co.za	
Ernest Marais	Hartjieskraal	RE/77	amarcia.marais@gmail.com	PO Box 96, Laingsburg 6900/ Hartjieskraal, Laingsburg 6900
ZB Loots Familie Trust c/o Ziegfriedt Loots	Nuwerus	RE/284	zloots@iafrica.com wmpenn@iafrica.com	10 Marina Crescent, Somerset West, 7130
Wilhelm Theron	Wilgehout Fontein	RE/87	theronwilhelm@gmail.com	P.O. Box 192 Laingsburg 6900/ Wilgehout Fontein Farm, Laingsburg
Sitruspoort Trust c/o Johan Kriel	Vogelstruisfontein	81	leopardtrail@barvallei.co.za	P.O. Box 292 Bonnievale 6730/ Sitruspoort, Bonnievale, 6730
Rhyno Johannes Gouws	Rietkloof Annexe	1/88	rhynog@enviroserv.co.za rhyno.gouws@telkomsa.net	640 Gypsum Street Elardus Park 0181
Fantique Trade 379 CC c/o Dr. Jaco Terblanche	Snyders Kloof	RE/80	jaco@dr-ent.co.za	Riverside 4C, Kuilsriver Hospital, 33 Van Riebeeck Rd, 7580 Kuils River
Hartebees Fontein Trust c/o Jaco le Roes & Elma le Roes	Snyders Kloof	1/80	leroeselma@gmail.com	PO Box 65, Laingsburg, 6900 / 32 van Riebeeck Street, Laingsburg 6900

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Environmental Authorisation (EA) Holder

The EA Holder would be the Project Company, Rietkloof Wind Farm (Pty) Ltd (Dr Killian Hageman), who, through the EA acquires the right to develop the project (considering all other permits and consents have been acquired from all other relevant competent authorities). The Project Company does not however own the land on which it intends to develop. Although the landowners benefit from the revenues generated by the Project Company and therefore by extension the EA, they do not form part of the Project Company's management structure. The benefit therefore remains financial/commercial rather than organisational.

Dr Killian Hageman
Rietkloof Wind Farm (Pty) Ltd
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5th Floor
Cape Town
8001
Tel: 021 300 0613
rietkloof@g7energies.com

Implementation of EA

The person responsible for the implementation of the conditions in the EA would be the contractors during the construction phase. However, any non-compliance would fall onto Rietkloof Wind Farm (Pty) Ltd as the holder of the EA. All non-compliance would be audited by an independent ECO which would be appointed by Rietkloof Wind Farm (Pty) Ltd. Rietkloof Wind Farm (Pty) Ltd would operate the facility. For decommissioning, the responsible parties would again be the contractors and audited by ECO but overall compliance would fall on Rietkloof Wind Farm (Pty) Ltd.

Heritage Authorities

The area proposed for development is located in the Western Cape. All impacts to heritage resources in the Western Cape are managed by Heritage Western Cape. Any impacts to heritage resources are subject to the recommendations and best practice processes established by Heritage Western Cape (HWC) for archaeology, palaeontology, the cultural landscape and other kinds of heritage resources.



1.3 Site Description

The Rietkloof WEF is nearly 18km north of Matjiesfontein on the western side of the R354 that connects Sutherland to Matjiesfontein. This WEF is one of a number of other WEFs that are proposed in the area between Sutherland, Matjiesfontein, the Ceres Karoo and the Moordenaars Karoo. The turbines are mainly located on the top of a series of moderately high ridges and koppies that characterise the study area. The WEF can be accessed from the south via Rietkloof and Volstruisfontein farms or via Fortuin farm in the northeast section of the WEF. Hartjeskraal lies in the centre of the WEF and most of the turbine positions can be accessed from there as well as from Barendskraal farm towards the northwest end. The southern end of the study area drops down abruptly to a level and wide valley plain that separates the Dwyka tillite ridges overlooking the northern side of Matjiesfontein and continues northwestwards into the Ceres Karoo where another windfarm (Perdekraal) has been built.

The agricultural activities have predominantly consisted of sheep farming with very small scale crop agriculture such as onion seeds accompanied by subsistence farming. Ruins dot the area along the gravel access roads linking up the old farms but the extended drought in the mid 2010s has made a noticeable impact on the vegetation and water levels available. A prolonged water shortage is still in place at Sutherland to the north and much of the farming activities have been scaled back to adapt to the intensely arid conditions experienced here. The vegetation consists of succulent karoo bushes and much of the terrain is broken and rocky. Most of the turbine positions have to be reached on foot as there are only a few connecting jeep tracks, mostly on very steep and unlevel ground, besides the main dirt road linking Barendskraal - Hartjeskraal - Volstruisfontein - Rietkloof and the R354.



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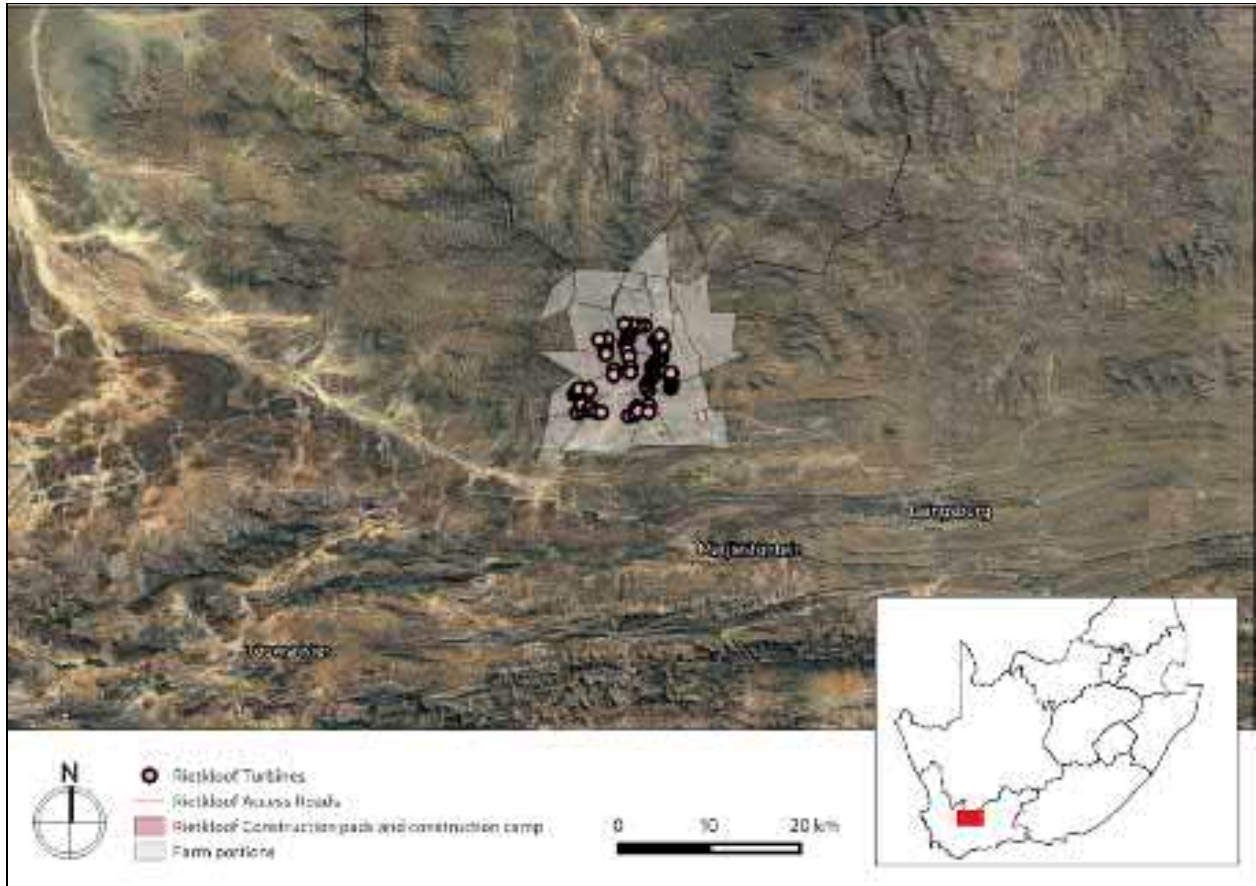


Figure 1: Location of Site

1.4 Statement of Site significance

General points on significance

The cultural significance of a site determines the appropriateness and extent to which protection measures are required. The value or importance of the site to society in general, to specific past and present groups, and to posterity, includes:

- Spiritual/social value - the traditional and consistent use of a site for religious, spiritual or social purposes, even if the religious use no longer continues
- Aesthetic/artistic value - the recognition by scholars and the general public that a cultural site represents a high point of creative achievement
- Historic value - the achievements and knowledge of the past as vehicles for enlightening the present and future
- Scientific/research value - the site, or feature within the site, providing a source of knowledge that is unobtainable elsewhere

Since cultural significance can be interpreted differently by different people, and evaluations can change with time and circumstances, it is important to assess the significance of a site in terms of:

- The importance of a particular site in relation to other sites so as to decide on the appropriate level of management
- Ascertaining what all these values are so as not to inadvertently damage one value that a site has, while preserving another.

Details of the grading system used are provided in section 3 of the NHRA. In addition, the system outlined in Heritage Western Cape's Guideline for Grading: Implications and Management was used.

As per this system, heritage significance is indicated on a sliding scale:

- Grade I - National Significance
- Grade II - Regional/Provincial Significance
- Grade IIIA - High Local Significance
- Grade IIIB - Moderate Local Significance
- Grade IIIC - Low Local Significance
- NCW - Not Conservation-Worthy

Significance of Heritage Resources

A number of heritage resources located within the Rietkloof WEF development area were identified through the initial Heritage Impact Assessment process for the Rietkloof WEF (Booth, 2016) and the subsequent walkdown of the final layout for the Rietkloof WEF (September 2021). All of the identified heritage resources have been graded in terms of the provisions of section 3 of the National Heritage Resources Act and the HWC Guide on the Implications of Grading (2016). As such, the grading methodology is not repeated here. These resources are listed below in Table 1 in Appendix 2.

While not exhaustive, the list of known heritage resources located within the Rietkloof WEF development area provides insight into the nature and significance of the heritage resources common in the broader area.

As per the intentions of the NHRA, the grading of a heritage resource is indicative of its cultural significance and therefore informs its management and conservation strategies.

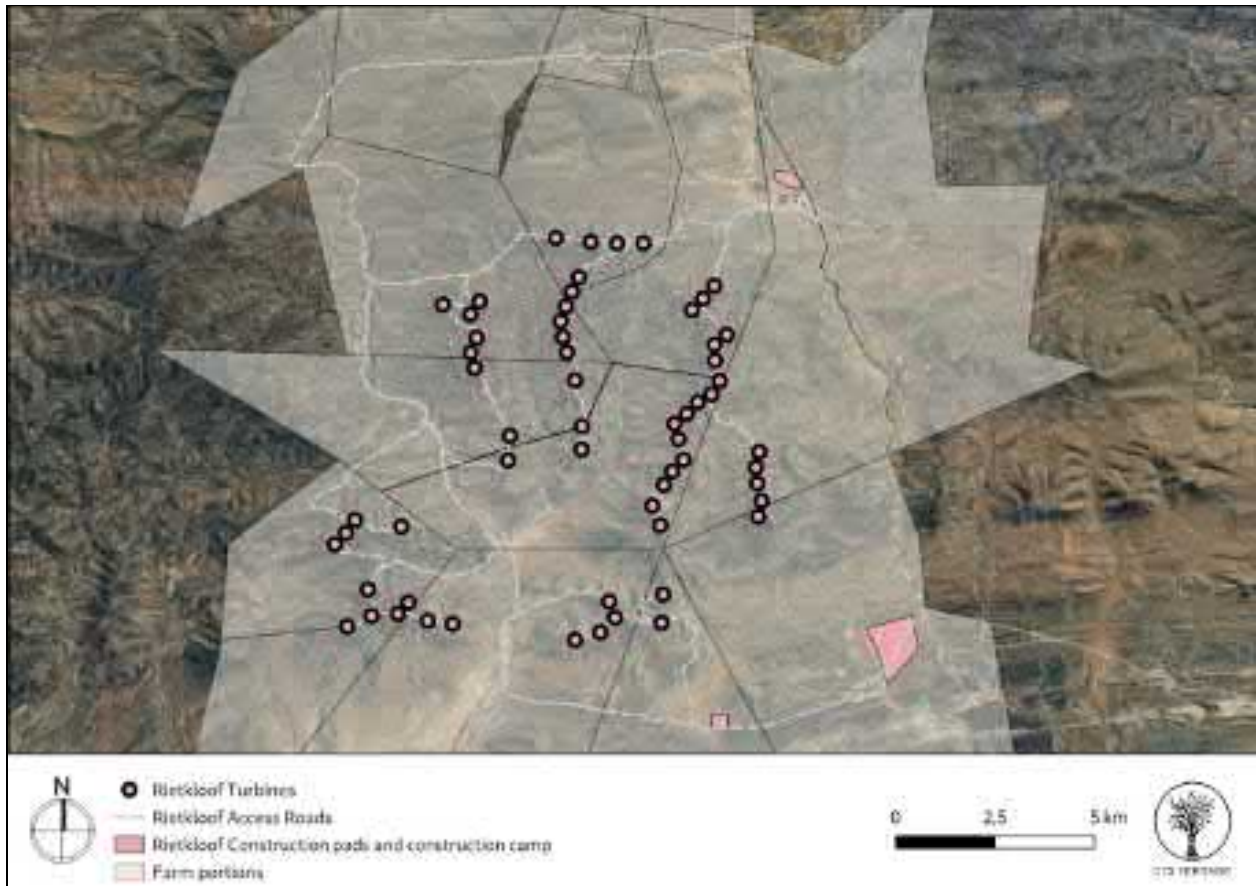


Figure 2: Final WEF Layout

1.5 Objectives of Management Plan

The purpose of this management plan is to guide the activities affecting the heritage resources to retain their significance by conserving it for future generations. A management plan is a living document in the sense that it can be updated as the situation changes and should therefore be reviewed regularly.

This management plan identifies:

- **what needs to be managed** - by surveying and recording the archaeological site in detail and summarising information on the location of sites and what they comprise;
- **who will manage the heritage resources** - by listing the people who have interests in the place and might be involved in its management;
- **the significance of the heritage** in relation to other local, provincial and national sites because the plan is designed to retain this significance;
- **key issues that must be addressed** to retain the significance through consultation with stakeholders;
- **the goals, objectives and strategies** for management and how they will be implemented; and
- **a documentation and monitoring plan** for the ruins so that any changes can be detected and the steps that have been taken can be documented.

1.6 Revision of Plan

The management plan should be reviewed every 5 years and revised as required, or as necessary when circumstances require it. Any revisions must be submitted to HWC for approval.

2. RECORDING AND RESEARCH

2.1 Objectives of Recording and Research

Thorough recording of archaeological sites allows site managers and heritage authorities to manage and identify the changes taking place at a site over time. The heritage resources located within this development have been previously recorded through the Heritage Impact Assessment conducted for the Rietkloof WEF (Booth, 2016) and through the Heritage Walk Down reports conducted for the Rietkloof WEF (CTS Heritage, 2021). It is anticipated that proposed clearance of vegetation and excavation associated with the construction of the turbines and their associated infrastructure may reveal additional heritage resources that are currently hidden by the vegetation and surface soil.

The heritage resources identified within this site retain potential for further academic study and as such, must be conserved with this in mind. Further academic investigation could provide insight into the evolution of settlement of the Karoo that has not yet been thoroughly documented.

Detailed research on the intangible heritage resources of the study area has not been done as this falls outside the requirements of the approvals process. Notwithstanding these risks and limitations, the potential intangible resources, identified through the review of other reports and historical literature on the area, are likely to exist in the landscape, and should be explored within a different research context to determine their full significance in terms of the NHRA.

2.2 Background context

The creation of the Komsberg REDZ, and the ensuing applications for WEFs in this area has resulted in several HIAs having been compiled for the region since 2010. All these reports have addressed the region's archaeological and palaeontological heritage, and some have assessed the rural cultural landscape as well (see the Reference List in Section 7).

2.2.1 Palaeontological Background

According to the SAHRIS Palaeosensitivity Map, the area proposed for development is underlain by sediments that are of moderate, high and very high palaeontological sensitivity.

The Palaeontological assessment completed for the Rietkloof WEF by Almond (2016) notes that "The Rietkloof WEF study area lies in the mountainous Klein-Roggeveldberge region and is underlain by around twelve formations of potentially fossil-bearing sedimentary rocks. The majority of the bedrocks are of Palaeozoic age (Early to Middle Permian) and belong to the Karoo Supergroup which is internationally famous for its rich fossil record. Palaeontological field assessment of the



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Rietkloof WEF study area shows that in this portion of the south-western Karoo:

- Dwyka Group and Lower to Middle Ecca Group bedrocks in the low-lying, southern portion of the area are tectonically deformed and weathered, with low-diversity trace fossil assemblages of limited scientific interest. This also applies to the Whitehill Formation that elsewhere, outside the study area, may be of high palaeontological sensitivity.
- Waterford Formation (Upper Ecca Group) deitaic bedrocks underlying the mountainous southern portion of the main development footprint are generally fossil-poor, apart from low-diversity trace fossil assemblages. However, isolated blocks and rare logs of well-preserved petrified wood found within the eastern portion of the study area are of high scientific and conservation value.
- Abrahamskraal Formation (Lower Beaufort Group) fluvial bedrocks underlying the high-lying northern portion of the study area are generally considered to be of high palaeontological sensitivity. However, in this area of the SW Karoo they are fossil-poor, apart from occasional horizons with plant debris or low-diversity trace fossils, including unconfirmed large tetrapod (terrestrial vertebrate) burrows. Fossil vertebrate skeletal remains (bones, teeth) are very rare indeed in these lowermost Beaufort Group rocks. None have been recorded as yet within the Rietkloof WEF study area, but isolated occurrences of probable small dicynodonts have recently been found just to the north (Brandvalley WEF project area).
- Late Caenozoic superficial sediments (alluvium, colluvium, calcretes, soils, surface gravels etc) overlying the Palaeozoic bedrocks are of low palaeontological sensitivity. Pediment and surface gravels along the foot of the Klein-Roggeveld Escarpment locally contain numerous clasts of petrified wood reworked from the Karoo Supergroup outcrop area to the north.

The overall impact significance of the construction phase of the proposed wind energy project is assessed as MODERATE(negative) in terms of palaeontological heritage resources. This is a consequence of (1) the paucity of irreplaceable, unique or rare fossil remains within the development footprint, (2) the high levels of bedrock weathering and tectonic deformation in the southern part of the study area, as well as (3) the extensive superficial sediment cover overlying most potentially-fossiliferous bedrocks within the Rietkloof WEF study area... No significant further impacts on fossil heritage are anticipated during the planning, operational and decommissioning phases of the WEF.”

Almond (2016) also notes that “The great majority of the Rietkloof WEF study area is assessed as being of low palaeontological sensitivity due to the scarcity of significant fossil vertebrate, plant and other remains here. Sensitive no-go areas within the proposed development footprint itself have not

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been identified in this study. The concentration of blocks and logs of well-preserved petrified wood from the Waterford Formation that are exposed on the slopes of Kranskop, Wilgehout Fontein 87 constitute a notable exception. This highly sensitive area, which in fact lies outside the proposed WEF development footprint, should not be disturbed. Pending the potential discovery of substantial new fossil remains during construction, specialist palaeontological mitigation is only recommended within two narrow upland areas of Waterford Formation outcrop close to Kranskop.”

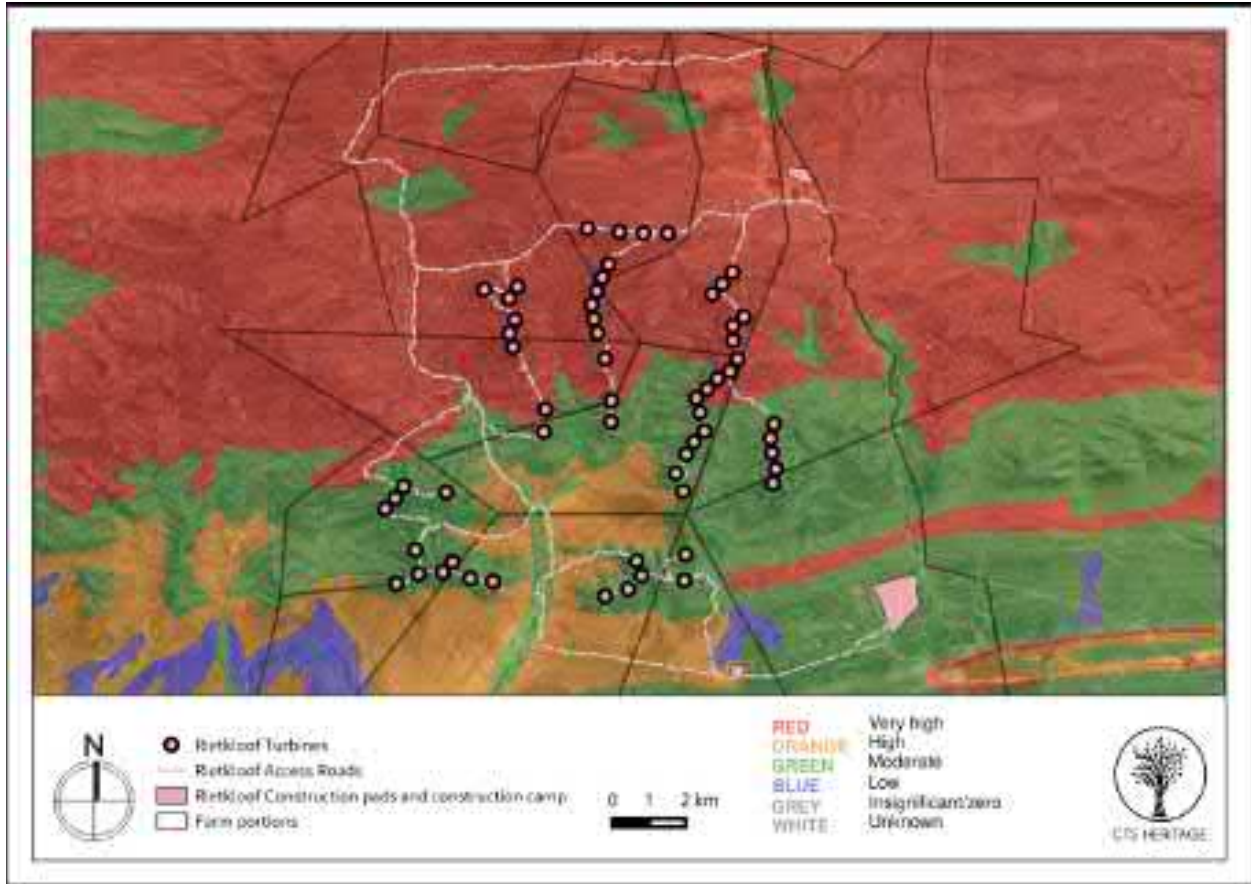


Figure 3.1: Palaeosensitivity Map. Indicating Moderate to High fossil sensitivity underlying the study area for the Rietkloof WEF



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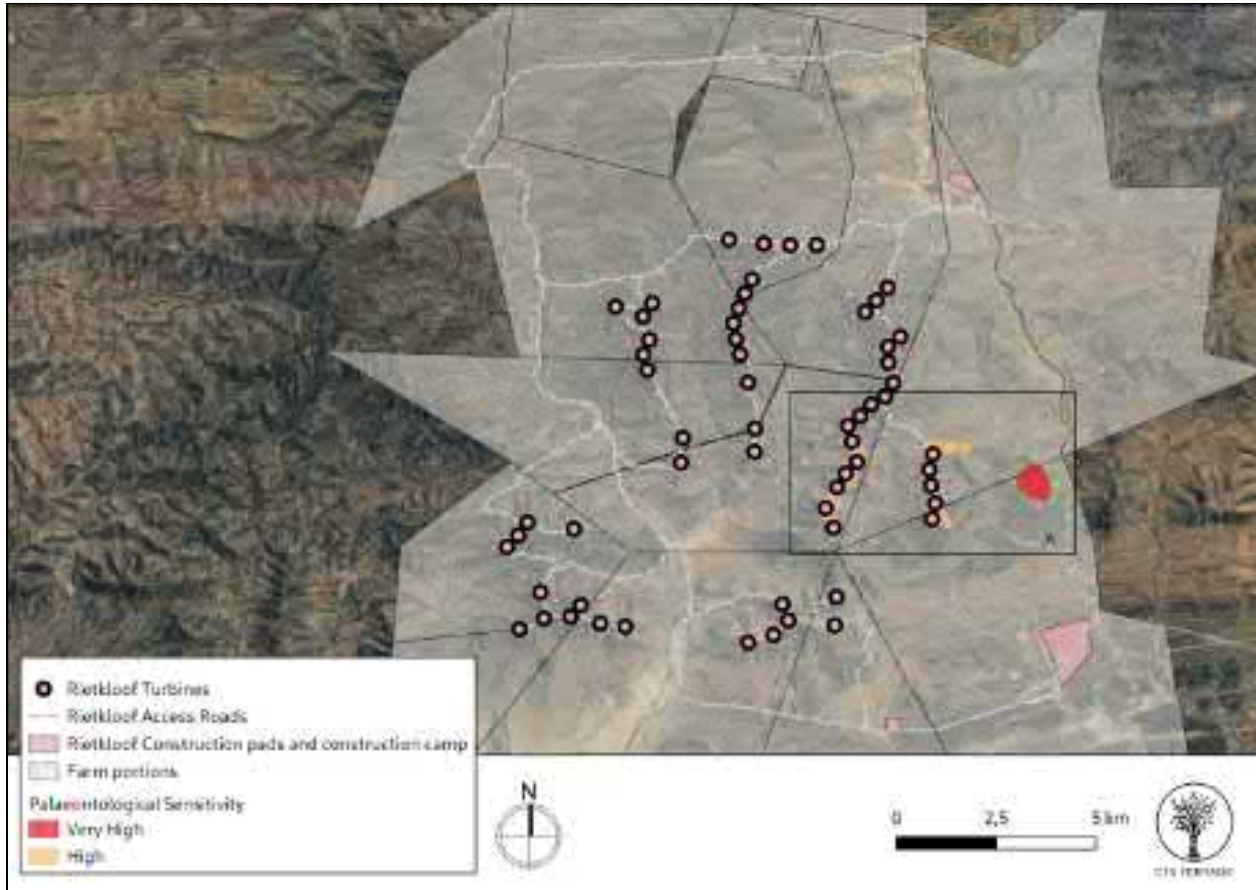


Figure 3.2. Palaeosensitivity Map. Indicating fossil sensitivity underlying the study area

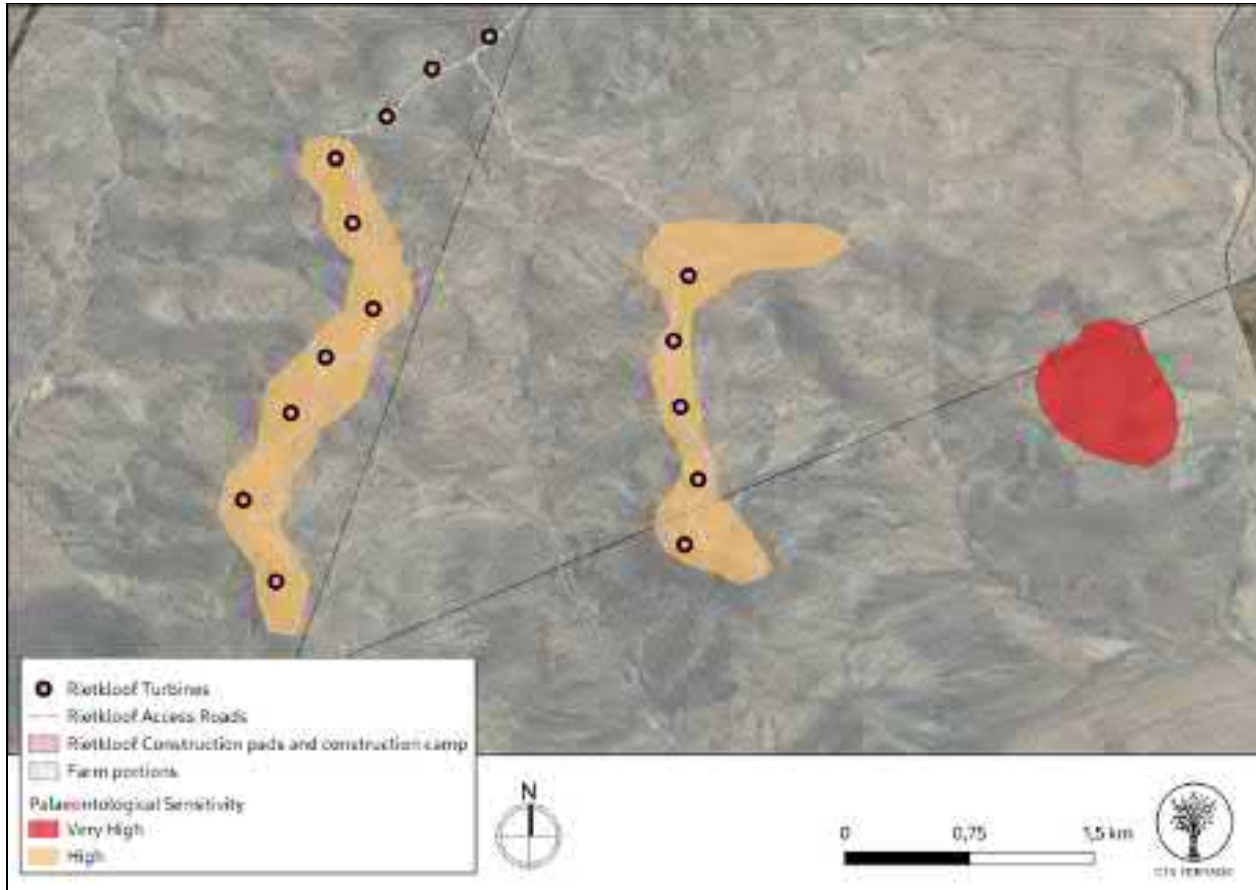


Figure 3.3: Palaeosensitivity Map. Indicating fossil sensitivity underlying the study area

2.2.2 Archaeological Background

The area proposed for the Rietkloof WEF is located immediately adjacent to the proposed Brandvalley WEF and is located within a REDZ area. The results of the heritage assessments completed for projects in this area have relevance here.

The area proposed for development is located approximately 30km north of Matjiesfontein and is firmly located within the southern Roggeveld. This part of the Karoo is prized for its wide-open spaces and expansive vistas. Hart et al. (2016) note that the cultural landscape of this area is agricultural in nature, and consists of mostly stock farming with very occasional agriculture. The area is isolated with natural qualities and semi-desert landscapes. The interaction between the topography, geology, flora and historical remnants of human occupation of the area form a unique cultural landscape.

The Karreebosch HIA (2015) “revealed that the study area is relatively austere in terms of pre-colonial

heritage, however valley bottoms contain evidence of early trekboer cultural landscapes – ruins, graves and occasional middens. These consist of collections of ruined stone and mud buildings, threshing floors and kraals located exclusively in the valley areas between the high longitudinal ridges that characterise the study area. There are a number of existing farm houses that contain 19th century fabric, however very few of these have anything more than moderate heritage significance. Parts of the study area enjoy very high aesthetic qualities with the area known by locals as “Gods Window” having grade II aesthetic qualities, hence the significance of the study area lies mainly with its undeveloped wilderness qualities. Interestingly, pre-colonial or stone age heritage and archaeology is extremely scarce in the areas that were searched. Very few archaeological sites of these kinds were recorded despite the fact that overall 9 experienced archaeologists were involved in scouring the landscape.”

The HIA for the Karrebosch WEF notes that “The most important colonial archaeological sites in the study area are associated with Ekkraal Valley, the Rietfontein-Wilgebosch River valley and the Krans Kraal-Karrekraal valley. The valley bottoms are archaeologically sensitive...”. Similar findings were made by ACO in their report (2010, SAHRIS Ref: 53187) for developments in close proximity. According to the ACO reports (2011, 2013 and 2015), parts of the study area enjoy very high aesthetic qualities hence the significance of the study area lies mainly with its undeveloped wilderness qualities which may be negatively impacted by the development of the proposed development.

A Heritage Impact Assessment was completed by Booth (2016) for the Brandvalley WEF. Booth (2016) notes that the area held several historical features (stone walling kraals and cottages) some with associated historical artefacts situated along the access roads in the valleys and associated with the homestead settlements. The area, however, also held evidence of both Middle and Later Stone Age stone artefacts alongside water courses and on the flat floodplains.

However, it must be noted that the proposed development is located within a Renewable Energy Development Zone which has been identified for this kind of development. In REDZ areas, there is a reasonable expectation that the cultural landscape of an area will be changed to be dominated, or at least heavily altered, by renewable energy development and its associated infrastructure. In fact, this is the intention of the REDZ areas.

2.2.3 Cultural Landscapes and Living Heritage Background

Cultural landscapes are the interface of culture and nature, tangible and intangible heritage, and biological and cultural diversity. In contemporary society, particular landscapes can be understood



by taking into consideration the way in which they have been settled and modified including overall spatial organisation, settlement patterns, land uses, circulation networks, field layout, fencing, buildings, topography, vegetation, and structures.

Research done in the last decade on the surrounding area, for input into HIAs required for other proposed WEFs, has highlighted archaeological, palaeontological and cultural landscape resources that are significant.

Other cultural landscape research for HIAs in the area have noted the possible impacts and made recommendations on cultural landscapes for each of their study areas. Predominantly, it is the negative impacts to the sense of wilderness that has been indicated as the greatest likely outcome of these developments (Hart and Webely 2011, 2013). The clustering of several proposed WEFs in this area is considered to progressively and more negatively erode the cultural landscape (Hart and Webley 2013). Significant built environment features are variable across the landscape, and while some clusters of heritage buildings exist (Hart and Webley 2013), largely, there are few conservation-worthy buildings, and places of celebrated heritage significance are limited (Hart and Webley 2011; Hart and Kendrick 2014). The remoteness of the area is noted, and the low visitor numbers also considered (Hart and Webley 2013; Booth 2016). Where gradings have been proposed for the cultural landscape, these vary between Grade II and IIIa (Hart and Kendrick 2014; Booth 2016). The changes to the character of the landscape, and negative impacts on sense of place and aesthetic value which result from WEF developments – and compounded by cumulative impacts – are seen to be largely unmitigatable, with only the effective rehabilitation of the landscape after decommissioning serving as effective remedial action (Booth 2016).

The SEA for wind and solar photovoltaic energy in South Africa (DEA 2015) does not consider intangible heritage resources, identifying only areas with material remains and previously identified natural and cultural heritage sites or protected areas, such as Karoopoort, Matjiesfontein and Touw Local Nature Reserve, as cultural landscapes in the Komsberg REDZ. There has been limited investigation into the living heritage of the area and intangible resources attached to the landscape, such as language or oral history. Mitigation recommended for the impact of development on cultural landscapes in the Komsberg area is also limited to adjusting buffers and consideration of viewshed analysis, which considers only tangible heritage resources' and visual impacts.

Due to the infrequent signature of physical remains in this area, researchers in material culture tend to describe the landscape as sparse or barren, attributing lower gradings of heritage significance as



a result, except where scenic value is ascribed. This low ‘on the ground’ visibility is however the direct result of the liminal and seasonal occupation of the area which in and of itself is part of the value and significance of the landscape, and can be considered the tangible evidence of the historic character of the landscape, a character of movement and habitation in very challenging conditions. Furthermore, the suggestion that intangible resources can be “rehabilitated after decommissioning” is unfounded: oral history, language, indigenous knowledge systems are by nature dynamic, living resources which will be impacted upon permanently by any new introductions to the landscape. While introductions or change are not always a negative impact, the impacts of proposed development on intangible heritage should be investigated and considered at least as thoroughly as the tangible heritage resources.

2.3 Heritage Resources Identified

Similar findings to those made for the Brandvalley WEF and the Karreebosch WEF were made by Booth in HIA completed for the Rietkloof WEF HIA (2016). Booth (2016) notes that the Rietkloof WEF area “held several historical features (stone walling kraals and cottages) some with associated historical artefacts situated along the access roads in the valleys and associated with the homestead settlements. The area, however, also held evidence of both Middle and Later Stone Age stone artefacts alongside water courses and on the flat floodplains.”

All of the heritage resources identified by Booth (2016) have been recorded on SAHRIS and mapped relative to the final proposed layout.

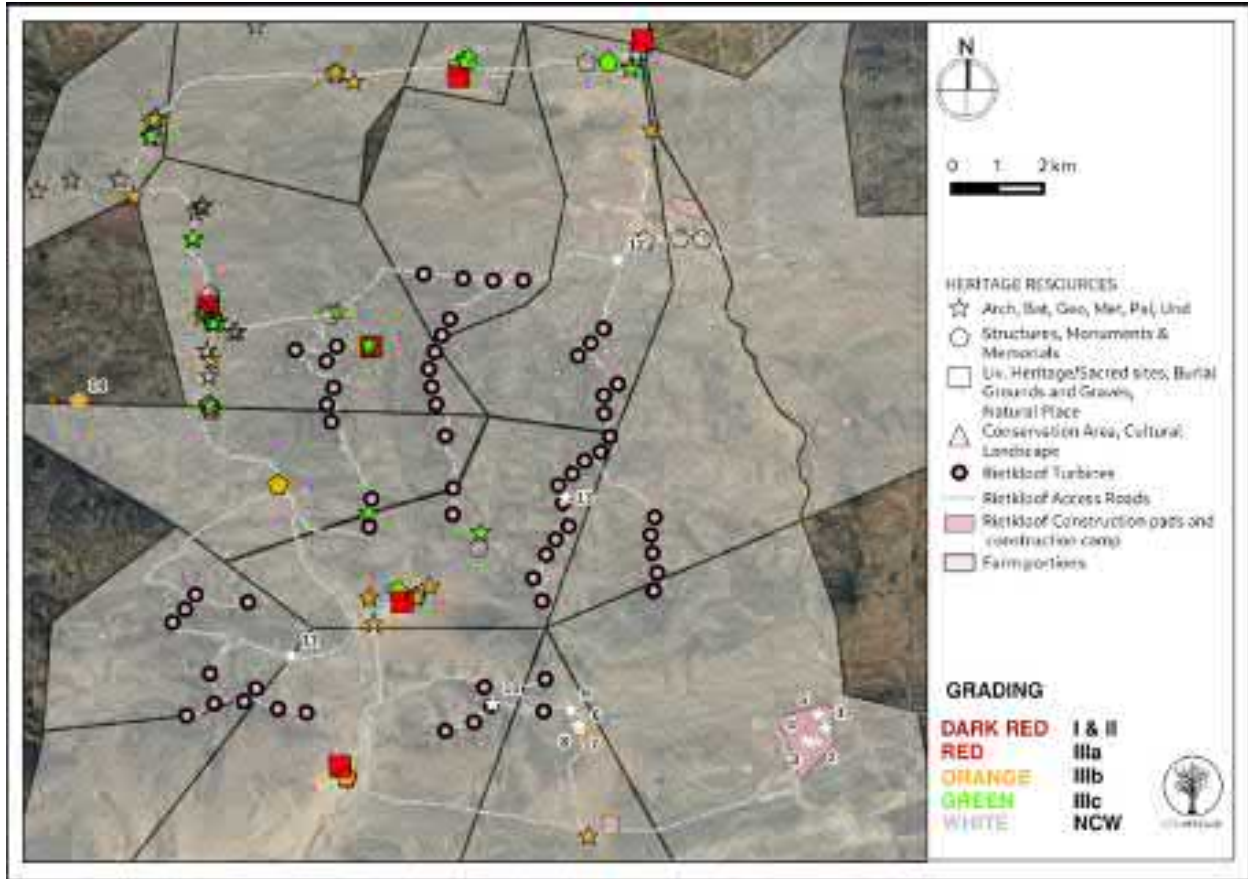


Figure 4.1. Map of all known heritage resources located within the Rietkloof WEF Development area

3. SITE MANAGEMENT

3.1 Objectives of site management

The objectives of the heritage management plan for the Rietkloof WEF are to ensure that the heritage resources identified within the area proposed for the WEF development are properly conserved and any further impacts to these heritage resources are appropriately managed.

The Heritage Management Plan identifies the steps required for the appropriate management of these heritage resources including:

- Regular monitoring of the physical integrity of the identified heritage resources
- Details regarding procedures and processes to follow in the event of negative impact to identified or new heritage resources during the construction or operational phases of the development
- Mitigation of potential impacts resulting from the construction, operational and decommissioning phases to the identified heritage resources

3.2 Potential Impacts to identified heritage resources

A. Construction Phase

- *Palaeontology*

At present, the final layout does impact known palaeontological heritage resources of significance (Figure 3.2 and 3.3). The construction of any infrastructure that requires excavation into bedrock here will have **high** impacts to fossil resources and as such, the following recommendations are made:

- The area marked in RED in Figure 3.2 and 3.3 has very high levels of palaeontological sensitivity and **no impact** here is permitted.
- The area marked in Orange in Figure 3.2 and 3.3 has high levels of palaeontological sensitivity and as such, these two areas should be inspected for fossil wood occurrences by a professional palaeontologist prior to construction. It is recommended that this mitigation step be completed prior to the construction of the turbines in this area. Mitigation would normally involve the scientific recording and judicious sampling or collection of fossil material as well as associated geological data (e.g. stratigraphy, sedimentology, taphonomy). Where practicable, fossils remaining on site should be safeguarded, for example by moving them away from the development footprint.

Almond (2016) notes that “The great majority of the Rietkloof WEF study area is assessed as being of **low palaeontological sensitivity** due to the scarcity of significant fossil vertebrate, plant and other remains here.” No impact other than that described above is anticipated, however it is recommended that the Chance Fossil Finds Procedure is implemented.

- *Archaeology*

The final layout does not impact any known archaeological heritage resources of significance. Low significance Stone Age archaeology is very common in this area, with a number of low significance single isolated artefacts found in the development footprint. The preponderance of archaeological remains in the study area are the remains of built structures, likely of historic age, but some possibly pre-colonial. These structures are predominantly easy to identify and fairly robust, however the final layout avoids any impact to significant archaeological heritage.

- *Burial Grounds and Graves*

Some possible burial grounds and graves were identified by Booth (2016) within the broader study area; however, none are anticipated to be impacted by the development in the final layout. The recommendations pertaining to the management of impact to these resources are included below. However, unknown or unmarked burial grounds and graves remain at risk during the construction

phase and are likely to be subject to **very high** direct impacts without mitigation. Should any burial grounds or graves be accidentally uncovered during this phase, HWC must be contacted regarding a way forward. Contact details are provided in Appendix 1.

- ***Built Environment***

The final layout does not impact any known structures directly. The significance of the built environment is moderate in this area, and it is likely that the significance of impacts to the built environment will be **low** provided that structures are avoided sufficiently not to cause structural damage to them.

- ***Cultural Landscapes***

Impacts to the cultural landscape are likely through the introduction of new, industrial, and disproportionately large elements into the largely uninhabited and only marginally transformed cultural landscape. The turbines themselves, as well as the laydown areas, crane pads, construction camps, substations and access roads all serve to erode the aesthetic and scenic qualities of the cultural landscape. These new intrusions also represent a dramatically new way of using, interacting with and shaping the landscape in an area that has, until now, largely resisted or been impervious to, efforts to transform it.

- ***Intangible Heritage***

Impacts to intangible heritage resources are predominantly indirect in nature, given that the resource is largely intangible. As such, no direct impacts are anticipated during the construction phase.

B. Operational Phase

- ***Palaeontology***

Operational activities will not impact any known palaeontological heritage resources and impacts are unlikely during the operational phase. Should any palaeontological heritage be accidentally uncovered during this phase, the Chance Fossil Finds Procedure must be implemented.

- ***Archaeology***

Operational activities will not impact any known archaeological heritage resources of significance and impacts are unlikely during the operational phase. Should any archaeological resources be accidentally uncovered during this phase, HWC must be contacted regarding a way forward. Contact details are provided in Appendix 1.

- ***Burial Grounds and Graves***

Operational activities will not impact any known burial grounds and impacts are unlikely during the operational phase. Should any burial grounds or graves be accidentally uncovered during this phase, HWC must be contacted regarding a way forward. Contact details are provided in Appendix 1.

- ***Built Environment***

Operational activities will not impact any known structures directly and impacts are unlikely during the operational phase. Should it be necessary that structures that have been graded or structures that are older than 60 years require alteration or demolition during this phase, HWC must be contacted regarding permission in terms of section 34 of the NHRA. Contact details are provided in Appendix 1.

- ***Cultural Landscapes***

Impacts to the cultural landscape will be continuous throughout the operational phase as a result of the construction of the turbines along highly visible ridge lines as well as the presence of roads and associated infrastructure in the landscape. Contextual impacts will be experienced during all phases but are most problematic during the operational phase, and will be ongoing for the operational lifetime of the facility.

- ***Intangible Heritage***

Impacts to sites of living heritage will be continuous throughout the operational phase as a result of vehicles and personnel on site for maintenance, and the presence of roads, turbines and associated infrastructure in the landscape.

C. Decommissioning Phase

- ***Palaeontology***

Infrastructure removal should not impact any known palaeontological heritage resources and impacts are unlikely during the decommissioning phase. Should any palaeontological heritage be accidentally uncovered during this phase, the Chance Fossil Finds Procedure must be implemented.

- ***Archaeology***

Infrastructure removal should not impact any known archaeological heritage resources of significance and impacts are unlikely during the decommissioning phase. Should any archaeological resources be accidentally uncovered during this phase, HWC must be contacted regarding a way forward. Contact details are provided in Appendix 1.

- ***Burial Grounds and Graves***

Infrastructure removal should not impact any known burial grounds of graves and impacts are unlikely during the decommissioning phase. Should any burial grounds or graves be accidentally uncovered during this phase, HWC must be contacted regarding a way forward. Contact details are provided in Appendix 1.

- ***Built Environment***

Infrastructure removal should not impact any known structures directly and impacts are unlikely during the decommissioning phase. Should it be necessary that structures that have been graded or structures that are older than 60 years require alteration or demolition during this phase, HWC must be contacted regarding permission in terms of section 34 of the NHRA. Contact details are provided in Appendix 1.

- ***Cultural Landscapes***

Impacts to significant cultural landscapes will be continuous throughout the decommissioning phase as a result of vehicles and personnel on site for turbine dismantling and removal, and the remnants of access roads, and locations of turbines and associated infrastructure in the landscape. It should be noted, however, that any resulting impacts will be of a short duration. Mitigation should only be to ensure that existing roads are used, and no previously undisturbed areas should be subject to disturbance.

- ***Intangible Heritage***

Impacts to sites of living heritage will be continuous throughout the decommissioning phase as a result of vehicles and personnel on site for turbine dismantling and removal, and the remnants of access roads, and locations of turbines and associated infrastructure in the landscape. It should be noted, however, that any resulting impacts will be of a short duration.

3.3 Conservation and management requirements

Mitigation measures to reduce the anticipated negative impacts to heritage resources and the cultural landscape during the various phases of the development include:

- The 20-30 metre buffers proposed in the archaeological specialist study for the graveyard (RK_GI) should be implemented and respected throughout the lifetime of the project;
- The standard buffer of 500 meters from any wind turbine that applies to occupied buildings must be equally applied to all unoccupied buildings older than 60 years on the site.
- All stone walled sites, regardless of whether they have been identified prior to construction or not, should be regarded as no-go areas. If they cannot be avoided then they should be

- reported to an archaeologist who would advise on the need for mitigation;
- The area marked in RED in Figure 3.2 and 3.3 has very high levels of palaeontological sensitivity and **no impact** here is permitted.
 - A targeted walk-down of the final layout must be conducted by an archaeologist approved by the responsible heritage authority (and with relevant qualifications and experience and professional standing in heritage management in terms of S 38 (2) (a)), at least six months prior to construction in order to determine whether any archaeological recording and mitigation measures may still be required and to identify any further sites in proximity to the footprint that need to be mitigated or treated as no-go areas during all phases of the project. A report to HWC is required for approval;

The above recommendations have been implemented (see Rietkloof WEF Walkdown Report 2021 completed by CTS Heritage).

The following recommendations from HWC are still applicable:

- The area marked in Orange in Figure 3.2 and 3.3 has high levels of palaeontological sensitivity and as such, these two areas should be inspected for fossil wood occurrences by a professional palaeontologist prior to construction. It is recommended that this mitigation step be completed prior to the construction of the turbines in this area. Mitigation would normally involve the scientific recording and judicious sampling or collection of fossil material as well as associated geological data (e.g. stratigraphy, sedimentology, taphonomy). Where practicable, fossils remaining on site should be safeguarded, for example by moving them away from the development footprint.
- The ECO must be briefed on what to look out for in terms of archaeological and palaeontological heritage resources that might be revealed during construction;
- The ECO must report as described below. If any archaeological material, palaeontological material or human burials are uncovered during the course of development then work in the immediate area must be halted and the find protected *in situ* as far as is possible. The find would need to be reported to the heritage authorities and may require inspection by an appropriate heritage practitioner. Such heritage is the property of the state and may require excavation and curation in an approved institution.
- If concentrations of pre-colonial archaeological heritage material and/or human remains (including graves and burials) are uncovered during construction, all work must cease immediately and the findings must be reported to Heritage Western Cape so that systematic and professional investigation/excavation can be undertaken. Phase 2 mitigation in the form

of test-pitting/sampling or systematic excavations and collections of the finds may then be conducted to establish the contextual significance of the finds and possibly remove the archaeological deposit before development activities continue.

3.4 Consultation

The main stakeholders for the site currently are the owners of the property, the Local Authorities, the managers of the WEF and the heritage authority for the Western Cape, Heritage Western Cape (HWC).

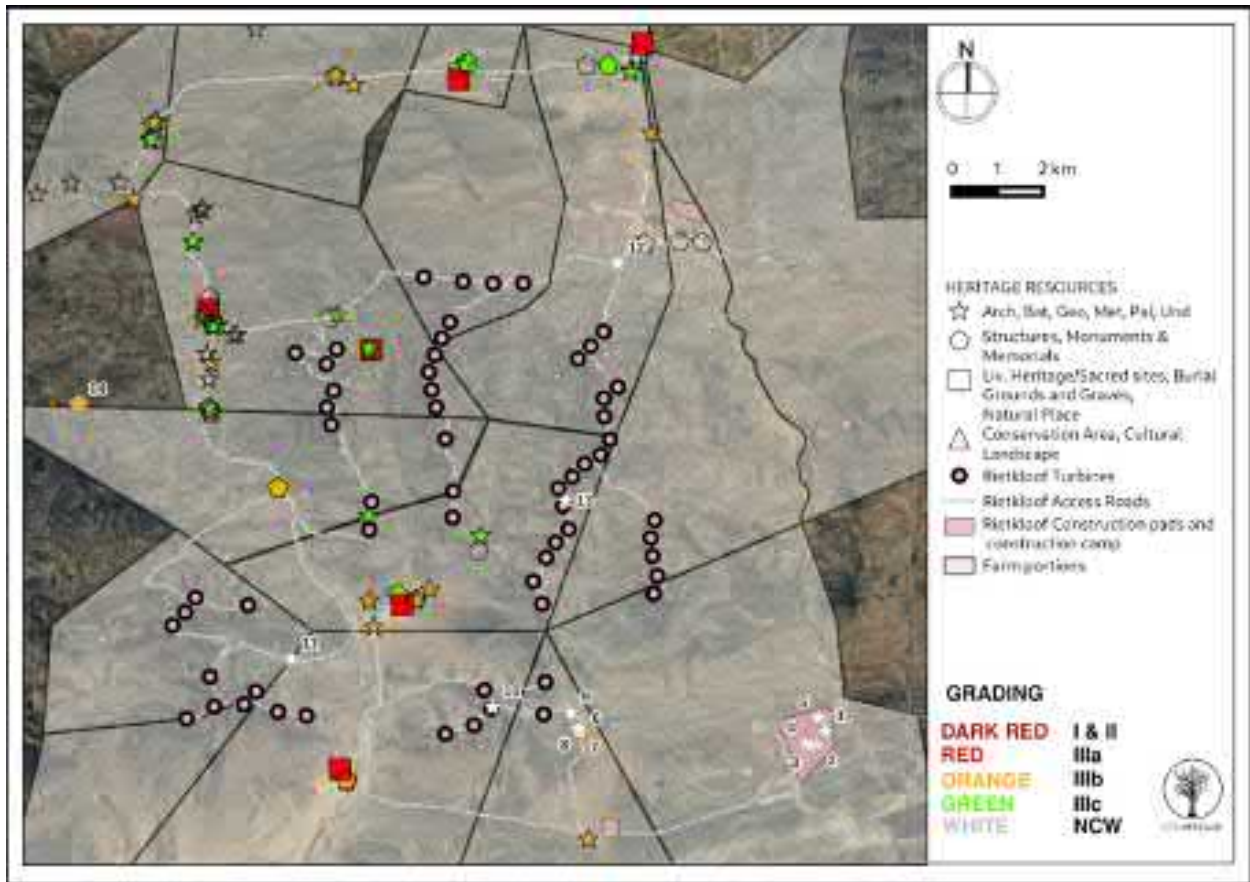


Figure 9.1: Map of all known heritage resources relative to the final Rietkloof WEF Layout

4. MONITORING

4.1 Objectives of Monitoring

The following recommendations are made for long-term management of the identified heritage resources to conserve the significance of the place as part of the irreplaceable history and shared cultural heritage of the landscape. The following management goals provide guidelines for use and maintenance of the heritage, acceptable physical protection and conservation, visitor education, monitoring and research.

4.2 Monitoring and Site Maintenance

Action	Responsible party	Performance Indicators	Evidence
CONSTRUCTION PHASE			
The area marked in Orange in Figure 3.2 and 3.3 has high levels of palaeontological sensitivity and as such, these two areas should be inspected for fossil wood occurrences by a professional palaeontologist prior to construction.	Palaeontologist	Significant fossil material collected and stored at Iziko	Workplan application and Workplan Report
Exclusion of sensitive ecological, heritage and paleontological areas from construction activities must inform micro siting of all development activities.	ECO	Final layout adhered to in the final construction	Bi-Annual Site Inspection and monitoring Report to be submitted to HWC
All construction and maintenance crew and vehicles (except small vehicles which may use existing farm tracks) must be kept out of the buffer zones.	ECO	No unplanned impact or unplanned impact halted within 4 hours	Bi-Annual Site Inspection and Monitoring Report to be submitted to HWC
All site crew should be informed of the heritage significance of the resources in the study area	ECO	Once-off meeting held with site crew	Minutes of meeting
Sites near development infrastructure, or easily reached should be inspected by the ECO during the construction phase to ensure they are being respected	ECO	Site inspections conducted at all sites at regular intervals	Bi-Annual Site Inspection and Monitoring Report to be submitted to HWC
New construction work, construction camps, substations or access roads should not impact	ECO	No unplanned impact or unplanned impact halted within 4 hours	Bi-Annual Site Inspection and



negatively or threaten any of the historic built form, which is part of the history and land use evolution of the cultural landscape by observing appropriate buffers around these features			Monitoring Report to be submitted to HWC
Implementation of the Chance Fossil Finds Procedure	ECO	Implementation of the Chance Fossil Finds Procedure	Written correspondence with relevant heritage authority regarding the find and minutes of relevant meetings
Construction of the final approved layout including implementation and enforcement of the identified buffer areas and no-go areas.	ECO	Final layout adhered to in the final construction	Bi-Annual Site Inspection and monitoring Report to be submitted to HWC
If any archaeological material or human burials are uncovered during the course of development, then work in the immediate area should be halted at once. The find should be reported to Heritage Western Cape and may require inspection by an archaeologist to determine whether mitigation should take place and what form that mitigation should take. This would be at the cost of the developer.	ECO	No unplanned impact or unplanned impact halted within 4 hours	Written correspondence with relevant heritage authority regarding and minutes of relevant meetings
OPERATIONAL PHASE			
Use existing roads for maintenance purposes	Site Manager	No unplanned impact or unplanned impact managed halted within 4 hours	Site Inspection every 5 years and Monitoring Report to be submitted to HWC
Keep all disturbance within existing development footprint and ensure identified buffers and no-go areas are adhered to	Site Manager	No unplanned impact or unplanned impact managed halted within 4 hours	Site Inspection every 5 years and Monitoring Report to be submitted to HWC
All site crew should be informed of the heritage significance of the resources in the study area	Site Manager	Meeting held with site crew	Minutes of meeting
Implementation of the Chance Fossil Finds Procedure	Site Manager	Implementation of the HWC Chance Fossil Finds Procedure	Written correspondence with relevant heritage authority regarding



			finds and minutes of relevant meetings
If any archaeological material or human burials are uncovered during the course of operations, then work in the immediate area should be halted at once. The find should be reported to Heritage Western cape and may require inspection by an archaeologist to determine whether mitigation should take place and what form that mitigation should take.	Site Manager	No unplanned impact or unplanned impact halted within 4 hours	Written correspondence with relevant heritage authority regarding finds and minutes of relevant meetings
Should it be necessary that structures that have been graded or structures that are older than 60 years require alteration or demolition during this phase, HWC must be contacted regarding permission in terms of section 34 of the NHRA. Contact details are provided in Appendix 1.	Site Manager	Section 34 permit application to HWC	Permit issued in terms of section 34 from the relevant heritage authority or correspondence in this regard.
DECOMMISSIONING PHASE			
Use existing roads for maintenance purposes	Site Manager/ECO	No unplanned impact or unplanned impact managed halted within 4 hours	Bi-Annual Site Inspection and Monitoring Report to be submitted to HWC
Keep all disturbance within existing development footprint and ensure identified buffers and no-go areas are adhered to	Site Manager/ECO	No unplanned impact or unplanned impact managed halted within 4 hours	Bi-Annual Site Inspection and Monitoring Report to be submitted to HWC
All site crew should be informed of the heritage significance of the resources in the study area	Site Manager/ECO	Meeting held with site crew	Minutes of meeting
Implementation of the Chance Fossil Finds Procedure	Site Manager/ECO	Implementation of the HWC Chance Fossil Finds Procedure	Written correspondence with relevant heritage authority regarding finds and minutes of relevant meetings
If any archaeological material or human burials are uncovered during the course of operations, then work in the immediate area should be halted at once. The find should be reported to Heritage Western Cape and may require inspection by an archaeologist to	Site Manager	No unplanned impact or unplanned impact halted within 4 hours	Written correspondence with relevant heritage authority regarding and minutes of relevant meetings



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determine whether mitigation should take place and what form that mitigation should take.			
Should it be necessary that structures that have been graded or structures that are older than 60 years require alteration or demolition during this phase, HWC must be contacted regarding permission in terms of section 34 of the NHRA. Contact details are provided in Appendix 1.	Site Manager	Section 34 permit application to HWC	Permit issued in terms of section 34 from the relevant heritage authority or correspondence in this regard.

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5. APPLICABLE LEGISLATION

The development of the Rietkloof WEF triggers sections 38(1) and 38(8) of the National Heritage Resources Act (Act 25 of 1999) as this proposed development constitutes a change of character to a site exceeding 5000m². As such, this proposed development requires an evaluation of impacts to heritage resources in terms of other legislation (NEMA). This section states that the consenting authority (DFFE for Renewable Energy Facilities) must ensure that the assessment completed for impacts to heritage satisfies the requirements of the relevant heritage authority in terms of section 38(3) of the NHRA (Heritage Western Cape in the Western Cape), and that the recommendations of the relevant heritage authority must be taken into consideration prior to the granting of consent.

Section 38(3) of the NHRA details the information that **MUST** be included in a Heritage Impact Assessment drafted in terms of section 38 of the NHRA. Furthermore, HWC has published Minimum Standards for Archaeological and Palaeontological Impact Assessments. All such guidelines and minimum standards have been complied with in the HIA that was conducted for the Rietkloof WEF development (Booth, 2016).

In terms of section 38(10) of the NHRA, if the applicant complies with the recommendations and requirements of the relevant heritage authority issued in terms of section 38(8) of the NHRA, then the applicant **MUST** be exempted from compliance with all other (general) protections included in the NHRA. As such, as long as the requirements of the heritage authority are satisfied, no permit application is required for the destruction of or impact to any heritage resource ***that has been identified in the HIA.***

Should any heritage resources be newly uncovered during excavation activities ie. heritage resources that were not identified in the HIA, then as per the monitoring table above, work must cease in that area and the relevant heritage authority must be contacted regarding a way forward. Any alteration or destruction to or of heritage resources NOT anticipated in the HIA remains subject to the general protections and require permission from the relevant heritage authority.

- Impacts to any structures older than 60 years require a permit from HWC in terms of section 34 of the NHRA
- Impacts to archaeological or palaeontological heritage not anticipated in the HIA requires a permit from HWC in terms of section 35 of the NHRA
- Impacts to burial grounds or graves that are older than 60 years requires a permit from HWC in terms of section 36 of the NHRA



6. DOCUMENTATION AND MONITORING

All site record sheets, digital photos and mapping have been loaded securely to SAHRIS so that the EA holder, site manager and ECO are able to access the information online. Access to the database is governed by SAHRA and certain categories of information are not freely available to the general public without special permission such as GPS coordinates of archaeological sites.

Please see the following links for information:

- Case Application on SAHRIS (Case ID 13234)
<https://sahris.sahra.org.za/cases/rietkloof-147mw-wef>

It is important that any new or previously unrecorded heritage resources identified during the course of the Construction, Operational or Decommissioning Phases are recorded on SAHRIS.



7. REFERENCES

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
359488	Heritage Screener	Mariagrazia Galimberti, Kyla Bluff, Nicholas Wiltshire	09/03/2016	Brandvalley Wind Energy Facility
53187	HIA Phase 1	Timothy Hart, Lita Webley	01/03/2011	HERITAGE IMPACT ASSESSMENT PROPOSED WIND ENERGY FACILITY
337370	PIA Phase 1	Duncan Miller	01/03/2011	Palaeontological Impact Assessment Proposed Roggeveld Wind Energy Facility
356316	Heritage Screener	Mariagrazia Galimberti, Kyla Bluff, Nicholas Wiltshire	02/02/2016	Heritage Screener CTS15_015b EOH Brandvalley Wind Energy Facility
356318	Heritage Screener	Mariagrazia Galimberti, Kyla Bluff, Nicholas Wiltshire	01/02/2016	Heritage Screener CTS15_015a EOH Rietkloof Wind Energy Facility
364162	PIA Phase 1	John E Almond	01/04/2016	PALAEONTOLOGICAL HERITAGE ASSESSMENT: COMBINED DESKTOP & FIELD-BASED STUDY - PROPOSED BRANDVALLEY WIND ENERGY FACILITY LAINGSBURG, WESTERN & NORTHERN CAPE PROVINCES
364163	AIA Phase 1	Celeste Booth	01/04/2016	A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) FOR THE PROPOSED BRANDVALLEY WIND ENERGY FACILITY (WEF) SITUATED IN THE KAROO HOOGLAND LOCAL MUNICIPALITY (NAMAKWA DISTRICT MUNICIPALITY), THE WITZENBURG LOCAL MUNICIPALITY (CAPE WINELANDS DISTRICT MUNICIPALITY) AND LAINGSBURG LOCAL MUNICIPALITY (CENTRAL KAROO DISTRICT MUNICIPALITY).
4843	AIA Phase 1	Hilary Deacon	28/03/2008	Archaeological Impact Assessment: Proposed Breede Valley De Doorns Housing Project
	HIA	Dave Halkett, Lita Webley	11/04/2011	HERITAGE IMPACT ASSESSMENT: PROPOSED PERDEKRAAL WIND AND SOLAR ENERGY FACILITY , WESTERN CAPE PROVINCE

Additional References:

Hart, T. et al. (2016). **HERITAGE IMPACT ASSESSMENT (SCOPING) FOR THE PROPOSED KOLKIES WIND ENERGY FACILITY AND ASSOCIATED GRID CONNECTION TO BE SITUATED IN THE SOUTHERN TANKWA KAROO.** (Assessment conducted under Section 38 (8) of the National Heritage Resources Act (No. 25 of 1999) as part of an EIA). For Arcus Consulting. Unpublished and not submitted.

Hart, T. et al. (2016). **HERITAGE IMPACT ASSESSMENT (SCOPING) FOR THE PROPOSED KAREE WIND ENERGY FACILITY AND ASSOCIATED GRID CONNECTION TO BE SITUATED IN THE SOUTHERN**



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TANKWA KAROO. (Assessment conducted under Section 38 (8) of the National Heritage Resources Act (No. 25 of 1999) as part of an EIA). For Arcus Consulting. Unpublished and not submitted.

Shaw, Matthew & Ames, Christopher & Phillips, Natasha & Chambers, Sherrie & Dosseto, Anthony & Douglas, Matthew & Goble, Ron & Jacobs, Zenobia & Jones, Brian & Lin, Sam & Low, Marika & Mcneil, Jessica-Louise & Nasoordeen, Shezani & O'driscoll, Corey & Saktura, Rosaria & Sumner, T. & Watson, Sara & Will, Manual & Mackay, Alex. (2020). **The Doring River Archaeology Project: Approaching the Evolution of Human Land Use Patterns in the Western Cape, South Africa.**

Smith, Andrew B., and Michael R. Ripp. "An Archaeological Reconnaissance of the Doorn/Tanqua Karoo." The South African Archaeological Bulletin, vol. 33, no. 128, 1978, pp. 118-133

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APPENDICES

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APPENDIX 1:

A Summary of the SAHRA Minimum Standards for Archaeological Site Museums and Rock Art Sites open to the Public

The archaeological heritage of South Africa is unique and it is non-renewable. Archaeological sites, including those with rock paintings or rock engravings, are especially vulnerable to damage caused by visitors. All such sites are protected by the National Heritage Resources Act (Act No. 25 of 1999). Anyone opening a site to the public, either as a formal site museum or simply as a place of interest, must take basic precautions to ensure the safety of the site and its contents. This guide is also applicable to mitigate the negative impacts of increased human activity in proximity to significant archaeological sites.

Expert advice should be sought from the South African Heritage Resources Agency (SAHRA) or HWC and/or from one of the museums or university departments listed below. Interventions should be reversible and the integrity of the site should be maintained as far as possible. No site should be opened to the public without a prior professional investigation that includes a conservation management plan approved by the appropriate heritage agency and, for rock art sites, complete documentation in case of later damage.

Remember that a permit is required for ANY disturbance at an archaeological site for activities that fall outside of those activities assessed in a formal Heritage Impact Assessment process and this includes erecting noticeboards, boardwalks, fences, etc. Liaison with the local publicity office and regional services council is recommended.

THE FOLLOWING MINIMUM STANDARDS MUST FORM PART OF THE MANAGEMENT PLAN:

1. Notify HWC or SAHRA of intention to open site

2. Engage a professional with specialist knowledge to document the site, draw up a conservation management plan and advise on interpretation of the site.

3. Approach to the Site

3.1 Arrangements for visiting

* if the site is open at all times, there should be adequate signposting;

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- * if the site is kept locked, there should be clear arrangements for the collection and return of a key;
- * if it is open only by appointment, there should be a specialist guide or a specially trained local guide who has had clear instructions on what to do and say.

3.2 Provision for vehicles

- * there should be an adequate and well-maintained road, preferably paved to limit dust, with off-road parking;
- * the parking should not encroach on the site: vehicles should not park closer than about 100 m from the edge of the site;
- * the parking area should be marked by a barrier between it and the start of the path.

3.3 Facilities

- * there should be a litter bin at the parking lot and it should be emptied regularly;
- * consider the need for toilets and the supply of refreshments and other facilities such as a shop, public telephone, restroom, etc., depending on the number of visitors expected;
- * consider the need to establish an interpretive centre separate from the site, where people can see displays and where you may be able to store material, provide accommodation, etc. Remember that a permit from HWC is required to collect any archaeological material and so displays are best done in collaboration with a professional or institution.

3.4 Design of the path

- * make sure that the path to the site is distinct;
- * the path should follow the contours to avoid unnecessary erosion of any hill slope;
- * make sure there are discreet signs to indicate direction where the path crosses a rocky area;
- * the path should not enter the site at a position where the deposits or the rock art can be damaged;
- * the introductory notice board should be displayed at the end of the path and the beginning of the site, where it will not interfere with good photographic views.

4. Provision of Information

- * at least an introductory notice board explaining that the site is protected by law;
- * where appropriate, a display with more detailed information on what can be seen at the site and what it means;



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- * a visitors' book in a container to protect it from the weather, or at a farmhouse or other convenient place (copies of these can be sent to HWC for record purposes);
- * a leaflet or pamphlet explaining visitor etiquette.
- * an explanatory leaflet or pamphlet that is specific to the site.

5. Guides

- * specialist guides or specially trained local guides ensure that the meaning of the rock art or, in the case of archaeological sites, the story of the people who used the site is interpreted and so enhance the experience for the visitor. They also teach appropriate visitor etiquette and contribute to the safety of the site.

6. Protection of the Site

- * measures used to protect archaeological deposits should be effective, reversible and recognisable, yet harmonious. It is important that visitors appreciate that the site is being well looked after, so it should be clean and as natural as possible. Remember that a permit is required for any disturbance or intervention at a site.

7. Protection of the Art

- * a psychological or physical barrier should be set up between the visitor and the rock art, or display area, in the form of anything from a low wooden railing to a fence that encloses the entire site, depending on the vulnerability of the site or precautions necessary for the safety of the visitor;
- * boardwalks are recommended and may include railings. They must be of treated wood or non-flammable material,
- * every effort should be made to remove graffiti from the site, as it attracts more graffiti. A permit is required to remove graffiti at a rock art site.

8. Protection of the Surface and Deposits

- * an effective cover should be put on the floor of the site to prevent dust being kicked up and damaging rock art and to stop people picking up material on the surface. Cover can be provided by a boardwalk, geotextile, or medium to large slabs of natural rock from the surrounds of the site.
- * excavated sections should be backfilled, in consultation with HWC

9. Regular Maintenance

- * arrangements should be made with the appropriate heritage agency or museum for a monitoring programme.

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* provision should be made for regular visits to the site by the manager or property owner to check on litter, damage, graffiti, etc., which should be reported to the heritage agency.

* there should be regular monitoring of vegetation around the site so that, if necessary:

- measures can be taken to protect it against trampling,
- potentially dangerous plants such as those with thorns can be controlled,
- dead wood can be removed so that damage by veld fires can be avoided,
- firebreaks can be maintained.

10. Avoid having:

* a litter bin on site unless very large groups are catered for;

* braai or picnic places on the site or right next to it;

* camping places within 500 m of an archaeological site;

* plastic sheeting or plastic bags exposed to view unless there is no other option;

* concrete barriers or surfaces;

* metal poles or wire in contact with rock shelter or cave walls as they rust and stain the rock;

* a sandy surface on the outer side of a fence as this will be eroded by people walking there and the fence will be under-cut.

11. Contact Information

South African Heritage Resources Agency (SAHRA)

Contact Person: Mr Phillip Hine

Tel: 021 462 4502

Email: phine@sahra.org.za

Website: www.sahra.org.za

Heritage Western Cape

Contact Person: Mrs Colette Scheermeyer

Tel: 021 483 5959

Email: colette.scheermeyer@westerncape.gov.za

Website: <http://www.hwc.org.za/>

Iziko South African Museums

Contact Person: Dr Wendy Black

Tel: 021 481 3883



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Email: wblack@iziko.org.za

Website: www.iziko.org.za

University of Cape Town: Archaeology Department

Contact Person: Prof. John Parkington

Tel: 021 650 2353

Email: john.parkington@uct.ac.za

Website: <http://www.archaeology.uct.ac.za/>

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APPENDIX 2:

Known heritage resources within the Rietkloof WEF Development Area (SAHRIS)

SAHRIS ID	Site No	Site Name	Description (Detailed descriptions on SAHRIS)	Co-ordinates		Grading
35140	ROG009	Roggeveld 009	Building	-32,952639	20,506639	Grade IIIc
35141	ROG010	Roggeveld 010	Building	-32,953139	20,539944	Grade IIIc
35154	ROG013	Roggeveld 013	Stone walling	-32,915	20,542083	Grade IIIc
35157	ROG014	Roggeveld 014	Transport infrastructure	-32,917083	20,534	Grade IIIc
35159	ROG015	Roggeveld 015	Building	-32,917222	20,532667	Grade IIIc
35578	GK056	Gamma Kappa 056	Artefacts	-32,966667	20,55	Grade IIIb
35171	ROG016	Roggeveld 016	Stone walling	-32,917306	20,530583	Grade IIIc
35172	ROG017	Roggeveld 017	Stone walling	-32,916972	20,529361	Grade IIIc
35188	ROG024	Roggeveld 024	Ruin > 100 years	-33,022167	20,445861	Grade IIIb
35214	ROG032	Roggeveld 032	Building	-33,036861	20,46175	Grade IIIb
35216	ROG034	Roggeveld 034	Building	-33,058111	20,490194	Grade IIIc
35217	ROG035	Roggeveld 035	Ruin > 100 years	-33,021111	20,445361	Grade IIIc
35218	ROG036	Roggeveld 036	Stone walling	-33,004861	20,446111	Grade IIIc
35753	ROG050	Roggeveld 050	Building	-33,095038	20,478026	Grade IIIb
35185	ROG023	Roggeveld 023	Burial Grounds & Graves	-33,001639	20,44525	Grade IIIa
35645	GK122	Gamma Kappa 122	Burial Grounds & Graves	-32,9488	20,54806	Grade IIIa
35646	GK123	Gamma Kappa 123	Burial Grounds & Graves	-32,95595	20,50446	Grade IIIa
137160	BWE-052	Brandvalley Wind Energy	Deposit	-32,945889	20,456472	
137163	BWE-055	Brandvalley Wind Energy	Deposit	-32,976361	20,424111	
137164	BWE-056	Brandvalley Wind Energy	Deposit	-32,9765	20,412806	
137165	BWE-057	Brandvalley Wind Energy	Deposit	-32,978667	20,404583	
137179	BWE-071	Brandvalley Wind Energy	Deposit	-32,982944	20,442222	
137180	BWE-072	Brandvalley Wind Energy	Deposit	-32,982	20,443417	
137181	BWE-073	Brandvalley Wind Energy	Deposit	-32,981611	20,443917	
137182	BWE-074	Brandvalley Wind Energy	Deposit	-33,002222	20,444528	

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137183	BWE-075	Brandvalley Wind Energy	Deposit	-33,006528	20,451972	
137184	BWE-076	Brandvalley Wind Energy	Deposit	-33,006694	20,451111	
137185	BWE-077	Brandvalley Wind Energy	Deposit	-33,010417	20,444917	
137186	BWE-078	Brandvalley Wind Energy	Deposit	-33,015444	20,445361	
137199	KWF-014	KAREEBOSCH WIND FARM	Building	-32,952639	20,506639	
137200	KWF-015	KAREEBOSCH WIND FARM	Building	-32,953139	20,539944	
137203	KWF-018	KAREEBOSCH WIND FARM	Stone walling	-32,915	20,542083	
137204	KWF-019	KAREEBOSCH WIND FARM	Archaeological	-32,917083	20,534	
137205	KWF-020	KAREEBOSCH WIND FARM	Building	-32,917222	20,532667	
137233	KWF-021	KAREEBOSCH WIND FARM	Stone walling	-32,917306	20,530583	
137234	KWF-022	KAREEBOSCH WIND FARM	Stone walling	-32,916972	20,529361	
137251	KWF-039	KAREEBOSCH WIND FARM	Structures	-33,058111	20,490194	
137252	KWF-040	KAREEBOSCH WIND FARM	Structures	-33,021111	20,445361	
137253	KWF-041	KAREEBOSCH WIND FARM	Stone walling	-33,004861	20,446111	
137254	KWF-042	KAREEBOSCH WIND FARM	Burial Grounds & Graves	-33,001639	20,44525	
137255	KWF-043	KAREEBOSCH WIND FARM	Structures	-33,022167	20,445861	
137257	KWF-044	KAREEBOSCH WIND FARM	Building	-33,036861	20,46175	
137258	KWF-045	KAREEBOSCH WIND FARM	Building	-33,09475	20,477833	
137059	RFWE-001	RIETKLOOF WIND ENERGY	Artefacts	-33,059253	20,4833	Grade IIIb
137060	RFWE-002	RIETKLOOF WIND ENERGY	Artefacts	-33,064411	20,484358	Grade IIIb
137061	RFWE-003	RIETKLOOF WIND ENERGY	Artefacts	-33,059161	20,494414	Grade IIIb
137062	RFWE-004	RIETKLOOF WIND ENERGY	Artefacts	-33,057033	20,4976	Grade IIIb
137063	RFWE-005	RIETKLOOF WIND ENERGY	Burial Grounds & Graves	-33,092617	20,476444	Grade IIIa
137064	RFWE-006	RIETKLOOF WIND ENERGY	Burial Grounds & Graves	-33,060081	20,491175	Grade IIIa
137065	RFWE-007	RIETKLOOF WIND ENERGY	Stone walling	-33,009861	20,483528	Grade IIIc
137066	RFWE-008	RIETKLOOF WIND ENERGY	Stone walling	-33,0425	20,483183	Grade IIIc
137067	RFWE-009	RIETKLOOF WIND ENERGY	Stone walling	-33,046394	20,509708	Grade IIIc
137068	RFWE-010	RIETKLOOF WIND ENERGY	Artefacts	-33,106533	20,535194	Grade IIIb

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137069	RFWE-011	RIETKLOOF WIND ENERGY	Structures	-33,059019	20,494419	
137070	RFWE-012	RIETKLOOF WIND ENERGY	Structures	-33,049383	20,509278	
137091	BWE-001	Brandvalley Wind Energy	Building	-32,951006	20,547308	
137092	BWE-002	Brandvalley Wind Energy	Building	-32,953931	20,504614	
137093	BWE-003	Brandvalley Wind Energy	Building	-33,004111	20,445992	
137094	BWE-004	Brandvalley Wind Energy	Building	-32,988272	20,562172	
137095	BWE-005	Brandvalley Wind Energy	Building	-32,988511	20,548528	
137096	BWE-006	Brandvalley Wind Energy	Artefacts	-32,954075	20,545319	Grade IIIb
137097	BWE-007	Brandvalley Wind Energy	Artefacts	-32,957006	20,479683	Grade IIIb
137098	BWE-008	Brandvalley Wind Energy	Artefacts	-32,955186	20,475436	Grade IIIb
137099	BWE-009	Brandvalley Wind Energy	Artefacts	-32,964364	20,433081	Grade IIIb
137100	BWE-010	Brandvalley Wind Energy	Artefacts	-32,967936	20,431478	Grade IIIb
137101	BWE-011	Brandvalley Wind Energy	Artefacts	-32,979669	20,427667	Grade IIIb
137102	BWE-012	Brandvalley Wind Energy	Artefacts	-33,009253	20,4833	Grade IIIb
137103	BWE-013	Brandvalley Wind Energy	Artefacts	-33,012139	20,445897	Grade IIIb
137104	BWE-014	Brandvalley Wind Energy	Burial Grounds & Graves	-33,001589	20,445144	Grade IIIa
137105	BWE-015	Brandvalley Wind Energy	Burial Grounds & Graves	-33,009578	20,483883	Grade IIIa
137106	BWE-016	Brandvalley Wind Energy	Stone walling	-32,954514	20,545272	Grade IIIc
137107	BWE-017	Brandvalley Wind Energy	Stone walling	-32,953139	20,505872	Grade IIIc
137108	BWE-018	Brandvalley Wind Energy	Stone walling	-32,964397	20,432517	Grade IIIc
137109	BWE-019	Brandvalley Wind Energy	Stone walling	-32,965083	20,431736	Grade IIIc
137110	BWE-020	Brandvalley Wind Energy	Stone walling	-32,967803	20,431731	Grade IIIc
137111	BWE-021	Brandvalley Wind Energy	Stone walling	-32,988264	20,441697	Grade IIIc
137112	BWE-022	Brandvalley Wind Energy	Stone walling	-33,003419	20,443878	Grade IIIc
137113	BWE-023	Brandvalley Wind Energy	Stone walling	-33,003636	20,446264	Grade IIIc
137114	BWE-024	Brandvalley Wind Energy	Stone walling	-33,004503	20,446278	Grade IIIc
137115	BWE-025	Brandvalley Wind Energy	Stone walling	-33,00455	20,447753	Grade IIIc
137116	BWE-026	Brandvalley Wind Energy	Stone walling	-33,004961	20,446706	Grade IIIc

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137117	BWE-027	Brandvalley Wind Energy	Stone walling	-33,002567	20,47595	Grade IIIc
137118	BWE-028	Brandvalley Wind Energy	Stone walling	-33,009861	20,483528	Grade IIIc
137119	BWE-029	Brandvalley Wind Energy	Stone walling	-33,009167	20,483183	Grade IIIc
137120	BWE-030	Brandvalley Wind Energy	Stone walling	-33,021044	20,445492	Grade IIIc
137122	BWE-032	Brandvalley Wind Energy	Stone walling	-32,989144	20,546881	Grade IIIc
137123	BWE-033	Brandvalley Wind Energy	Artefacts	-32,96445	20,432489	Grade IIIb
137124	BWE-034	Brandvalley Wind Energy	Artefacts	-32,988025	20,4416	Grade IIIc
137125	BWE-035	Brandvalley Wind Energy	Artefacts	-33,009192	20,483242	Grade IIIc
137127	BWE-037	Brandvalley Wind Energy	Structures	-32,953206	20,534781	
137128	BWE-039	Brandvalley Wind Energy	Structures	-32,955419	20,475283	
137129	BWE-040	Brandvalley Wind Energy	Structures	-32,967983	20,432272	
137131	BWE-042	Brandvalley Wind Energy	Structures	-32,999217	20,445583	
137132	BWE-043	Brandvalley Wind Energy	Structures	-33,003103	20,474044	
137133	BWE-044	Brandvalley Wind Energy	Structures	-32,988206	20,556772	
	RK001	Rietkloof 001	Chert core, patinated hornfels flakes, Artefacts on level ground, small pans but quite rocky	-33.08508	20.59137	NCW
	RK002	Rietkloof 002	Patinated hornfels flakes in pan	-33.08766	20.58939	NCW
	RK003	Rietkloof 003	Chert and hornfels cores	-33.08808	20.58759	NCW
	RK004	Rietkloof 004	Hornfels biface	-33.0875	20.58678	NCW
	RK005	Rietkloof 005	Hornfels flake	-33.08242	20.58963	NCW
	RK006	Rietkloof 006	Stone walled kraal 50x25m	-33.08555	20.53359	IIIB
	RK007	Rietkloof 007	Matjiesfontein chert formal retouched flake. Chert flakes dropped on slopes of large valley below	-33.08518	20.53314	NCW
	RK008	Rietkloof 008	Chert bladelet and flake	-33.08461	20.53302	NCW
	RK009	Rietkloof 009	Hornfels flake. Artefacts dropping off on ridges considerably	-33.08148	20.53103	NCW
	RK010	Rietkloof 010	Chert flake. Isolated flake on top of ridge which was unusual, not part of larger	-33.08025	20.51256	NCW

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			site			
	RK011	Rietkloof 011	Chert flake	-33.07075	20.46493	NCW
	RK012	Rietkloof 012	Chert, hornfels, quartzite flakes	-32.99232	20.5421	NCW
	RK013	Rietkloof 013	Isolated chert flake	-33.03938	20.52984	NCW
	RK014	Rietkloof 014	Farmers trap, corrugated sheet, wire, wooden post	-33.02031	20.41447	NCW

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APPENDIX 3:
Chance Fossil Finds Procedure

HWC PROCEDURE: CHANCE FINDS OF PALAEOLOGICAL MATERIAL

June 2016

Introduction

This document is aimed to inform workmen and foremen working on a construction and/or mining site. It describes the procedure to follow in instances of accidental discovery of palaeontological material (please see attached poster with descriptions of palaeontological material) during construction/mining activities. This protocol does not apply to resources already identified under an assessment undertaken under s. 38 of the National Heritage Resources Act (no 25 of 1999).

Fossils are rare and irreplaceable. Fossils tell us about the environmental conditions that existed in a specific geographical area millions of years ago. As heritage resources that inform us of the history of a place, fossils are public property that the State is required to manage and conserve on behalf of all the citizens of South Africa. Fossils are therefore protected by the National Heritage Resources Act and are the property of the State. Ideally, a qualified person should be responsible for the recovery of fossils noticed during construction/mining to ensure that all relevant contextual information is recorded.

Heritage Authorities often rely on workmen and foremen to report finds, and thereby contribute to our knowledge of South Africa's past and contribute to its conservation for future generations.

Training

Workmen and foremen need to be trained in the procedure to follow in instances of accidental discovery of fossil material, in a similar way to the Health and Safety protocol. A brief introduction to the process to follow in the event of possible accidental discovery of fossils should be conducted by the designated Environmental Control Officer (ECO) for the project, or the foreman or site agent in the absence of the ECO

It is recommended that copies of the attached poster and procedure are printed out and displayed at the site office so that workmen may familiarise themselves with them and are thereby prepared in the event that accidental discovery of fossil material takes place.

Actions to be taken

One person in the staff must be identified and appointed as responsible for the implementation of the attached protocol in instances of accidental fossil discovery and must report to the ECO or site agent. If the ECO or site agent is not present on site, then the responsible person on site should follow the protocol correctly in order to not jeopardize the conservation and well-being of the fossil material.

Once a workman notices possible fossil material, he/she should report this to the ECO or site agent.

Procedure to follow if it is likely that the material identified is a fossil:

- i. The ECO or site agent must ensure that all **work ceases** immediately in the vicinity of the area where the fossil or fossils have been found;
- ii. The ECO or site agent must **inform HWC of the find immediately**. This information must include photographs of the findings and GPS co-ordinates;
- iii. The ECO or site agent must compile a **Preliminary Report and fill in the Fossil Discoveries: HWC Preliminary Record Form** within 24 hours without removing the fossil from its original position. The **Preliminary Report** records basic information about the find including:
 - The date
 - A description of the discovery
 - A description of the fossil and its context (e.g. position and depth of find)
 - Where and how the find has been stored
 - Photographs to accompany the preliminary report (the more the better):
 - A scale must be used
 - Photos of location from several angles
 - Photos of vertical section should be provided
 - Digital images of hole showing vertical section (side);
 - Digital images of fossil or fossils.

Upon receipt of this **Preliminary Report**, HWC will inform the ECO or site agent whether or not a rescue excavation or rescue collection by a palaeontologist is necessary.

- v. **Exposed finds must be stabilised where they are unstable and the site capped, e.g. with a plastic sheet or sand bags.** This protection should allow for the later excavation of the finds with due scientific care and diligence. HWC can advise on the most appropriate method for stabilisation.
- vi. If the find cannot be stabilised, **the fossil may be collect with extreme care** by the ECO or the site agent and put aside and protected until HWC advises on further action. Finds collected in this way must be safely and securely stored in tissue paper and an appropriate box. Care must be taken to remove the all fossil material and any breakage of fossil material must be avoided at all costs.

No work may continue in the vicinity of the find until HWC has indicated, in writing, that it is appropriate to proceed.

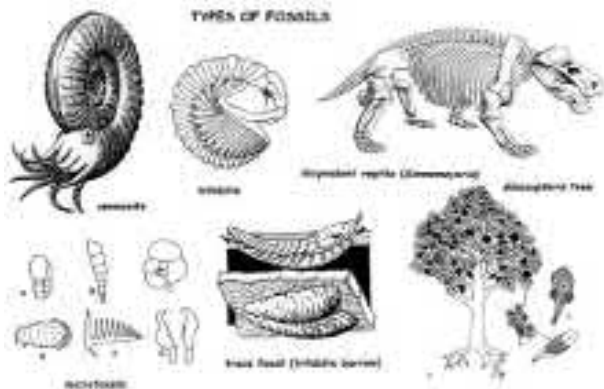
FOSSIL DISCOVERIES: HWC PRELIMINARY RECORDING FORM

Name of project:		
Name of fossil location:		
Date of discovery:		
Description of situation in which the fossil was found:		
Description of context in which the fossil was found:		
Description and condition of fossil identified:		
GPS coordinates:	Lat:	Long:
If no co-ordinates available then please describe the location:		
Time of discovery:		
Depth of find in hole		
Photographs (tick as appropriate and indicate number of the photograph)	Digital image of vertical section (side)	
	Fossil from different angles	
	Wider context of the find	
Temporary storage (where it is located and how it is conserved)		
Person identifying the fossil	Name: Contact:	
Recorder	Name: Contact:	
Photographer	Name: Contact:	

Palaeontology: what is a fossil?

Fossils are the traces of ancient life (animal, plant or microbial) preserved within rocks and come in two forms:

- Body fossils preserve parts, casts or impressions of the original tissues of an organism (e.g. bones, teeth, wood, pollen grains); and
- Trace fossils such as trackways and burrows record ancient animal behaviour.



How to report chance fossil finds: What should I do if I find a fossil during construction/mining?

If you think you have identified a fossil:

Immediately inform the ECO or Site Agent. He/she will then contact HWC and write a report and if necessary operations will stop in that specific area until the fossil is recovered

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Types of palaeontological finding - What does a fossil look like?

Fossils vary in size, from fossilised tree trunks and dinosaur bones down to very small animals or plants. Finds can be **individual fossils** (one isolated wood log or bone) or **clusters and beds** (several bones, teeth, animal or plant remains, trace fossils in close proximity or bones resembling part of a skeleton). A bed of fossils is a layer with many fossil remains.

Below there is a list of few examples of fossils which may be identified during excavations in the Western Cape.

Image	Description	Image	Description
	Leaves		Snail shells and other shells
	Fossil wood		Bones of larger animals
	The remains of fish and marine life (e.g. teeth, scales, starfish)		Large burrows made by moles and other animals
	Stromatolites		Traces made by burrowing insects (ants, wasps, dung-beetles etc.).
	Animal footprints		

Images provided by Dr John Almond

Text by HWC's Archaeology, Palaeontology & Meteorites Committee June 2016

