

HERITAGE IMPACT ASSESSMENT

In terms of Section 38(8) of the NHRA for the

PROPOSED MAYOGI SOLAR PHOTOVOLTAIC (PV) RENEWABLE ENERGY FACILITY NEAR KIRKWOOD, EASTERN CAPE

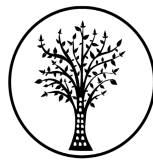
Prepared by CTS Heritage



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For
SIVEST

July 2023



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EXECUTIVE SUMMARY

1. Site Name:

Mayogi PV Solar Energy Facility

2. Location:

Adjacent to the R75 approximately 13km south-west of Kirkwood, Easter Cape Province.

3. Locality Plan:

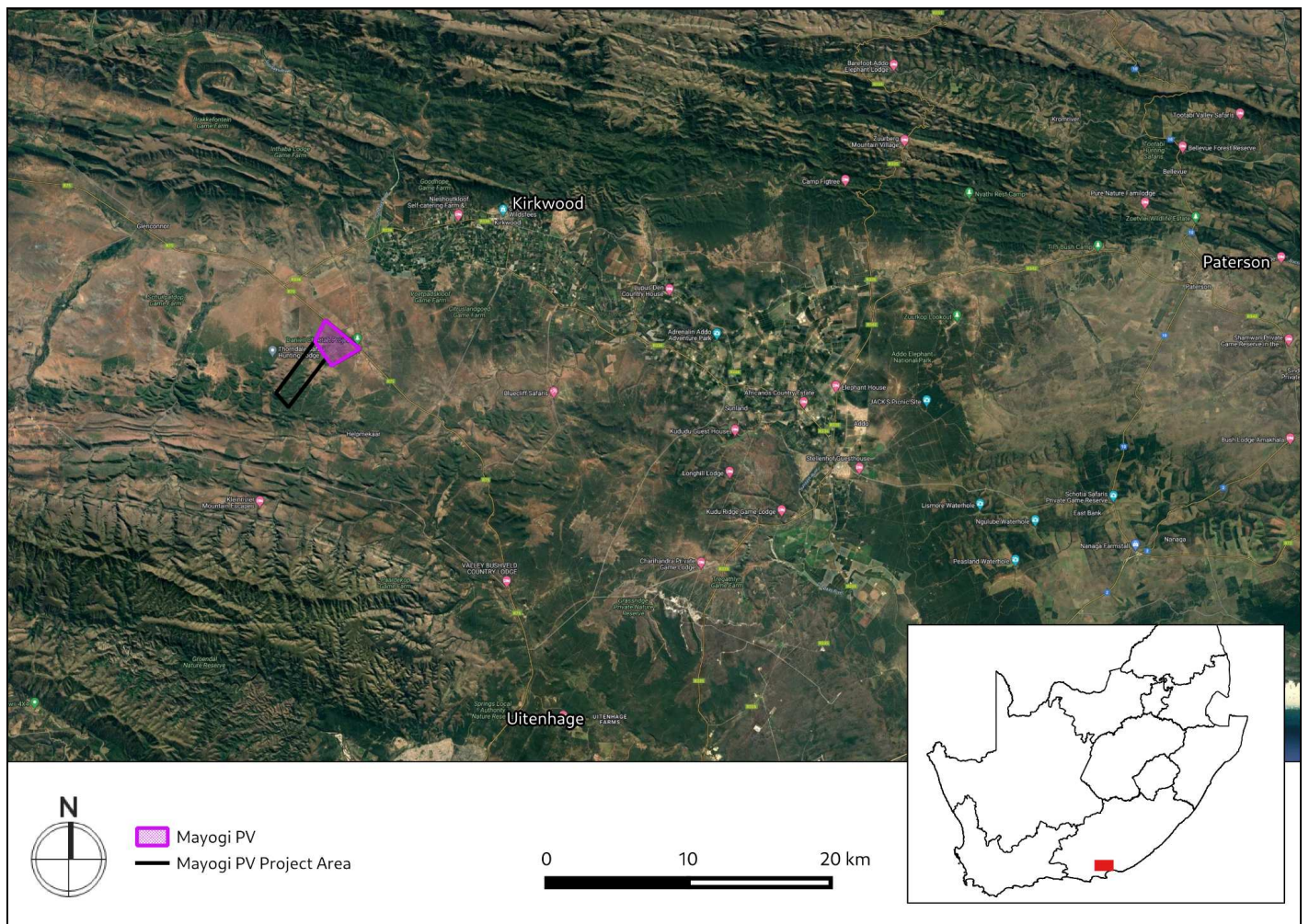


Figure A: Location of the proposed development area

4. Description of Proposed Development:

JUWI is proposing to develop 2 x PV facilities and associated infrastructure on Farm No. 692 adjacent to the R75 approximately 13km southwest of Kirkwood. The site is located in the Sundays River Valley Municipality in the Sarah Baartman District Municipality of the Eastern Cape.



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Farm No. 692 (hereafter referred to as the property) is located adjacent to the R75 approximately 13km south-west of Kirkwood, Eastern Cape Province. The Skilpad Substation is located within the property. The intention is to develop one or more PV facilities and associated infrastructure on the property, depending on site sensitivities. The associated infrastructure would include a BESS, site camp, substation and OHL, and O&M building. Based on the site visit and desktop analysis, the focus area for PV development is the northern section of the property.

5. Anticipated Impacts on Heritage Resources:

The previous heritage studies that have been conducted in the broader area have identified isolated and scattered artefacts of the Early, Middle and Later Stone Age (Binneman, 2010; NID 7159). The findings of this assessment corroborate the characterisation of the area made by other specialists.

The field survey identified a number of isolated artefacts, none of which are dense enough to be considered an archaeological site. None of the archaeological observations made have sufficient scientific value to warrant their retention and as such, have been graded as Not Conservation-Worthy. The recording of their presence in this report is considered sufficient.

A Medium Palaeontological Significance has been allocated to the Mayogi PV development. It is therefore considered that the proposed development will not lead to damaging impacts on the palaeontological resources of the area. The construction of the development may thus be permitted in its whole extent, as the development footprint is not considered sensitive in terms of palaeontological resources.

Based on the outcomes of this assessment, it is unlikely that the proposed development will negatively impact on significant archaeological, palaeontological or cultural heritage resources.

6. Recommendations:

Based on the outcomes of this report, it is not anticipated that the proposed development will negatively impact on significant heritage resources on condition that:

- The ECO for this project must be informed that the Kirkwood Formation of the Uitenhage Group has a Very High Palaeontological Sensitivity.
- If Palaeontological Heritage is uncovered during surface clearing and excavations the Chance find Protocol attached should be implemented immediately. Fossil discoveries ought to be protected and the ECO/site manager must report to South African Heritage Resources Agency (SAHRA) (Contact details: Eastern Cape Provincial Heritage Resources Authority (ECPHRA), 16 Commissioner Street, East London,



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5201, South Africa. Tel: 043 745 0888. Fax: 043 745 0889., email: info@ecphra.org.za; Web: <https://www.ecphra.org.za/>) so that mitigation (recording and collection) can be carried out.

- Before any fossil material can be collected from the development site the specialist involved would need to apply for a collection permit from SAHRA. Fossil material must be housed in an official collection (museum or university), while all reports and fieldwork should meet the minimum standards for palaeontological impact studies proposed by SAHRA (2012).
- Although all possible care has been taken to identify sites of cultural importance during the investigation of the study area, it is always possible that hidden or subsurface sites could be overlooked during the assessment. If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils, burials or other categories of heritage resources are found during the proposed development, work must cease in the vicinity of the find and ECPHRA must be alerted immediately to determine an appropriate way forward.



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Details of Specialist who prepared the HIA

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

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

Since 2016, Jenna has drafted over 250 Screening and Heritage Impact Assessments throughout South Africa.



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NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND ENVIRONMENTAL IMPACT REGULATIONS, 2014 (AS AMENDED) - REQUIREMENTS FOR SPECIALIST REPORTS (APPENDIX 6)

Regulation GNR 326 of 4 December 2014, as amended 7 April 2017, Appendix 6	Section of Report
<p>1. (1) A specialist report prepared in terms of these Regulations must contain-</p> <ol style="list-style-type: none"> 1. details of- 1. the specialist who prepared the report; and 2. the expertise of that specialist to compile a specialist report including a curriculum vitae; 	Page 4
<p>2. a declaration that the specialist is independent in a form as may be specified by the competent authority;</p>	Appendix 4
<p>3. an indication of the scope of, and the purpose for which, the report was prepared;</p>	Section 2
<p>(cA) an indication of the quality and age of base data used for the specialist report;</p>	Section 2
<p>(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;</p>	Section 5
<p>4. the date and season of the site investigation and the relevance of the season to the outcome of the assessment;</p>	Section 2
<p>5. a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;</p>	Section 2
<p>6. details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;</p>	Section 5
<p>7. an identification of any areas to be avoided, including buffers;</p>	Section 5
<p>8. a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;</p>	Section 5



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<p>9. a description of any assumptions made and any uncertainties or gaps in knowledge;</p>	<p>Section 2</p>
<p>10. a description of the findings and potential implications of such findings on the impact of the proposed activity, (including identified alternatives on the environment) or activities;</p>	<p>Section 5</p>
<p>11. any mitigation measures for inclusion in the EMPr;</p>	<p>Section 8</p>
<p>12. any conditions for inclusion in the environmental authorisation;</p>	<p>Section 8</p>
<p>13. any monitoring requirements for inclusion in the EMPr or environmental authorisation;</p>	<p>Section 8</p>
<p>14. a reasoned opinion-</p> <p>1. (as to) whether the proposed activity, activities or portions thereof should be authorised;</p> <p style="padding-left: 40px;">(iA) regarding the acceptability of the proposed activity or activities; and</p> <p>2. if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;</p>	<p>Section 7</p>
<p>15. a description of any consultation process that was undertaken during the course of preparing the specialist report;</p>	<p>Section 6</p>
<p>16. a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and</p>	<p>Section 6</p>
<p>17. any other information requested by the competent authority.</p>	<p>NA</p>
<p>2) Where a government notice <i>gazetted</i> by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.</p>	<p>Compliance with Section 38(3) of the NHRA</p>



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1. INTRODUCTION

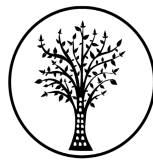
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Farm No. 692 (hereafter referred to as the property) is located adjacent to the R75 approximately 13km south-west of Kirkwood, Easter Cape Province. The Skilpad Substation is located within the property. The intention is to develop one or more PV facilities and associated infrastructure on the property, depending on site sensitivities. The associated infrastructure would include a BESS, site camp, substation and OHL, and O&M building. Based on the site visit and desktop analysis, the focus area for PV development is the northern section of the property.

Table 1: Project Details

TECHNICAL DETAILS	
PV panels	<p>Structure height</p> <ul style="list-style-type: none"> ▪ Solar panels with a maximum height of 5m above the ground <p>Structure orientation Fixed tilt or tracking:</p> <ul style="list-style-type: none"> ▪ Fixed tilt: North-facing at a defined angle of tilt. ▪ Or panels will either be fixed to a single-axis horizontal tracking structure where the orientation of the panel varies according to the time of the day, as the sun moves from east to west; or tilted at a fixed angle equivalent to the latitude at which the site is located in order to capture the most sun. ▪ Crystalline silicon or thin film technology (To be determined at later stage) <p>Dimensions of Panel:</p> <ul style="list-style-type: none"> ▪ Width (in m) of PV panels: 2,278m ▪ Height (in m) of PV panels: 1,134m
Access roads	<ul style="list-style-type: none"> ▪ Width of internal roads: approximately 6 m with an additional 2 m drainage on each site if necessary. ▪ Existing roads will be utilised as far as reasonably possible. ▪ Site Access: existing access roads may need to be upgraded by approximately 450m x 6m.
On-site Substation	<ul style="list-style-type: none"> ▪ Two substations are proposed with a maximum capacity of 33/132kV. ▪ Maximum height of on-site substation: approximately 3-4 m ▪ The substation area is max. 1 ha including a building for switching, measurement and control units, a high voltage transformer and high voltage overhead-lines connecting the transformer to the 132 kV grid line that is close to the site. ▪ On site, there will be around 15-20 container-sized transformer stations (12192*2896*2438 mm; W*H*D) that step up the low voltage coming from the inverters to 33 kV medium voltage.



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<p>Construction camp</p>	<ul style="list-style-type: none"> ▪ 1 x Construction camp will be required per PV, ▪ Offices and other buildings with toilets including septic tank and infrastructure, will used during the construction phase. ▪ Around 10 40ft container, in total <0,1 ha
<p>Temporary construction laydown / staging area</p>	<ul style="list-style-type: none"> ▪ Temporary Laydown Area: up to approximately 2 ha. ▪ Locations: refer attached KMZ ▪ Footprint up to 0.1 ha (around 0.03- 0.08ha)
<p>On-site IPP Electrical infrastructure</p>	<ul style="list-style-type: none"> ▪ The proposed project will include one on-site IPP substation. ▪ Planned size: 2ha <ul style="list-style-type: none"> - 1ha for Substation - 1ha for battery storage ▪ Substation area: One building that will include: <ul style="list-style-type: none"> - Office/control room (~50m²); - MV switchgear room (~100m²) ▪ Substation yard will include: <ul style="list-style-type: none"> - High voltage transformer and high voltage overhead-lines connecting the transformer to the existing Eskom 132 kV grid line via an approximately 200m long underground cable. This area will include construction laydown area, construction camp facilities and storage area, in the beginning. ▪ Medium voltage cabling will link PV facility to grid connection infrastructure ▪ Internal underground lines of up to 33 kV (22kV or 33kV). ▪ <i>Cables will be laid underground wherever technically feasible, with overhead 33kV lines grouping PV areas to crossing valleys and ridges to get to the on-site substation.</i>
<p>Fencing</p>	<ul style="list-style-type: none"> ▪ Type: proposed galvanized metal mesh. ▪ Length: 16km ▪ Height: Up to 2m
<p>Proximity to grid connection</p>	<p>Skilpad substation is adjacent to the site.</p> <p><u>Starting point:</u></p> <ul style="list-style-type: none"> ▪ PV Panel Array - To produce up to 75MW each, the proposed facility will require numerous linked PV panels connected in series, which will form solar PV arrays that will comprise the PV facility. ▪ The PV array will be wired to central inverters. The inverter is a MPPT (Maximum Power Point Tracking) inverter that converts direct current (DC) electricity to alternating current (AC) electricity at grid frequency. <p><u>Connection to the grid:</u></p> <ul style="list-style-type: none"> ▪ Connecting the array to the electrical grid requires transformation of the voltage from LV voltage to 33kV to 132kV. The normal components and dimensions of a distribution rated electrical substation will be required. Output voltage from the inverter is LV AC and this is fed into step up transformers to 33kV. From the inverter transformer an RMU is used to connect to the onsite substation ▪ The onsite substation will be required on the site to step the voltage from 33kV up to 132kV. After which the power will be evacuated into the national grid. ▪ A switching substation (and associated infrastructure) will be positioned close to the Eskom substation ▪ The metering point will be at the point of connection from the IPP substation side into the Eskom Switching Station.



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	<ul style="list-style-type: none"> ▪ Please refer to the layout map for the position of the substation.
Boreholes and storage tanks (if applicable)	<ul style="list-style-type: none"> ▪ Water will be either extracted from the borehole within the property or purchased from the neighboring farm with access to the river. ▪ Water from the borehole is used to irrigate the land. Meaning good flow rate is available. ▪ 2,5/5/10 Kl storage tanks ▪ During construction and O&M – mostly above ground tanks; 2 or 3 with 5kl or 10kl volume, close to O&M buildings normally <p>For PV Farm:</p> <ul style="list-style-type: none"> ▪ Planned size project of 100- 150 MW PV (in total for both PVs) ▪ The plant will require an estimated amount per year ▪ During construction: 1.5 to 2 years. Estimated 40 Megalitres per year <ul style="list-style-type: none"> o Road construction and compaction o Concrete batching for PV mounting structures foundation o Dust suppressions of the internal roads o Provision of portable water for staff needs (if it can be used) ▪ During Operation and Maintenance: 15 to 25 years. Estimated 7 Megalitres per year <ul style="list-style-type: none"> o Dust suppression of the internal roads o PV panel washing o Office building use (eg. Toilets and washbasins)
Battery Energy Storage Systems	<ul style="list-style-type: none"> ▪ It will depend on future off takers requirements and the size may vary. ▪ Provision of 1ha footprint will be kept on plan ▪ Redox flow or solid state battery electrolytes -Lithium technology to be catered for.
Estimated number of employment opportunities generated by each PV project	<ul style="list-style-type: none"> ▪ Expected Work force: During construction and O&M, based on 80MW PV plant. ▪ Construction: 350 – 700 during the 1,5 to 2 years of construction. 60-70% could possibly be locals. This includes Skilled, semi-skilled and unskilled workers ▪ O&M: 25 - 30 people during the 15 to 25 years of operation. 4-5 skilled workers and 16 – 25 un/semi-skilled workers, depending on contracts. ▪ This “Mayogi PV” project will still evolve over time and size may shrink due to clients/contracts/environmental factors. And for interest – Wind farm of 20 turbines would also take 1,5 to 2,5 years to complete with 250 – 350 workers employed during construction.

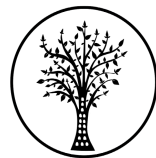


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1.2 Description of Property and Affected Environment

The proposed Mayogi solar PV facility lies about 20km southwest of Kirkwood in the Eastern Cape on the southwestern side of the R75 road that continues onto Kariega (formerly Uitenhage) another 30km further south. The development area is generally flat to undulating in the northern section closest to the R75 while the property narrows into a wedge to the south and becomes hilly and thickly vegetated by Albany thicket (spekboom, Euphorbia, aloes etc). The northern area has been earmarked as the preferred location of the solar PV facilities and is currently used for game farming of buffalo, zebra, ostriches and various antelope species. The terrain and grazing of cattle and game in the northern portion has left this section far less vegetated than the southern end.

The farm is part of Steenbokvlakte that has since been subdivided into various smaller farms and commercial businesses such as the Mayogi Wildstal farmstall and Daniell Cheetah Project just opposite the study area on the northeastern side of the R75. The Skilpad substation is located in the northeastern corner of the study area. An existing cluster of about 12 wooden game lodge tourism accommodation units lies midway near the western boundary of the southern section of the property which is very much in keeping with the large number of game viewing and hunting lodges that are located in the general area between Kariega, Kirkwood and Addo Elephant National Park.



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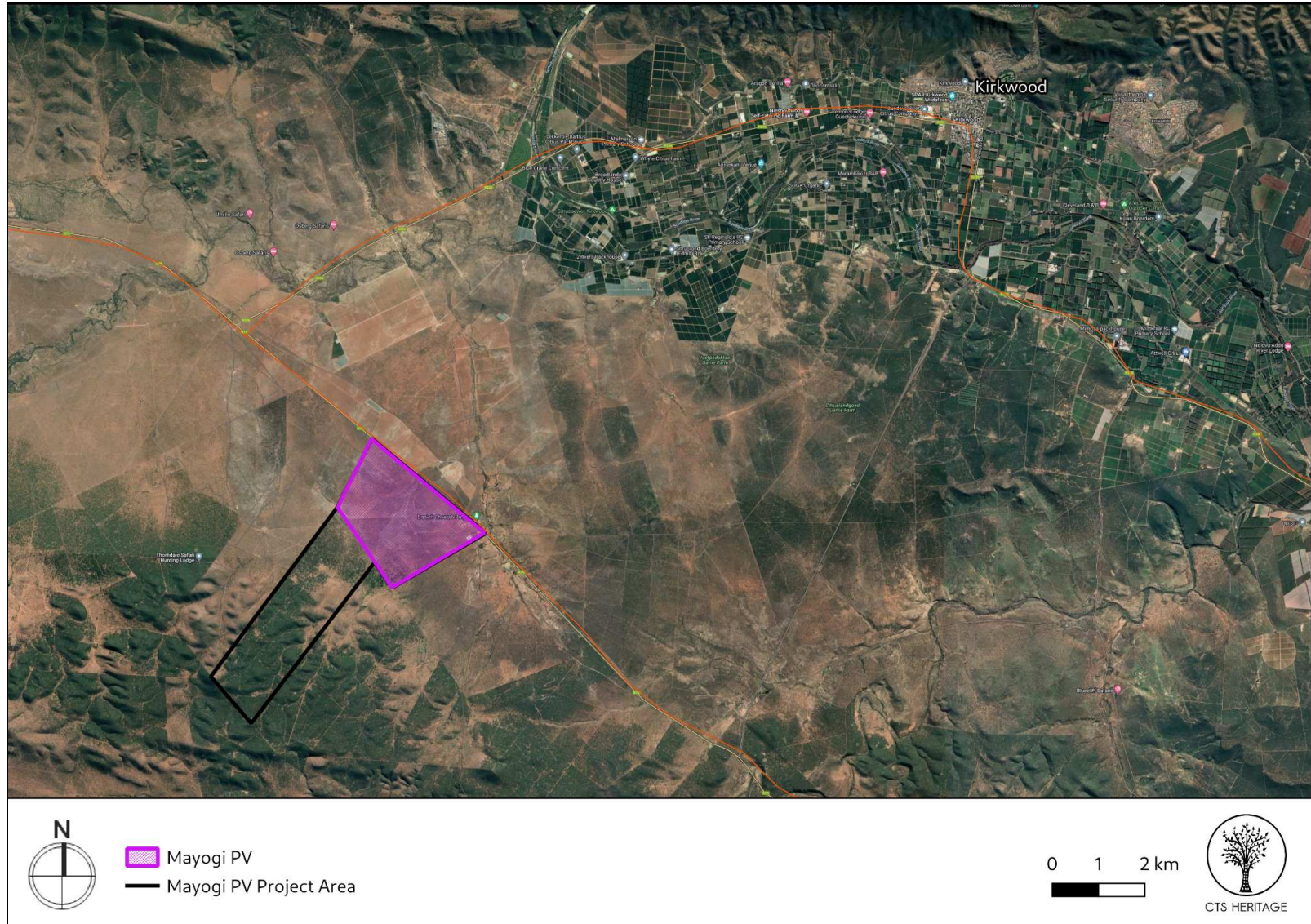
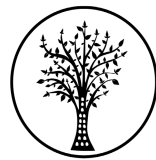


Figure 11: The proposed development layout of the Solar PV Facilities

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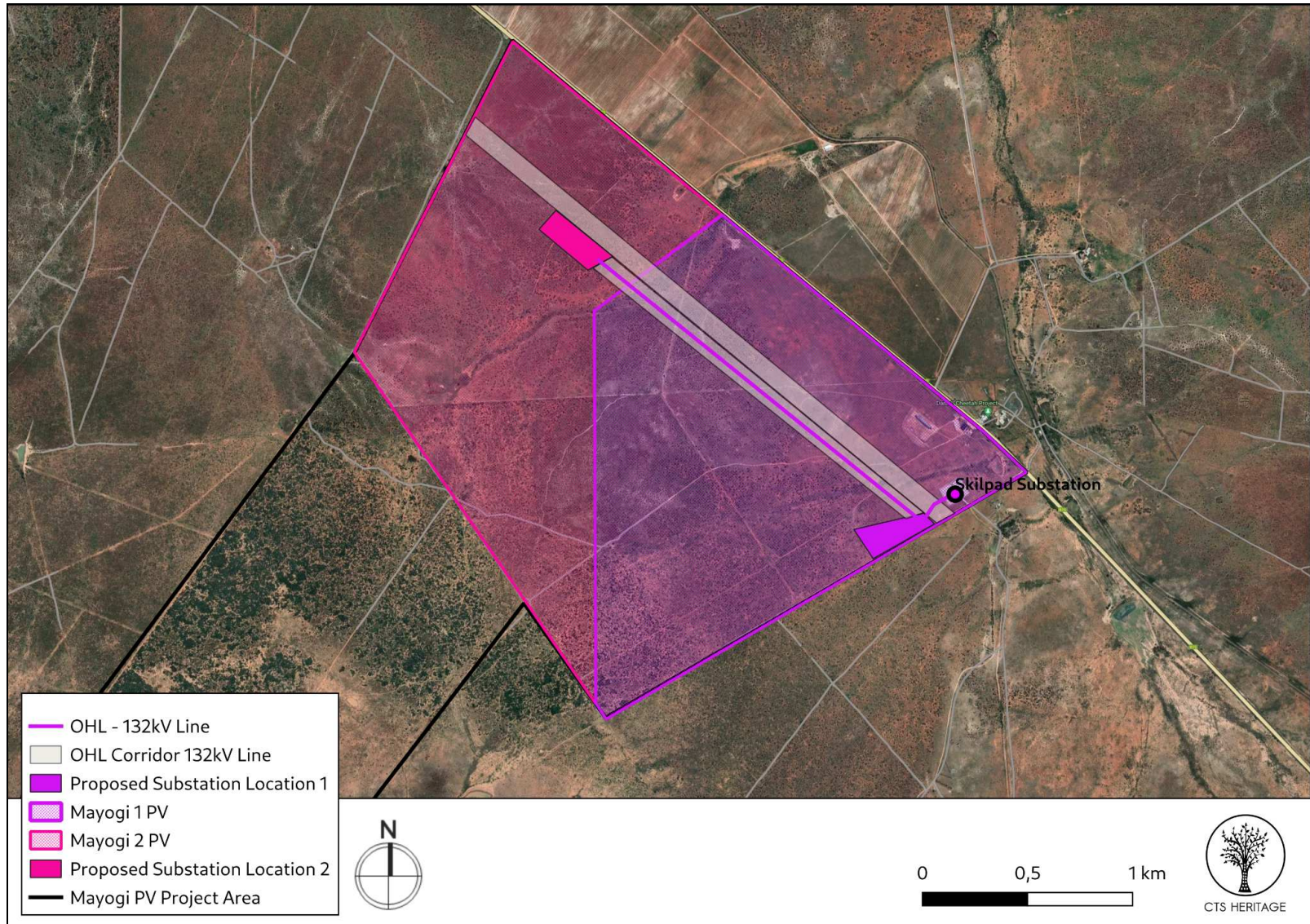
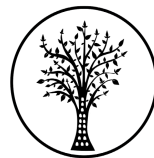


Figure 1.2: The proposed development layout of the Solar PV Facilities

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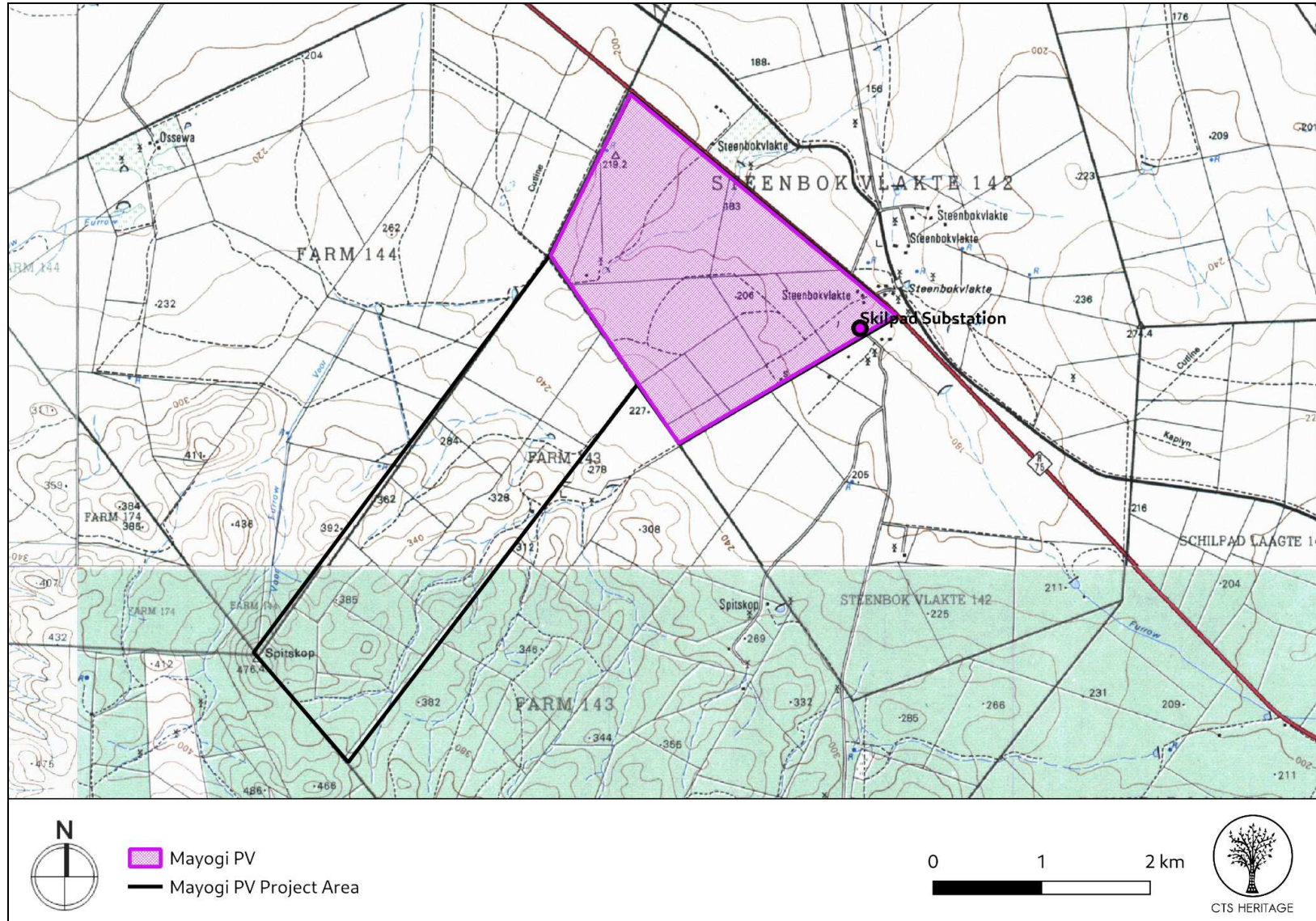


Figure 1.3: The proposed development layout of the PV Facilities on an extract of the 1:50 000 Topo Map

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2. METHODOLOGY

2.1 Purpose of HIA

The purpose of this Heritage Impact Assessment (HIA) is to satisfy the requirements of section 38(8), and therefore section 38(3) of the National Heritage Resources Act (Act 25 of 1999).

2.2 Summary of steps followed

- A Desktop Study was conducted of relevant reports previously written (please see the reference list for the age and nature of the reports used)
- An archaeologist conducted an assessment of archaeological resources likely to be disturbed by the proposed development. The archaeologists conducted their site visit from 15 to 16 November 2022
- A palaeontologist conducted a field assessment of palaeontological resources likely to be disturbed by the proposed development on 20 January 2023.
- The identified resources were assessed to evaluate their heritage significance and impacts to these resources were assessed.
- Alternatives and mitigation options were discussed with the Environmental Assessment Practitioner

2.3 Assumptions and uncertainties

- The *significance* of the sites and artefacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.
- It should be noted that archaeological and palaeontological deposits often occur below ground level. Should artefacts or skeletal material be revealed at the site during construction, such activities should be halted, and it would be required that the heritage consultants are notified for an investigation and evaluation of the find(s) to take place.

However, despite this, sufficient time and expertise was allocated to provide an accurate assessment of the heritage sensitivity of the area.

2.4 Constraints & Limitations

The northern zone was relatively easier to survey as the terrain is level to undulating with only grassland and patches of Albany thicket present. The southern section is hilly throughout and was very densely vegetated by Albany thicket. It was only possible to traverse this area using the existing farm tracks that crisscross the



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southern section while the northern area was covered on foot and by mountain bike. In sampling the archaeological sensitivity of the area it was clear that the flatter ground to the north held more material than the hilly ground to the south. However, should development take place in the southern area it is possible that archaeological material would be revealed by vegetation clearing. We therefore have a reasonable level of confidence in the heritage sensitivities present in the northern section of the study area with only a moderate degree of coverage in the southern section due to the impenetrable vegetation cover.

2.5 SIVEST Impact Assessment Methodology

The Environmental Impact Assessment (EIA) Methodology assists in evaluating the overall effect of a proposed activity on the environment. Determining the significance of an environmental impact on an environmental parameter is determined through a systematic analysis.

2.5.1 Determination of Significance of Impacts

Significance is determined through a synthesis of impact characteristics which include context and intensity of an impact. Context refers to the geographical scale (i.e. site, local, national or global), whereas intensity is defined by the severity of the impact e.g. the magnitude of deviation from background conditions, the size of the area affected, the duration of the impact and the overall probability of occurrence. Significance is calculated as shown in **Table 1**.

Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

2.5.2 Impact Rating System

The impact assessment must take account of the nature, scale and duration of effects on the environment and whether such effects are positive (beneficial) or negative (detrimental). Each issue / impact is also assessed according to the various project stages, as follows:

- Planning;
- Construction;
- Operation; and
- Decommissioning.

Where necessary, the proposal for mitigation or optimisation of an impact should be detailed. A brief discussion of the impact and the rationale behind the assessment of its significance has also been included.



Rating System Used to Classify Impacts

The rating system is applied to the potential impact on the receiving environment and includes an objective evaluation of the possible mitigation of the impact. Impacts have been consolidated into one (1) rating. In assessing the significance of each issue the following criteria (including an allocated point system) is used:

Table 1: Rating of impacts criteria

ENVIRONMENTAL PARAMETER		
A brief description of the environmental aspect likely to be affected by the proposed activity.		
ISSUE / IMPACT / ENVIRONMENTAL EFFECT / NATURE		
Include a brief description of the impact of environmental parameter being assessed in the context of the project. This criterion includes a brief written statement of the environmental aspect being impacted upon by a particular action or activity (e.g. oil spill in surface water).		
EXTENT (E)		
This is defined as the area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment of a project in terms of further defining the determined		
1	Site	The impact will only affect the site
2	Local/district	Will affect the local area or district
3	Province/region	Will affect the entire province or region
4	International and National	Will affect the entire country
PROBABILITY (P)		
This describes the chance of occurrence of an impact		
1	Unlikely	The chance of the impact occurring is extremely low (Less than a 25% chance of occurrence).
2	Possible	The impact may occur (Between a 25% to 50% chance of occurrence).
3	Probable	The impact will likely occur (Between a 50% to 75% chance of occurrence)
4	Definite	Impact will certainly occur (Greater than a 75% chance of occurrence).
REVERSIBILITY (R)		
This describes the degree to which an impact on an environmental parameter can be successfully reversed upon completion of the proposed activity.		
1	Completely reversible	The impact is reversible with implementation of minor mitigation measures
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.
3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.
4	Irreversible	The impact is irreversible and no mitigation measures exist.



IRREPLACEABLE LOSS OF RESOURCES (L)		
This describes the degree to which resources will be irreplaceably lost as a result of a proposed activity.		
1	No loss of resource.	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resources	The impact will result in significant loss of resources.
4	Complete loss of resources	The impact is result in a complete loss of all resources.
DURATION (D)		
This describes the duration of the impacts on the environmental parameter. Duration indicates the lifetime of the impact as a result of the proposed activity		
1	Short term	The impact and its effects will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase (0 - 1 years), or the impact and its effects will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0 - 2 years).
2	Medium term	The impact and its effects will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2 - 10 years).
3	Long term	The impact and its effects will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter (10 - 50 years).
4	Permanent	The only class of impact that will be non-transitory. Mitigation either by man or natural process will not occur in such a way or such a time span that the impact can be considered transient (Indefinite).
INTENSITY / MAGNITUDE (I / M)		
Describes the severity of an impact (i.e. whether the impact has the ability to alter the functionality or quality of a system permanently or temporarily).		
1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.
2	Medium	Impact alters the quality, use and integrity of the system/component but system/ component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).
3	High	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.
4	Very high	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired (system collapse). Rehabilitation and remediation often impossible. If possible rehabilitation and remediation often unfeasible due to extremely high costs of rehabilitation and remediation.
SIGNIFICANCE (S)		
Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. This describes the significance of the impact on the environmental parameter. The calculation of the significance of an impact uses the following formula:		



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Significance = (Extent + probability + reversibility + irreplaceability + duration) x magnitude/intensity.

The summation of the different criteria will produce a non-weighted value. By multiplying this value with the magnitude/intensity, the resultant value acquires a weighted characteristic which can be measured and assigned a significance rating.

Points	Impact Significance Rating	Description
5 to 23	Negative Low impact	The anticipated impact will have negligible negative effects and will require little to no mitigation.
5 to 23	Positive Low impact	The anticipated impact will have minor positive effects.
24 to 42	Negative Medium impact	The anticipated impact will have moderate negative effects and will require moderate mitigation measures.
24 to 42	Positive Medium impact	The anticipated impact will have moderate positive effects.
43 to 61	Negative High impact	The anticipated impact will have significant effects and will require significant mitigation measures to achieve an acceptable level of impact.
43 to 61	Positive High impact	The anticipated impact will have significant positive effects.
62 to 80	Negative Very high impact	The anticipated impact will have highly significant effects and are unlikely to be able to be mitigated adequately. These impacts could be considered "fatal flaws".
62 to 80	Positive Very high impact	The anticipated impact will have highly significant positive effects.



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3. HISTORY AND EVOLUTION OF THE SITE AND CONTEXT

3.1 Desktop Assessment

Background:

This application is for the proposed development of a PV facility and its grid collection on the south side of the R75 approximately 10km from Kirkwood and the Sunday's River Valley.

Cultural landscape and the Built Environment

At the beginning of the 19th century, the Sundays River formed the eastern border of the then Cape Colony. The broader area around Kirkwood was consequently the scene of many armed conflicts - Khoi against Xhosa, Khoi and Xhosa together against the Boers and British together and finally the Boers against the British during the Second Anglo-Boer War. Historic period remains are also found in the area, with early farmhouses, churches and several farm burial grounds having been noted, ranging from formal, enclosed graves to informal stone-packed burial mounds (Van Ryneveld 2016, NID 374575).

The Sundays River Valley irrigation scheme was started in the early 1920s, targeting British settlers on small holdings (10 morgen in size) along the banks of the Sundays River. A large dam was constructed on the Sundays River (Lake Mentz) to supply the area with water for irrigation, and a canal system was put in place to supply water to farms from Kirkwood, at the upper end of the valley, to Addo at the lower end.

Importantly, the ACO (2014) noted that the broader context within which this development occurs has high levels of cultural landscape significance. As noted in ACO (2014), "The construction of a major transmission line (Eskom's 765 kW Gamma-Grassridge) has been approved but not yet built. It will cross the western side of the study area through Soutpans Poort and is expected to be a major new visual intrusion. In terms of the assessment checklist published by Baumann, Winter, Aikman (2005) the landscape is largely intact as a natural landscape and intrusions within the last 60 years have been moderate. The aesthetic qualities can be described as being of generally scenic (not dramatic) significance while certain niche areas are highly significant - especially the landscapes on the northern side of the Klein Winterhoek ridge as well as the Perdepoort which contains some dramatic scenery with a distinct character." Furthermore, as the proposed development consists of an expansion of existing infrastructure, there is no "change of character" to the site and no negative impact to the cultural landscape is anticipated from the proposed amendment to the road alignment.



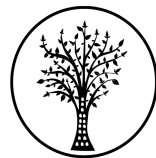
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Archaeology

As a source of freshwater, the Sundays River valley has likely been occupied continuously throughout history. According to Webley (2003 SAHRIS NID 4307), Early and Middle Stone Age scatters are found along the banks of the Sundays River. These scatters are found immediately below the topsoil, at a depth of no more than 30cm and appear to have been deposited through river action, and as such, are not *in situ*. The artefacts identified consist of flaked quartzite cobbles with cortex and quartzite flakes. Very few diagnostic flakes were identified. In her assessment of the number of borrow pits, van Ryneveld (2012, SAHRIS NID 49462) did not identify any archaeological resources within the two borrow pits located near the proposed development area. According to Gaigher (2013 SAHRIS NID 125198), “Excavations at sites such as Melkhoutboom and Vygeboom (inside Addo Park) have uncovered graves with rich grave goods indicating a complex belief system. The rock art too indicates the San occupants took part in trance before painting... Many of the shell middens in the Addo Park contain pottery, confirming the presence of the Khoekhoen in the area.” According to Gaigher (2013), “The majority of hunter-gatherer groups had been pushed out of the Zuurberg by the 1820’s and was forced to move further inland to escape European settlement on their lands.”

The previous heritage studies that have been conducted in the broader area have identified isolated and scattered artefacts of the Early, Middle and Later Stone Age (Binneman, 2010; NID 7159). Generally, archaeological artefacts in this region are found in road cuttings, tracks and paths as the dense vegetation of the area largely obscures their presence elsewhere. ESA material known from the area includes handaxes and cleavers that are usually found in river gravels, although *in situ* ESA tools have been found in spring deposits near Addo (Binneman 2016, NID 365749). MSA flake and blade tools are similarly usually found in secondary contexts, and may be found with associated fossil bone material (Binneman 2010). LSA sites, though present, are usually obscured by the dense vegetation in this region. When found, they are usually represented by limited numbers of stone tools and bone fragments, and organic preservation is generally poor (Binneman 2016). Cave sites in the nearby mountains, on the contrary, often contain well-preserved deposits and rock paintings. Khoe sites, dating to the past 2 000 years, also occur in the area, and their sites are marked by the presence of indigenous ceramics and domesticated animal bone. These groups were also responsible for the creation of large middens of freshwater mussels, sometimes associated with human burials, that can be found on the banks of the Sunday’s River (Binneman 2016). Burials and graves associated with pre-colonial as well as historic communities are also to be found in the area (Binneman 2013, NID 175196).

Historic period remains are also found in the area, with early farmhouses, churches and several farm burial grounds having been noted, ranging from formal, enclosed graves to informal stone-packed burial mounds (Van Ryneveld 2016, NID 374575).



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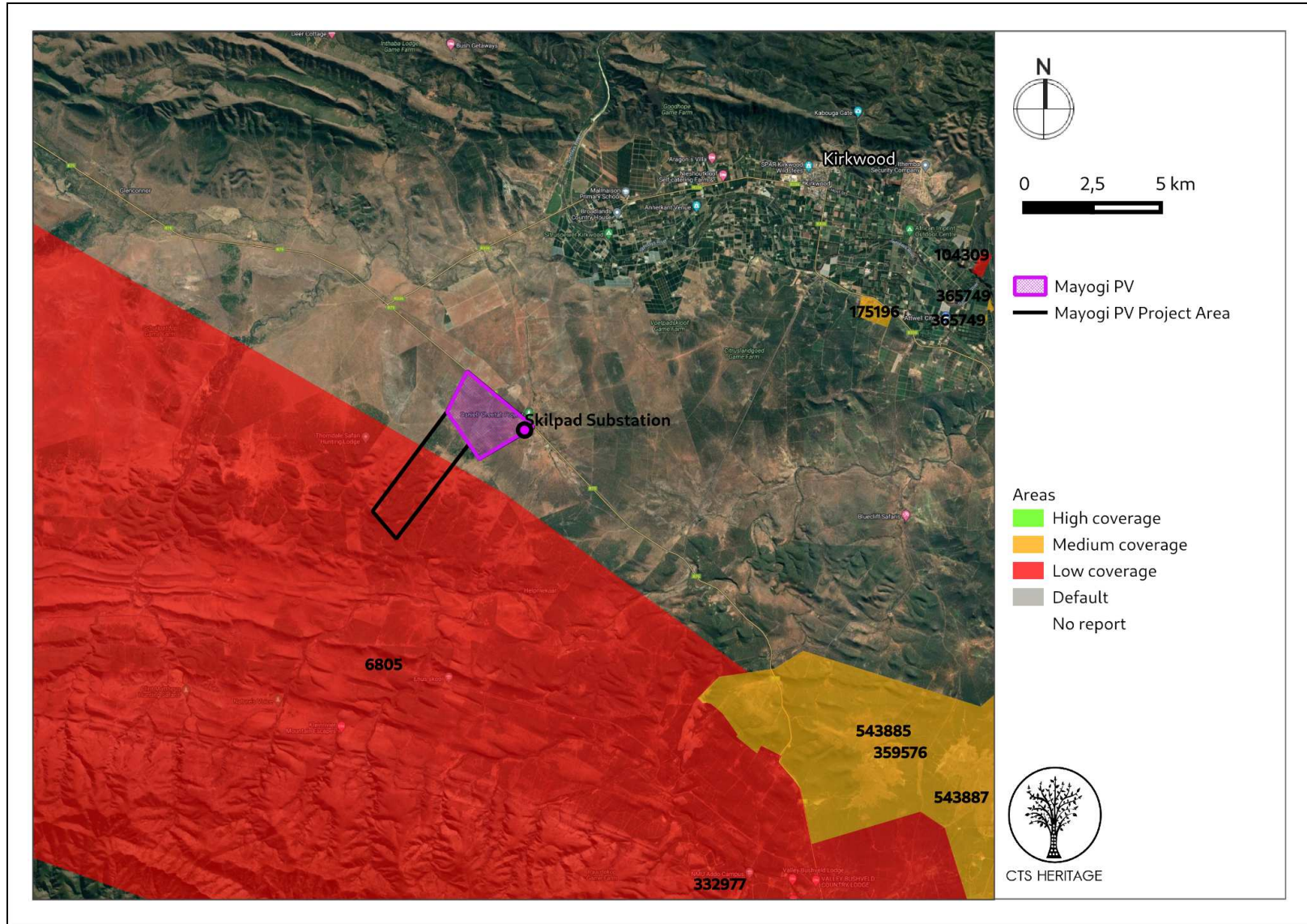
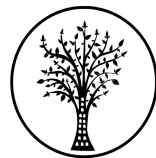


Figure 2.1: Spatialisation of heritage assessments conducted in proximity to the proposed development

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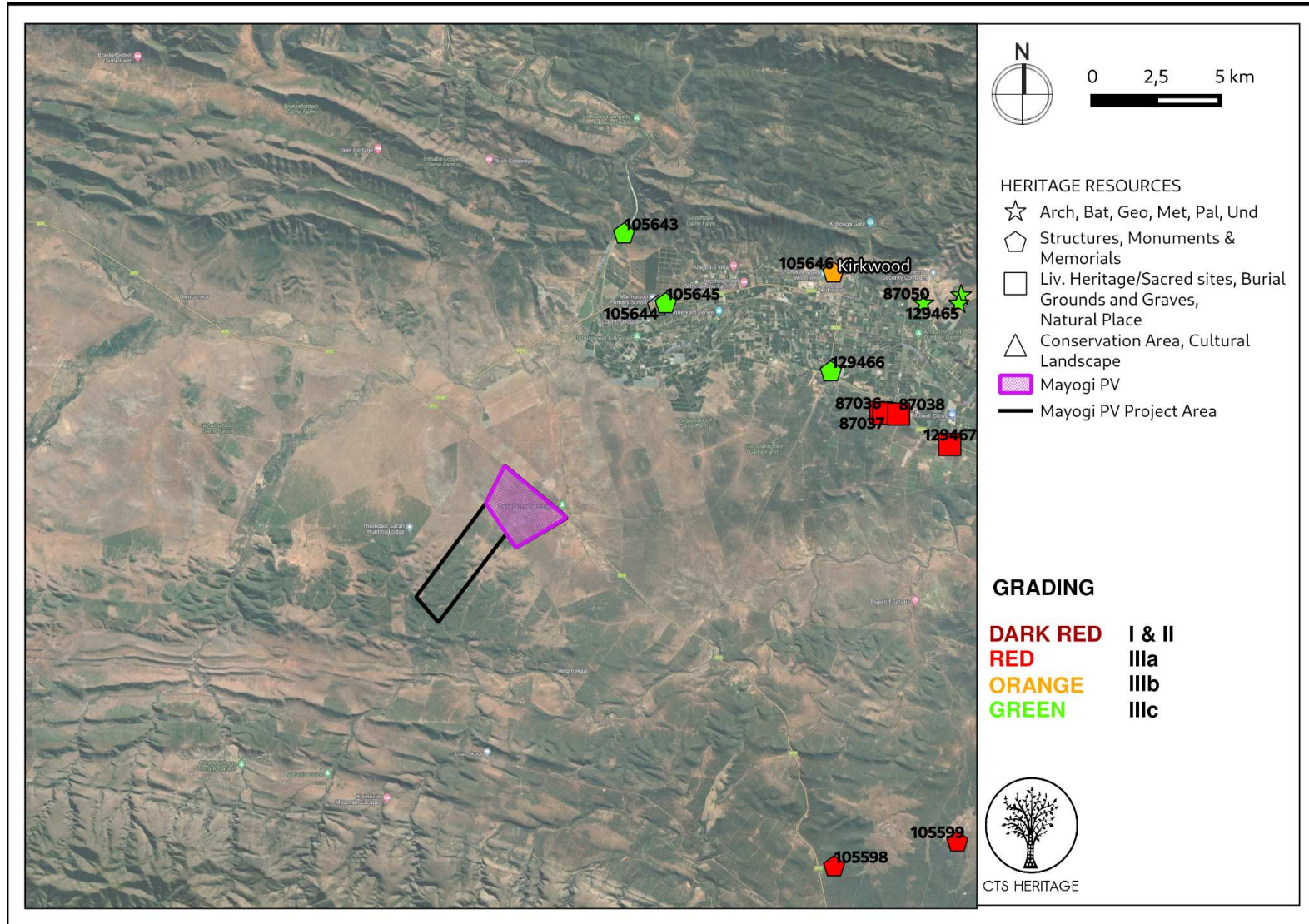


Figure 2.2: Spatialisation of known heritage resources in proximity to the proposed development

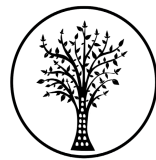


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Palaeontology

The area proposed for development is underlain by sediments of very high palaeontological sensitivity belonging to the Kirkwood Formation according to the Council of GeoScience Map 3324. According to Almond's assessment for a nearby development (2014), "During and following the break-up of Gondwana in Early Cretaceous times the Palaeozoic bedrocks in this region were deeply weathered and eroded to form a dissected palaeosurface across which meandering rivers deposited the pebbly channel sandstones and silty overbank mudrocks of the Kirkwood Formation (Uitenhage Group). The basal contact or unconformity between the Uitenhage and Bokkeveld Group rocks preserves the original high relief of the pre-Cretaceous landscape, with hills of Gamka Formation and younger Bokkeveld wackes projecting up through the lower Uitenhage Group fluvial succession. The Kirkwood continental sediments interfinger southwards, and are eventually overlain by fine-grained estuarine to marine shelf sediments of the Sundays River Formation (Uitenhage Group) reflecting gradual flooding of the margins of southern Africa in Early Cretaceous times."

Almond (2014) goes on to note that the "Early Cretaceous fluvial sediments of the Kirkwood Formation ("Wood Beds", Uitenhage Group) that underlie valleys and lower hill slopes in large parts of the... study area are generally very poorly exposed. However, where seen at surface they are often characterised by an abundance of petrified wood, including logs up to several metres long and half a metre across. Some of the fossil logs are only preserved as moulds but others retain fine details of the original woody tissue microstructure and are therefore of considerable palaeontological interest.



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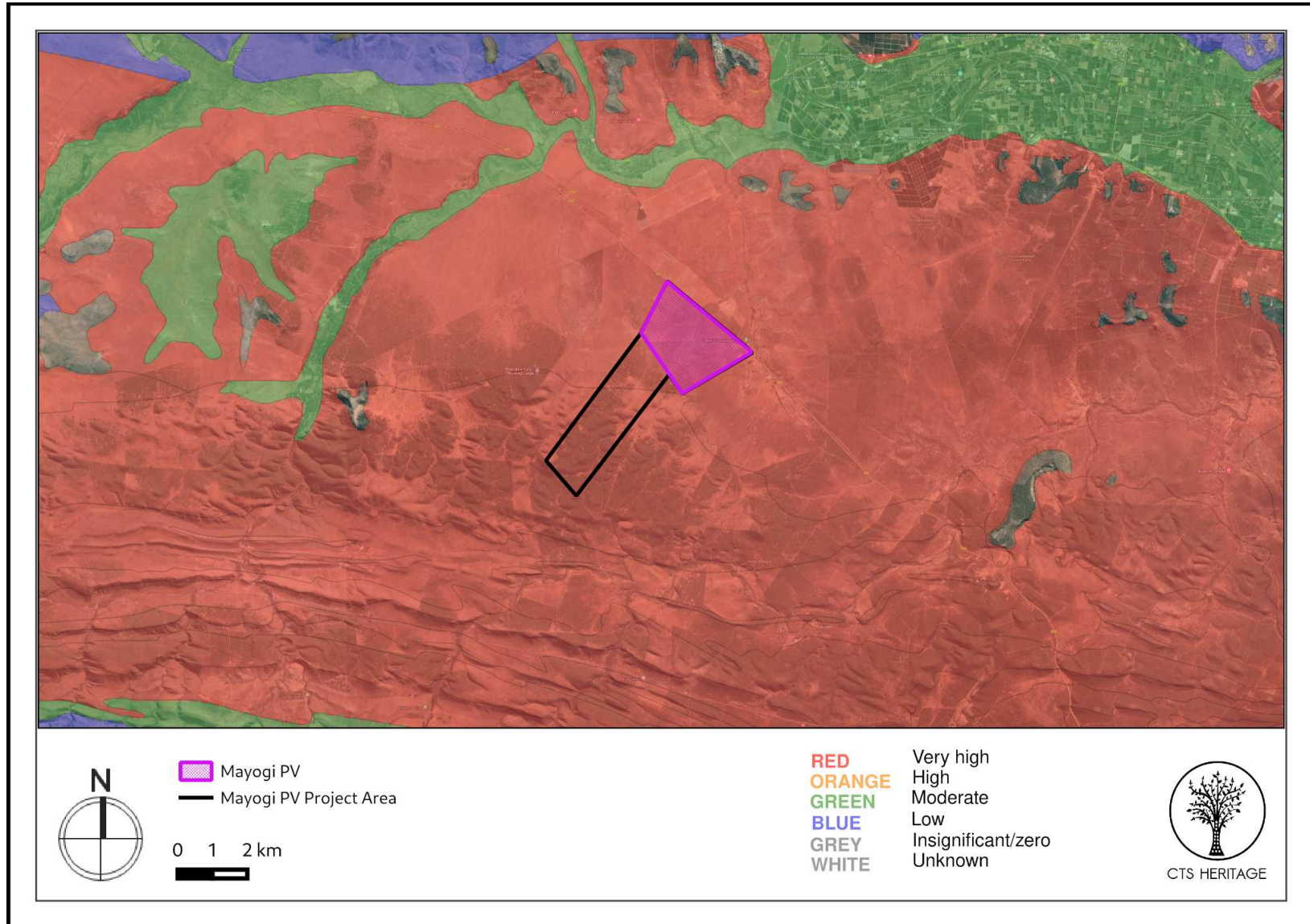
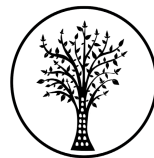


Figure 3.1: Palaeontological sensitivity of the proposed development area

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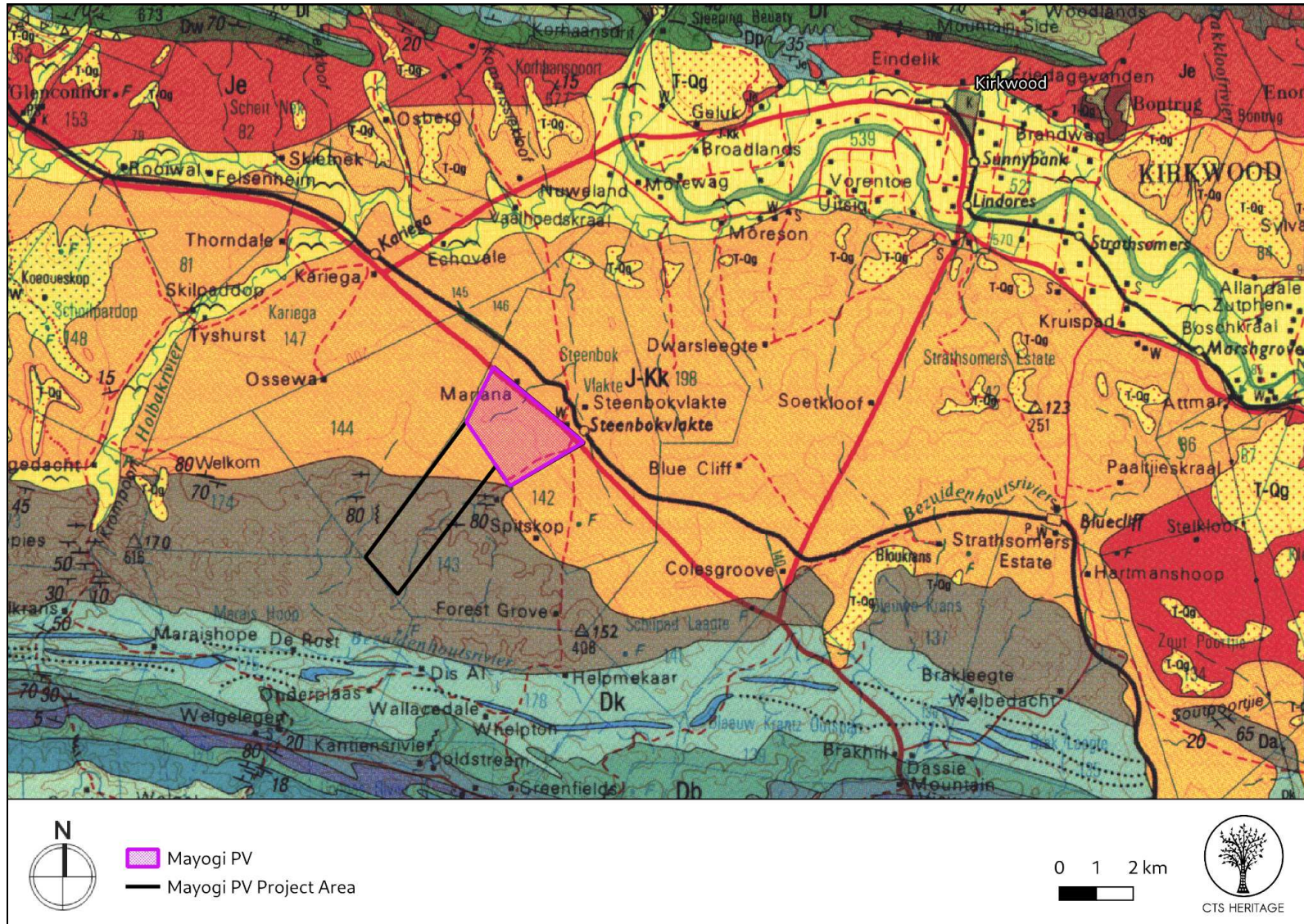


Figure 3.2: Extract from 1: 250 000 geological map 3324 Port Elizabeth (Council for Geoscience, Pretoria) showing that the area proposed for development is underlain by sediments of the Kirkwood Formation (J-Kk)

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4. IDENTIFICATION OF HERITAGE RESOURCES

4.1 Summary of findings of Specialist Reports

Archaeology (Appendix 1)

The archaeological survey resulted in nearly 60 observations and these were focussed in the northern area where the solar PV facilities have been proposed. Some Later Stone Age (LSA) material was found but the vast majority of sites consisted of quartzite flakes and cores dating to the MSA. A smaller contribution of siltstone flakes was also recorded but the extensive use of quartzite was indicative of the exploitation of sandstone gravels present in nearby streams and rivers. An early MSA component was also present and typical bifacial flakes and radial cores contributed to the assemblages. There were also some historical artefacts such as rusted metal, glass and ceramics closer to the R75 which are likely to be associated with the Steenbokvlakte farm and the migrant farming routes through this area from the 19th century onwards. There are no historic werfs or farm buildings in the study area and all of the modern built environment infrastructure relates to the game farming, water troughs and dams, the lodge chalets and the Skilpad substation. There are no natural shelters or overhangs on the property.

Palaeontology (Appendix 2)

The proposed Mayogi Solar PV Facility is underlain by Kirkwood Formation (Uitenhage Group). The PalaeoMap of the South African Heritage Resources Information System (SAHRIS) indicates that the Palaeontological Sensitivity of the Kirkwood Formation (Uitenhage Group) is Very High (Almond and Pether, 2009; Almond *et al.*, 2013). Recent updated Geology (Council of Geosciences) corresponds with the geological map and indicates that the proposed development is underlain by the Kirkwood Formation.

A site-specific field survey of the development footprint was conducted on foot and by motor vehicle on the weekend of 20 January 2023. No fossiliferous outcrop was detected in the proposed development area. A Medium Palaeontological Significance has been allocated to the Mayogi PV development.



4.2 Heritage Resources identified

No archaeological or palaeontological resources of significance were identified within the area proposed for development. All of the resources identified have been determined to be Not Conservation-Worthy (NCW).

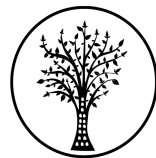
Table 2: Observations noted during the field assessment

POINT ID	Description	Type	Period	Density/m2	Co-ordinates		Grading	Mitigation
001	Quartzite points, flakes	Artefacts	LSA+MSA	10 to 30	-33.47597	25.31221	NCW	NA
002	Quartzite cores, flakes	Artefacts	MSA	0 to 5	-33.47463	25.31136	NCW	NA
003	Quartzite points	Artefacts	MSA	0 to 5	-33.47347	25.30782	NCW	NA
004	Quartzite flake and core	Artefacts	MSA	0 to 5	-33.47382	25.3056	NCW	NA
005	Elongated quartzite flake, rusted metal sheet	Artefacts	Historic, MSA	0 to 5	-33.47558	25.30264	NCW	NA
006	Ruined concrete dam, troughs	Structure	Modern	n/a	-33.47636	25.30142	NCW	NA
007	Various quartzite flakes, cores	Artefacts	MSA	5 to 10	-33.47406	25.30045	NCW	NA
008	Quartzite blade, flake	Artefacts	MSA	0 to 5	-33.47203	25.30029	NCW	NA
009	Quartzite, flaked core, darker flakes	Artefacts	MSA	5 to 10	-33.47061	25.30273	NCW	NA
010	Quartzite cores	Artefacts	MSA	0 to 5	-33.46894	25.30414	NCW	NA
011	Quartzite flakes	Artefacts	MSA	0 to 5	-33.46723	25.30537	NCW	NA
012	Quartzite point, bulb of percussion	Artefacts	MSA	0 to 5	-33.46604	25.30661	NCW	NA
013	Early MSA biface, flakes, quartzite	Artefacts	MSA	0 to 5	-33.46599	25.30812	NCW	NA
014	Quartzite radial core and flake	Artefacts	MSA	0 to 5	-33.46829	25.30854	NCW	NA
015	Quartzite debitage and flakes	Artefacts	MSA	0 to 5	-33.46903	25.31008	NCW	NA
016	Retouched quartzite flakes	Artefacts	MSA	0 to 5	-33.47072	25.31259	NCW	NA
017	Quartzite flakes	Artefacts	MSA	0 to 5	-33.4718	25.31397	NCW	NA
018	Historical artefacts, metal, bottles, brick	Artefacts	Historic	10 to 30	-33.47217	25.31554	NCW	NA
019	Upper grindstone, flakes, quartzite	Artefacts	LSA	0 to 5	-33.47298	25.31661	NCW	NA
020	Siltstone core, quartzite flake	Artefacts	MSA	0 to 5	-33.4733	25.31729	NCW	NA
021	Quartzite flakes	Artefacts	MSA	0 to 5	-33.47404	25.31778	NCW	NA
022	Quartzite flakes, retouched, hammerstone, historical metal, ceramics	Artefacts	LSA+MS, Historical	10 to 30	-33.47479	25.31817	NCW	NA
023	Quartzite flakes	Artefacts	MSA	0 to 5	-33.47604	25.31837	NCW	NA
024	Quartzite core and flake	Artefacts	MSA	0 to 5	-33.47602	25.31624	NCW	NA
025	Quartzite flakes	Artefacts	MSA	0 to 5	-33.47609	25.31441	NCW	NA
026	Quartzite flakes	Artefacts	MSA	0 to 5	-33.489405	25.293547	NCW	NA
027	Quartzite flakes	Artefacts	MSA	0 to 5	-33.498727	25.277358	NCW	NA
028	Old wheeled iron farm plough	Artefacts	Historic	0 to 5	-33.502965	25.275434	NCW	NA
029	Concrete tank	Structure	Modern	n/a	-33.511626	25.271672	NCW	NA
030	Quartzite flake	Artefacts	MSA	0 to 5	-33.510269	25.280755	NCW	NA
031	Concrete trough	Structure	Modern	n/a	-33.497748	25.291091	NCW	NA
032	Quartzite blade	Artefacts	MSA	0 to 5	-33.495361	25.294862	NCW	NA
033	Quartzite point	Artefacts	MSA	0 to 5	-33.483476	25.299191	NCW	NA



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034	Pink quartzite flakes and flake blanks	Artefacts	MSA	0 to 5	-33.47818649	25.30098763	NCW	NA
035	Quartzite core and flake	Artefacts	MSA	0 to 5	-33.47799462	25.30333587	NCW	NA
036	Early MSA small biface, quartzite and shale point	Artefacts	MSA	0 to 5	-33.47907222	25.30576212	NCW	NA
037	Quartzite point and larger flake	Artefacts	MSA	0 to 5	-33.4785214	25.31042562	NCW	NA
038	Quartzite flakes	Artefacts	MSA	5 to 10	-33.47903567	25.31246128	NCW	NA
039	Retouched quartzite flakes	Artefacts	MSA	0 to 5	-33.47759222	25.31500224	NCW	NA
040	Quartzite blade	Artefacts	MSA	0 to 5	-33.47705648	25.32234359	NCW	NA
041	Various quartzite flakes, cores	Artefacts	MSA	5 to 10	-33.4786128	25.32444947	NCW	NA
042	Broken siltstone UG, quartzite flakes	Artefacts	MSA, LSA	0 to 5	-33.48102964	25.32515613	NCW	NA
043	Quartzite flakes	Artefacts	MSA	0 to 5	-33.48246666	25.32279181	NCW	NA
044	Quartzite point, siltstone UG	Artefacts	LSA	0 to 5	-33.48102714	25.32090993	NCW	NA
045	Quartzite flakes	Artefacts	MSA	0 to 5	-33.48056282	25.31672604	NCW	NA
046	Quartzite core	Artefacts	MSA	0 to 5	-33.4821102	25.3145424	NCW	NA
047	Quartzite flakes, points, some retouch	Artefacts	MSA	5 to 10	-33.48333597	25.31520455	NCW	NA
048	Quartzite core and points	Artefacts	MSA	0 to 5	-33.48590057	25.3157338	NCW	NA
049	Quartzite flakes	Artefacts	MSA	0 to 5	-33.48694118	25.31320892	NCW	NA
050	Quartzite flakes, some pink coloured points	Artefacts	MSA	0 to 5	-33.48728769	25.31237921	NCW	NA
051	Elongated quartzite flake, point	Artefacts	MSA	0 to 5	-33.48792469	25.31042083	NCW	NA
052	Fine grained quartzite flakes, one retouched for hafting	Artefacts	LSA, MSA	5 to 10	-33.48695203	25.30884719	NCW	NA
053	Quartzite flakes, light coloured	Artefacts	MSA	0 to 5	-33.48504005	25.3102136	NCW	NA
054	Quartzite cores, one radial, flakes	Artefacts	MSA	10 to 30	-33.48264821	25.311511	NCW	NA
055	Retouched quartzite flakes	Artefacts	MSA	0 to 5	-33.48128102	25.30970959	NCW	NA
056	Quartzite flakes	Artefacts	MSA	0 to 5	-33.48171341	25.3079207	NCW	NA
057	Quartzite points	Artefacts	LSA	0 to 5	-33.48319775	25.30602442	NCW	NA
058	Radial core and point, quartzite	Artefacts	MSA	0 to 5	-33.48456558	25.30524082	NCW	NA



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4.3 Mapping and spatialisation of heritage resources

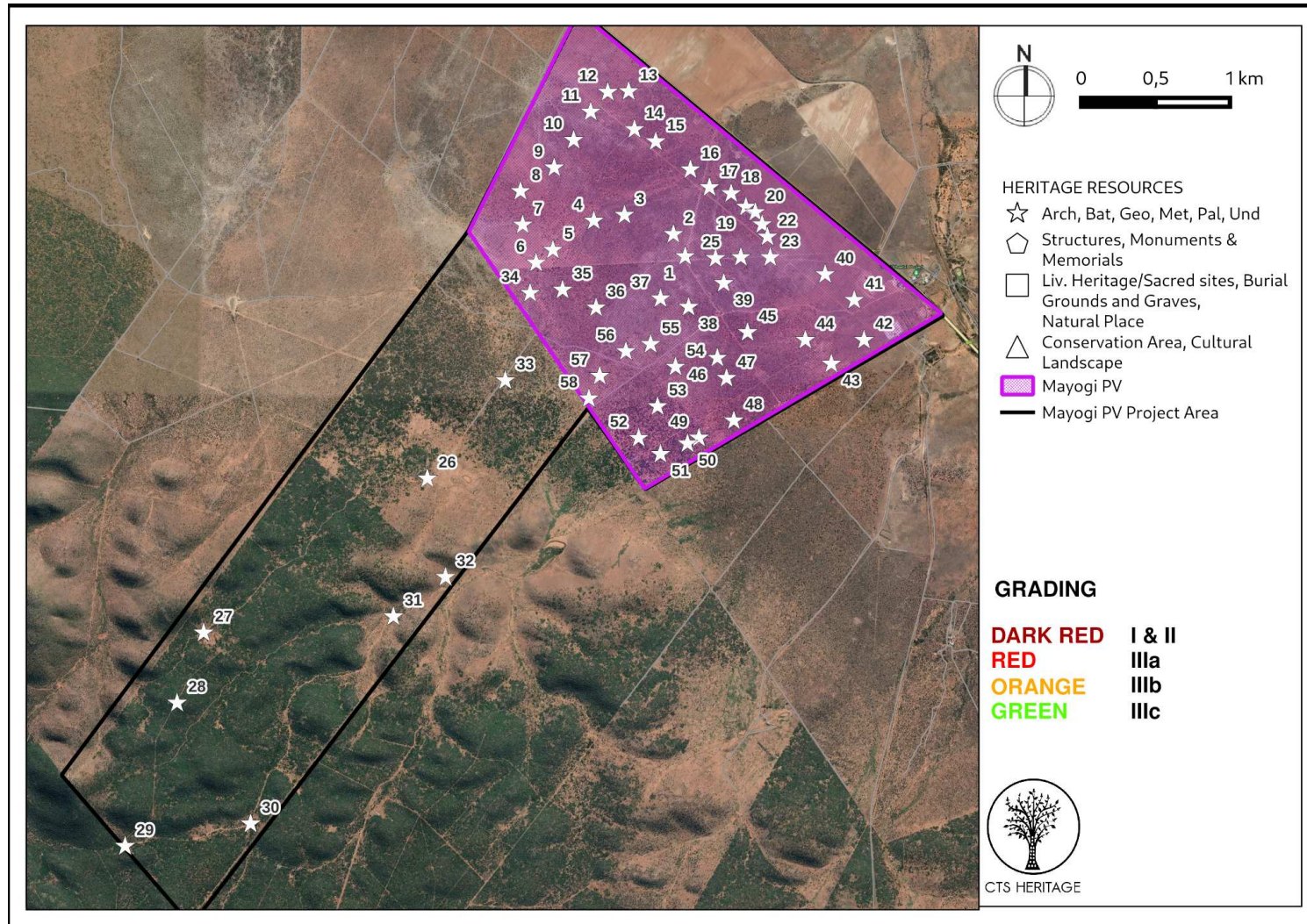
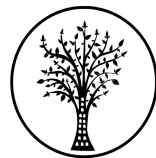


Figure 5.1: All heritage observations made within the development area



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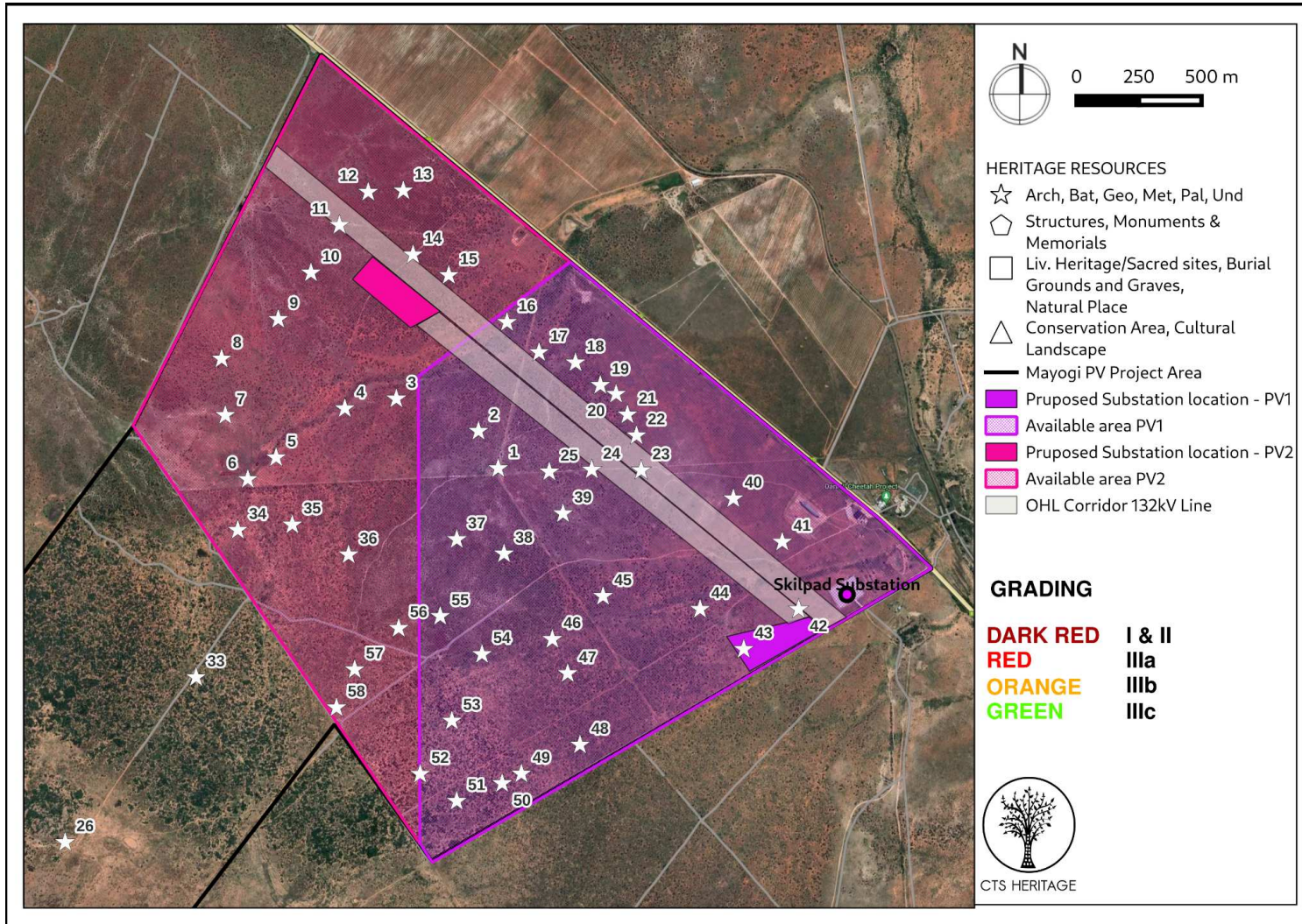


Figure 5.2: All heritage observations made within the development area



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5. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT

5.1 Assessment of impact to Heritage Resources

Due to the nature of heritage resources, impacts to archaeological and palaeontological heritage resources are unlikely to occur during the PLANNING, OPERATIONAL and DECOMMISSIONING phases of the project. Potential impacts to the cultural landscape throughout the OPERATIONAL phase are discussed in the section below that deals with Cumulative Impacts. The impacts discussed here pertain to the CONSTRUCTION phase of the project.

5.1.1 Cultural Landscape and VIA

To be included at the EIA Phase

5.1.2 Archaeology

No impact to significant archaeological or cultural heritage resources is anticipated.

5.1.3 Palaeontology

According to the PIA completed for this project (Butler, 2023), the loss of fossil heritage will have a negative impact. Only the site will be affected by the proposed development. The expected duration of the impact is assessed as potentially permanent to long term. In the absence of mitigation procedures, the damage or destruction of any palaeontological materials will be permanent. Impacts on palaeontological heritage during the construction phase could potentially occur. A negative medium Significance has been allocated to the proposed development.

A Medium Palaeontological Significance has been allocated to the Mayogi PV development. It is therefore considered that the proposed development will not lead to damaging impacts on the palaeontological resources of the area. The construction of the development may thus be permitted in its whole extent, as the development footprint is not considered sensitive in terms of palaeontological resources.



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5.2 Sustainable Social and Economic Benefit

To be included at the EIA Phase

5.3 Proposed development alternatives

Location Alternatives

No other location alternatives are being considered. Renewable Energy development in South Africa is highly desirable from a social, environmental and development point of view and a solar energy installation is more suitable for the site due to the high solar resource.

Reason for the location chosen:

This site is preferred due to the suitable climate, conditions and topography.

Proximity to the substation on the property and knowledge of an upgrading to the 132kV power line is also available. Based on the above site-specific attributes, the study area is considered highly preferred in terms of the development of a solar PV facility. As such, no property / location alternatives have been considered

Need and Desirability

- Increased surety of supply
- Lesser dependence on fossil fuel generated power
- Growing demand for electricity fueled by economic growth, lack of generation capacity by Eskom etc.
- REIPP program opportunities
- Need for cleaner electricity/ CDM project etc.
- Employment opportunities etc.

Technology Alternatives

No other activity alternatives are being considered. Renewable Energy development in South Africa is highly desirable from a social, environmental and development point of view.

SEF Alternatives

Design and layout alternatives will be considered and assessed as part of the EIA. These include alternatives for the PV area, Substation locations and also for the construction / laydown area.

juwi has indicated proposed locations for 2 x substations and 2 x alternatives, BESS, O&M Building and Laydown area including OHL, however they have also requested that the specialist consider the full corridor provided on either side of the 132kv line.



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Proposed: 2 plant layout – including 2 substation and OHL possibilities.

Proposed: additional 2 substation location and OHL possibilities.

Area to survey – full corridor in case none of the 4 substation locations are suitable.

To note that the substation area/location will be approximately 4ha and contain the laydown area, Substation and O&M buildings and BESS area (either Redox flow or Lithium technology).

No-Go Alternative

The ‘no-go’ alternative is the option of not undertaking the proposed SEF projects. Hence, if the ‘no go’ option is implemented, there would be no development. This alternative would result in no environmental impacts from the proposed project on the site or surrounding local area. It provides the baseline against which other alternatives are compared and will be considered throughout the report.

As limited heritage impacts are anticipated, there are no preferred alternatives from a heritage perspective.

5.4 Site Verification Statement

According to the DFFE Screening Tool analysis, the development area has Very High levels of sensitivity for impacts to palaeontological heritage and Low levels of sensitivity for impacts to archaeological and cultural heritage resources. The results of this assessment in terms of site sensitivity are summarised below:

- The cultural value of the broader area has some significance in terms of its sense of place and scenic qualities (Moderate)
- No significant archaeological resources were identified within the study area (Low)
- No highly significant palaeontological resources were identified within the development area however the sediments underlying the development area have very high palaeontological sensitivity (Moderate)

As per the findings of this assessment, and its supporting documentation, the outcome of the sensitivity verification disputes the results of the DFFE Screening Tool for Cultural Heritage and Palaeontology.

5.5 Cumulative Impacts

The cumulative impact of a development is the impact that development will have when its impact is added to the incremental impacts of other past, present or reasonably foreseeable future activities that will affect the same environment. It is important to note that the cumulative impact assessment for a particular project, like what is being done here, is not the same as an assessment of the impact of all surrounding projects. The cumulative assessment for this project is an assessment only of the impacts associated with this project, but seen in the



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context of all surrounding impacts. It is concerned with this project's contribution to the overall impact, within the context of the overall impact. But it is not simply the overall impact itself.

The most important concept related to a cumulative impact is that of an acceptable level of change to an environment. A cumulative impact only becomes relevant when the impact of the proposed development will lead directly to the sum of impacts of all developments causing an acceptable level of change to be exceeded in the surrounding area. If the impact of the development being assessed does not cause that level to be exceeded, then the cumulative impact associated with that development is not significant.

The Department of Forestry, Fisheries and the Environment (DFFE) requires compliance with a specified methodology for the assessment of cumulative impacts. The DFFE compliance for this project requires considering all renewable energy project applications within a 30 km radius.

In terms of cumulative impacts to heritage resources, impacts to archaeological and palaeontological resources are sufficiently dealt with on a case by case basis. The primary concern from a cumulative impact perspective would be to the cultural landscape. The cultural landscape is defined as the interaction between people and the places that they have occupied and impacted. In some places in South Africa, the cultural landscape can be more than 1 million years old where we find evidence of Early Stone Age archaeology (up to 2 million years old), Middle Stone Age archaeology (up to 200 000 years old), Later Stone Age archaeology (up to 20 000 years old), evidence of indigenous herder populations (up to 2000 years old) as well as evidence of colonial frontier settlement (up to 300 years old) and more recent agricultural layers.

Modern interventions into such landscapes, such as renewable energy development, constitute an additional layer onto the cultural landscape which must be acceptable in REDZ areas. The primary risk in terms of negative impact to the cultural landscape resulting from renewable energy development lies in the eradication of older layers that make up the cultural landscape. There are various ways that such impact can be mitigated.

The landscape within which the proposed project areas are located, is not worthy of formal protection as a heritage resource and has the capacity to accommodate such development from a heritage perspective.

In terms of impacts to heritage resources, it is preferred that this kind of infrastructure development is concentrated in one location and is not sprawled across an otherwise agricultural or rural landscape. The proposed development therefore may result in unacceptable risk or loss, and it may result in a change to the sense of place of the area due to its location some distance from other approved renewable energy facilities in this area.



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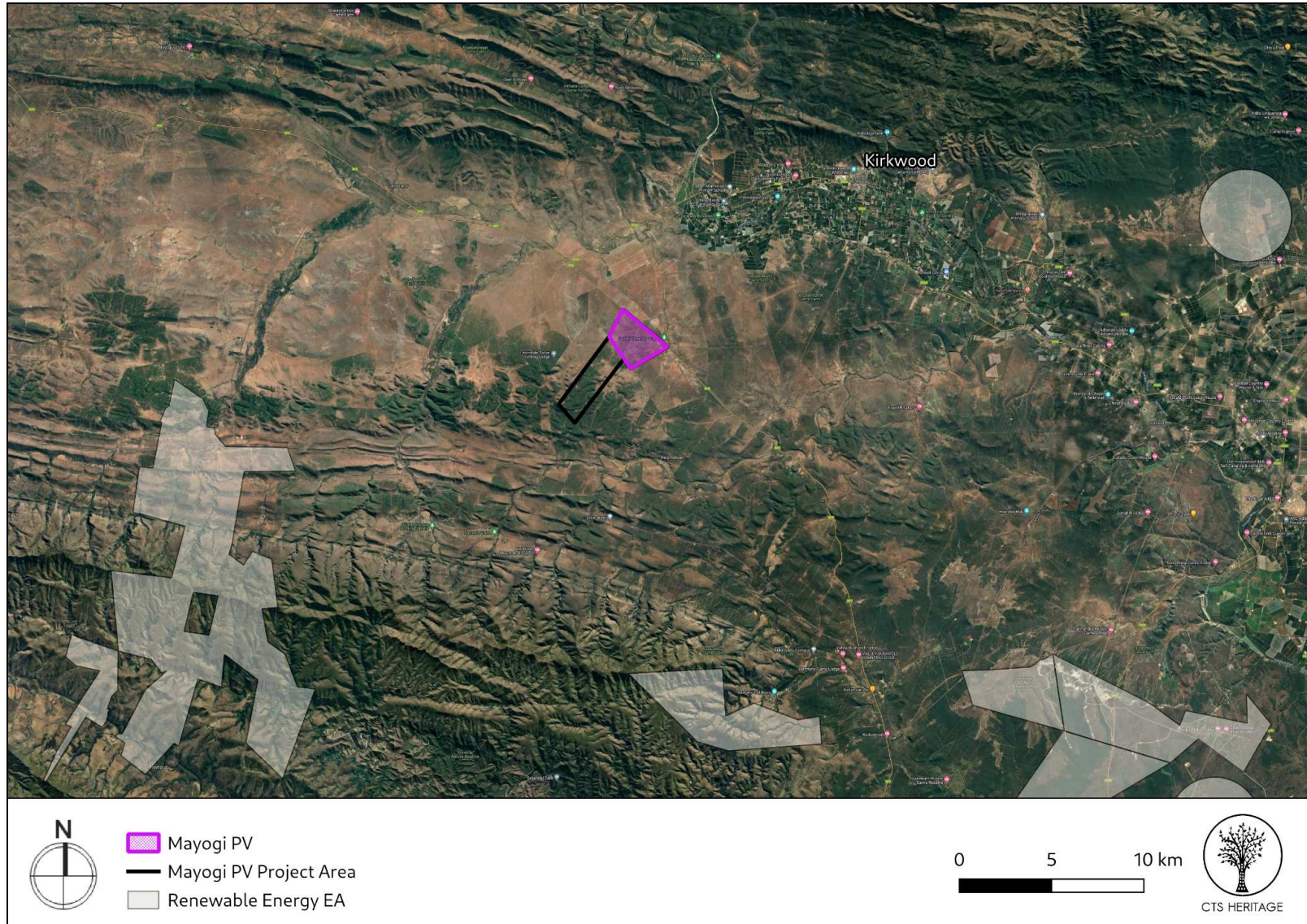


Figure 6: Approved REF projects within 20km of the proposed development area

Cedar Tower Services (Pty) Ltd t/a CTS Heritage
Bon Espirance, 238 Queens Road, Simons Town
Email info@ctsheritage.com Web <http://www.ctsheritage.com>



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6. RESULTS OF PUBLIC CONSULTATION

As this application is made in terms of NEMA, the public consultation on the HIA will take place with the broader public consultation process required for the Environmental Impact Assessment process and will be managed by the lead environmental consultants on the project.

7. CONCLUSION

The previous heritage studies that have been conducted in the broader area have identified isolated and scattered artefacts of the Early, Middle and Later Stone Age (Binneman, 2010; NID 7159). The findings of this assessment corroborate the characterisation of the area made by other specialists.

The field survey identified a number of isolated artefacts, none of which are dense enough to be considered an archaeological site. None of the archaeological observations made have sufficient scientific value to warrant their retention and as such, have been graded as Not Conservation-Worthy. The recording of their presence in this report is considered sufficient.

A Medium Palaeontological Significance has been allocated to the Mayogi PV development. It is therefore considered that the proposed development will not lead to damaging impacts on the palaeontological resources of the area. The construction of the development may thus be permitted in its whole extent, as the development footprint is not considered sensitive in terms of palaeontological resources.

Based on the outcomes of this assessment, it is unlikely that the proposed development will negatively impact on significant archaeological, palaeontological or cultural heritage resources. There is no objection to the proposed development.

8. RECOMMENDATIONS

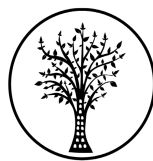
Based on the outcomes of this report, it is not anticipated that the proposed development will negatively impact on significant heritage resources on condition that:

- The ECO for this project must be informed that the Kirkwood Formation of the Uitenhage Group has a Very High Palaeontological Sensitivity.
- If Palaeontological Heritage is uncovered during surface clearing and excavations the Chance find Protocol attached should be implemented immediately. Fossil discoveries ought to be protected and the ECO/site manager must report to South African Heritage Resources Agency (SAHRA) (Contact details: Eastern Cape Provincial Heritage Resources Authority (ECPHRA), 16 Commissioner Street, East London, 5201, South Africa. Tel: 043 745 0888. Fax: 043 745 0889., email: info@ecphra.org.za; Web: <https://www.ecphra.org.za/>) so that mitigation (recording and collection) can be carried out.



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- Before any fossil material can be collected from the development site the specialist involved would need to apply for a collection permit from SAHRA. Fossil material must be housed in an official collection (museum or university), while all reports and fieldwork should meet the minimum standards for palaeontological impact studies proposed by SAHRA (2012).
- Although all possible care has been taken to identify sites of cultural importance during the investigation of the study area, it is always possible that hidden or subsurface sites could be overlooked during the assessment. If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils, burials or other categories of heritage resources are found during the proposed development, work must cease in the vicinity of the find and ECPHRA must be alerted immediately to determine an appropriate way forward.



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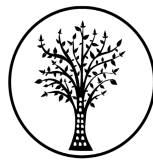
9. REFERENCES

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
104309	AIA Phase 1	Johan Binneman	01/05/2012	A Phase 1 Archaeological Impact Assessment for the proposed expansion of the existing agricultural activities on Falcon Ridge, Portion 274 of Strathomers estate no. 42, Sundays River Valley Municipality, Eastern Cape Province.
125198	Heritage Impact Assessment Specialist Reports	Stephan Gaigher	01/07/2013	HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED UPGRADING OF STORMWATER INFRASTRUCTURE IN VALENCIA, ADDO, SUNDAYS RIVER VALLEY MUNICIPALITY, EASTERN CAPE PROVINCE
136577	AIA Phase 1	Johan Binneman	05/09/2012	A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT FOR THE PROPOSED EXPANSION OF THE EXISTING AGRICULTURAL ACTIVITIES ON RIVER BEND CITRUS FARM, REMAINDER OF FARM 82 WOLVE KOP, PORTION 1 OF FARM 77 WELLSHAVEN AND PORTION 3 OF FARM 77 HONEYVALE, NEAR ADDO, SUNDAYS RIVER VALLEY MUNICIPALITY, EASTERN CAPE PROVINCE
136577	AIA Phase 1	Johan Binneman	05/09/2012	A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT FOR THE PROPOSED EXPANSION OF THE EXISTING AGRICULTURAL ACTIVITIES ON RIVER BEND CITRUS FARM, REMAINDER OF FARM 82 WOLVE KOP, PORTION 1 OF FARM 77 WELLSHAVEN AND PORTION 3 OF FARM 77 HONEYVALE, NEAR ADDO, SUNDAYS RIVER VALLEY MUNICIPALITY, EASTERN CAPE PROVINCE
136578	PIA Desktop	John E Almond	01/08/2012	PALAEONTOLOGICAL SPECIALIST STUDY: DESKTOP ASSESSMENT Expansion of River Bend Citrus Farm near Addo, Sundays River Valley Municipality, Eastern Cape
136578	PIA Desktop	John E Almond	01/08/2012	PALAEONTOLOGICAL SPECIALIST STUDY: DESKTOP ASSESSMENT Expansion of River Bend Citrus Farm near Addo, Sundays River Valley Municipality, Eastern Cape
174009	HIA Letter of Exemption	Johan Binneman	30/06/2014	LETTER OF RECOMMENDATION (WITH CONDITIONS) FOR THE EXEMPTION OF A FULL PHASE 1 ARCHAEOLOGICAL HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED SACE RANGER PHOTOVOLTAIC (SOLAR) PLANT NEAR UITENHAGE, EASTERN CAPE PROVINCE
175196	HIA Phase 1	Johan Binneman	01/04/2013	A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT FOR THE PROPOSED CLEARING OF LAND FOR AGRICULTURAL PURPOSES ON PANZI CITRUS FARM NEAR KIRKWOOD, DIVISION OF UITENHAGE, SUNDAYS RIVER VALLEY MUNICIPALITY, EASTERN CAPE PROVINCE
332977	Desktop	Mariagrazia	25/09/2015	CTS15_012 - Uitenhage Gasification Plant



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	Assessment	Galimberti, Kyla Bluff, Nicholas Wiltshire		
357420	Desktop Assessment	Mariagrazia Galimberti, Kyla Bluff, Nicholas Wiltshire	15/02/2016	Heritage Screener: CEN Hermitage Citrus and Storage Expansion Eastern Cape
357424	Desktop Assessment	Mariagrazia Galimberti, Kyla Bluff, Nicholas Wiltshire	15/02/2016	Heritage Screener: CEN Summerville Citrus and Storage Expansion Eastern Cape
357428	Desktop Assessment	Mariagrazia Galimberti, Kyla Bluff, Nicholas Wiltshire	25/02/2016	Heritage Screener: PPC Dubrody Citrus, Kirkwood
359574	HIA Phase 1	Karen Van Ryneveld	15/09/2014	Phase 1 Archaeological & Cultural Heritage Impact Assessment â€œ The Dassiesridge Wind Energy Facility (WEF), between Kirkwood and Uitenhage, Cacadu District, Eastern Cape, South Africa. 15 September 2014. Prepared by: Karen van Ryneveld (ArchaeoMaps). E-mail: kvanryneveld@gmail.com; Tel: 084 871 1064; Postal Address: Postnet Suite 239, Private Bag X3, Beacon Bay, 5205
359576	PIA Phase 1	John E. Almond	15/10/2014	PROPOSED DASSIESRIDGE WIND ENERGY FACILITY NEAR UITENHAGE, CACADU DISTRICT, EASTERN CAPE. By John E. Almond,
365749	AIA Phase 1	Johan Binneman	29/02/2016	PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENTS FOR THE PROPOSED CLEARING OF VEGETATION IN THREE AREAS TO ESTABLISH CITRUS ORCHARDS ON THE FARM BOSCHKRAAL NEAR KIRKWOOD, SUNDAYâ€™S RIVER VALLEY LOCAL MUNICIPALITY EASTERN CAPE PROVINCE
4307	AIA Phase 1	Lita Webley	11/06/2003	Addo Elephant National Park: Upgrading of Existing Tourist Road Network and Construction of Southern Access Road near Colchester - Phase 1 Archaeological Impact Assessment
6805	AIA Phase 1	Len van Schalkwyk, Elizabeth Wahl	01/09/2007	Heritage Impact Assessment of Gamma Grassridge Power Line Corridors and Substation, Eastern, Western and Northern Cape Provinces, South Africa
7159	AIA Phase 1	Johan	23/11/2010	A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT FOR THE PROPOSED



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		Binneman		EXPANSION OF AGRICULTURAL ACTIVITIES ON PORTION 20 OF FARM 84, LANDDROST VEEPLAATS, KIRKWOOD, SUNDAYS RIVER VALLEY MUNICIPALITY, EASTERN CAPE PROVINCE
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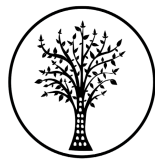
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APPENDICES



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APPENDIX 1: Archaeological Assessment (2022)



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APPENDIX 2: Palaeontological Assessment (2022)



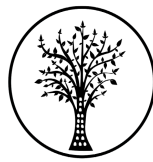
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APPENDIX 3: Heritage Screening Assessment



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APPENDIX 4: Specialist Declaration



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APPENDIX 5: Site Sensitivity Verification