CTS HERITAGE

HERITAGE SCREENER

CTS Reference Number:	**CTS21_017_1**
SAHRIS Ref	**Case 713**
Client:	**Savannah**
Date:	**July 2021**
Title:	**PROPOSED AMENDMENTS TO THE AUTHORISED RAINMAKER LOPERBERG WIND ENERGY FACILITIES NEAR MOLTENO IN THE EASTERN CAPE**

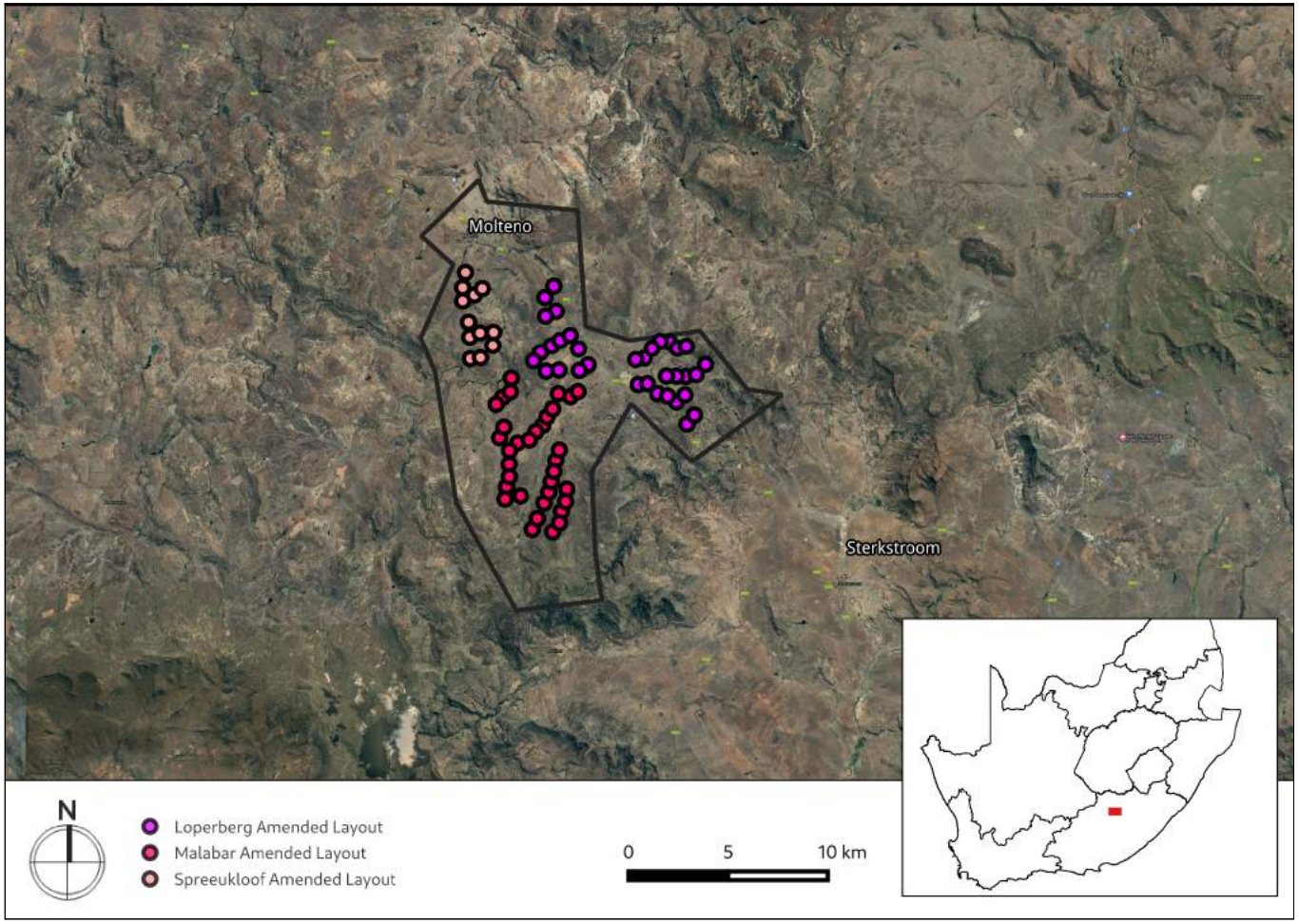

Figure 1a. Satellite map indicating the location of the proposed development in the Eastern Cape

Recommendation:	**RECOMMENDATION** **Based on the information available, and due to the reduced number of turbines in the amended layout, the impact has reduced in significance as compared to the original assessment. The proposed amendments will have zero to negligible effect on the significance of impacts identified in the original EIA process on condition that the recommendations from SAHRA articulated below are implemented.**

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1. Proposed Development Summary

Loperberg Wind Farm (Pty) Ltd received an Environmental Authorisation (EA) for the construction of the Loperberg Wind Energy Facility, including overhead power line and associated infrastructure on a site (the 'Property') near Molteno in the Eastern Cape Province (DEA ref: 12/12/20/1778/2) on 02 November 2012. The original EIA (which received environmental authorisation in May 2011) and associated specialist studies considered five wind energy facilities collectively referred to as the Dorper Wind Farm (DEA ref: 12/12/20/1778).

The Dorper Wind Farm consisted of five phases: Dorper Wind Energy Facility, Loperberg Wind Energy Facility, Malabar Wind Energy Facility, Spinning Head Wind Energy Facility and Spreeukloof Wind Energy Facility. The authorisation for the Loperberg Wind Energy Facility was received following the application to amend the Dorper Wind Farm authorisation (i.e. splitting of the project into phases) for the broader facility. Subsequent amendments have been granted for the project as follows:

- DFFE Ref: 12/12/20/1778/2 (dated 20 May 2013): Amendment to the properties specified for the project, as well as turbine specification changes.
- DFFE Ref: 12/12/20/1778/2/AM2 (dated 23 February 2015): Amendment to the EA validity (extension)
- DFFE Ref: 12/12/20/1778/2/AM3 (dated 13 June 2016): Amendment to the EA validity (extension)
- DFFE Ref: 12/12/20/1778/2/AM4 (dated 15 November 2018): Amendment to the EA validity (extension).

The proponent is now applying for a substantive amendment (Part II) towards amending the EA with the following amendments:

1. Amendment of turbine specifications, to be as follows:
    a. Wind turbine generators (up to 34 turbines), comprising a hub height of 'up to 120m' and rotor diameter of 'up to 176m', as opposed to the currently authorised number of 76, with hub height and rotor diameter of 120 and 125, respectively.
2. A reduction in the authorised number of turbines from the currently authorised 76 turbines, to reflect as 'up to 34' wind turbines. An updated layout will be provided for the amendment towards reflecting the removal of turbines from the currently authorised.
3. Update of the project description to reflect the revised 132KV grid connection line routing and substation location, respectively.
4. Removal of the specification of the facility capacity within the EA, to rather reflect the number of authorised turbines as per the revised layout.
5. Update of the project description and listed activity description with specific inclusion of the location and capacity specification of the Eskom substation and 400KV grid line capacity, which was not previously explicitly included in the Loperberg EA but was assessed as part of the Environmental Impact Assessment.
6. Extension of the Environmental Authorisation (EA) validity by an additional two years
7. Inclusion of Portion 6 of the Farm Paarde Kraal 64 in the project description, as assessed in the Loperberg EIA

The purpose of the facility will be to provide up to 190MW of power to be exported to the national energy grid. The project is intended to be bid into future rounds of the Department of Energy's (DoE) Renewable Energy Independent Power Producers Procurement (REIPPP) Programme. The Wind Energy Facility, including overhead powerline, substation infrastructure and all associated infrastructure will occupy and area of up to 5972ha, and include the following:

- Wind turbines and associated foundations to support the turbine towers.
- Underground electrical distribution cabling between the turbines.
- A shared substation with Spreeukloof or Penhoek Pass projects for evacuation to the national energy grid.
- Internal access roads
- Offices and workshop buildings for maintenance
- Laydown areas.

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2. Application References

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

3. Property Information

Latitude / Longitude	31°27'19.44"S 26°26'8.05"E
Erf number / Farm number	Bushman's Hoek No 3; Portion 7 of the Farm Paardekraal 64; Portion 1 and 3 of Farm Uitkeyk No 67; and Portion 1, 2,5 and 9 of Farm Cypher Gat No. 69;
Local Municipality	Enoch Mgijima Local Municipality
District Municipality	Chris Hani District Municipality
Province	Eastern Cape
Current Use	Wind Energy Facility
Current Zoning	Agriculture

4. Nature of the Proposed Development

Total Surface Area	5972ha
Depth of excavation (m)	TBA
Height of development (m)	HH of 120m and rotor diameters of 176m

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5. Category of Development

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

6. Additional Infrastructure Required for this Development

The Wind Energy Facility, including overhead powerline, substation infrastructure and all associated infrastructure will occupy and area of up to 5972ha, and include the following:

- Wind turbines and associated foundations to support the turbine towers.
- Underground electrical distribution cabling between the turbines.
- A shared substation with Spreeukloof or Penhoek Pass projects for evacuation to the national energy grid.
- Internal access roads
- Offices and workshop buildings for maintenance
- Laydown areas.

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

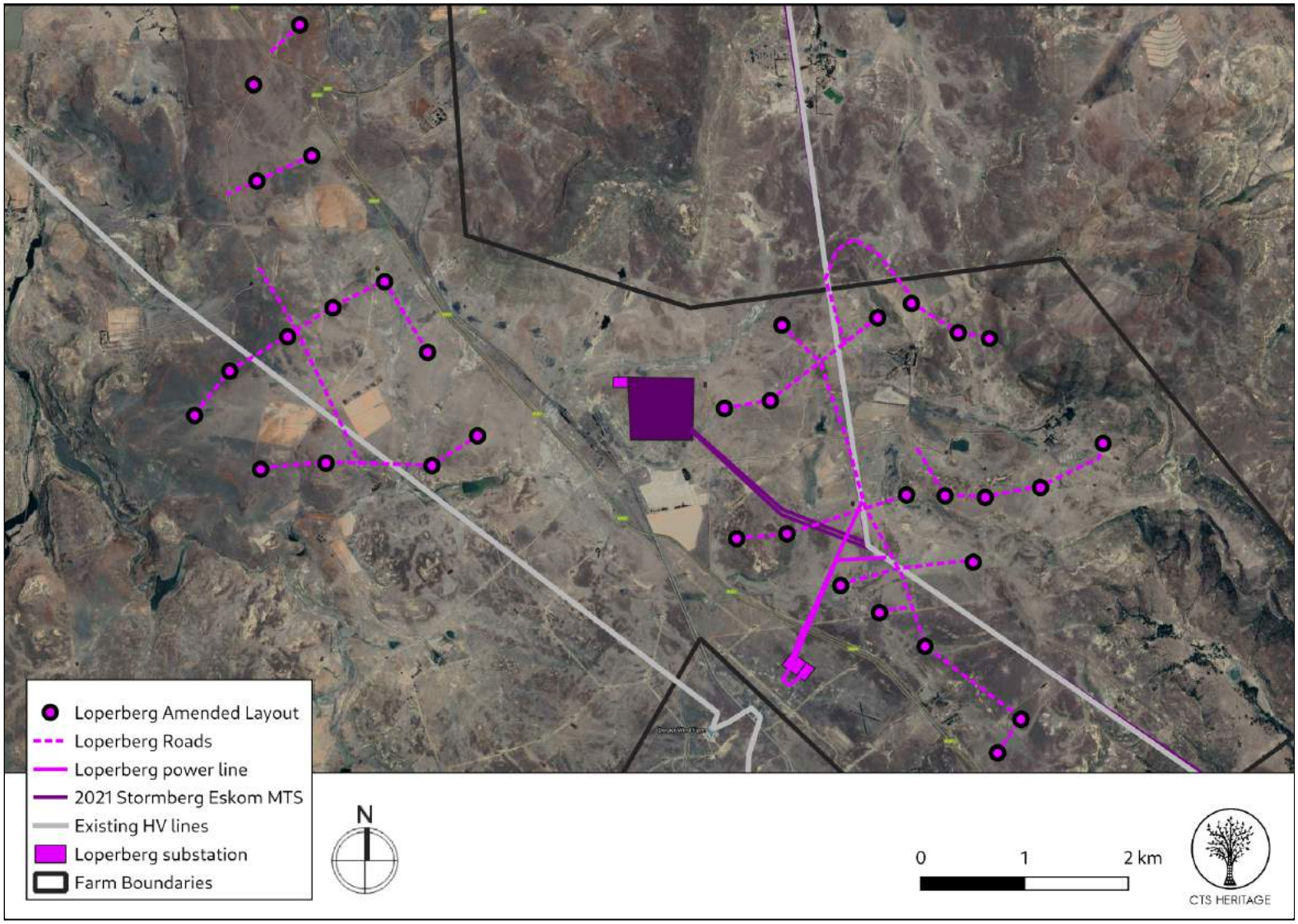

Figure 1b Overview Map. Satellite image (2019) indicating the proposed development area

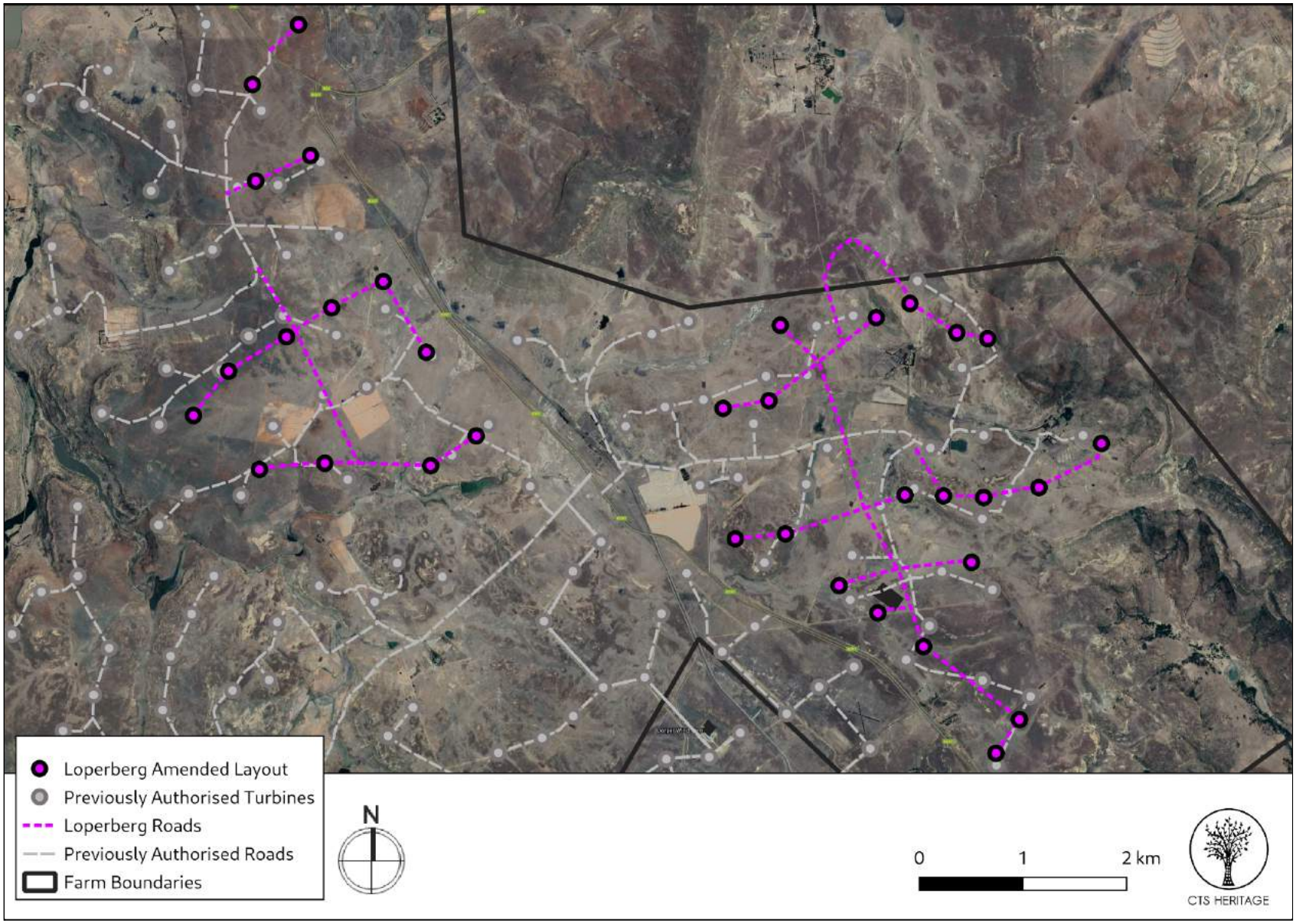

Figure 1c Overview Map. Satellite image (2019) indicating the proposed development amendments overlaying the authorised layout

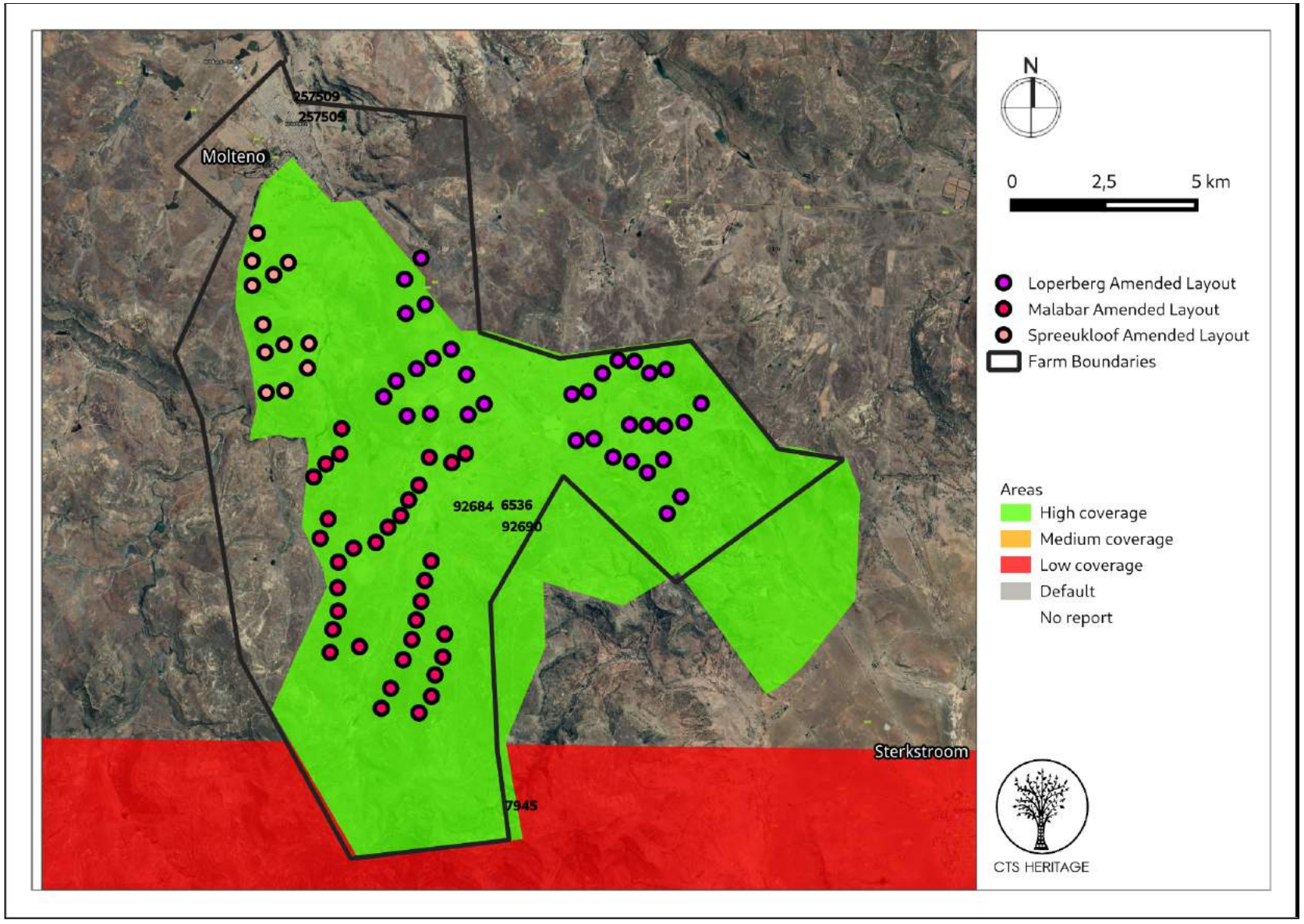

Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments surrounding the proposed development area within 15km, with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.

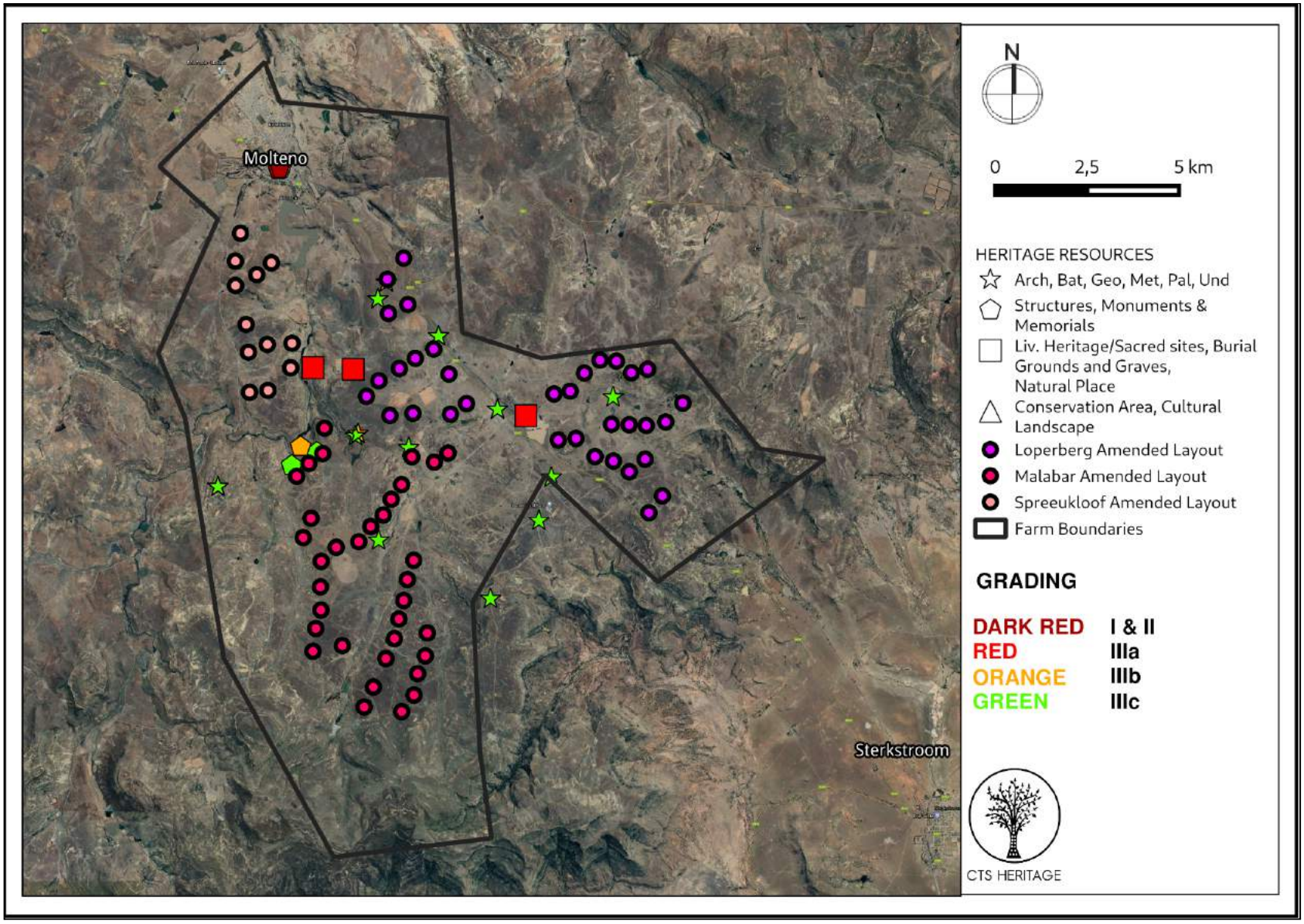

Figure 3. Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated. Please See Appendix 4 for full description of heritage resource types.

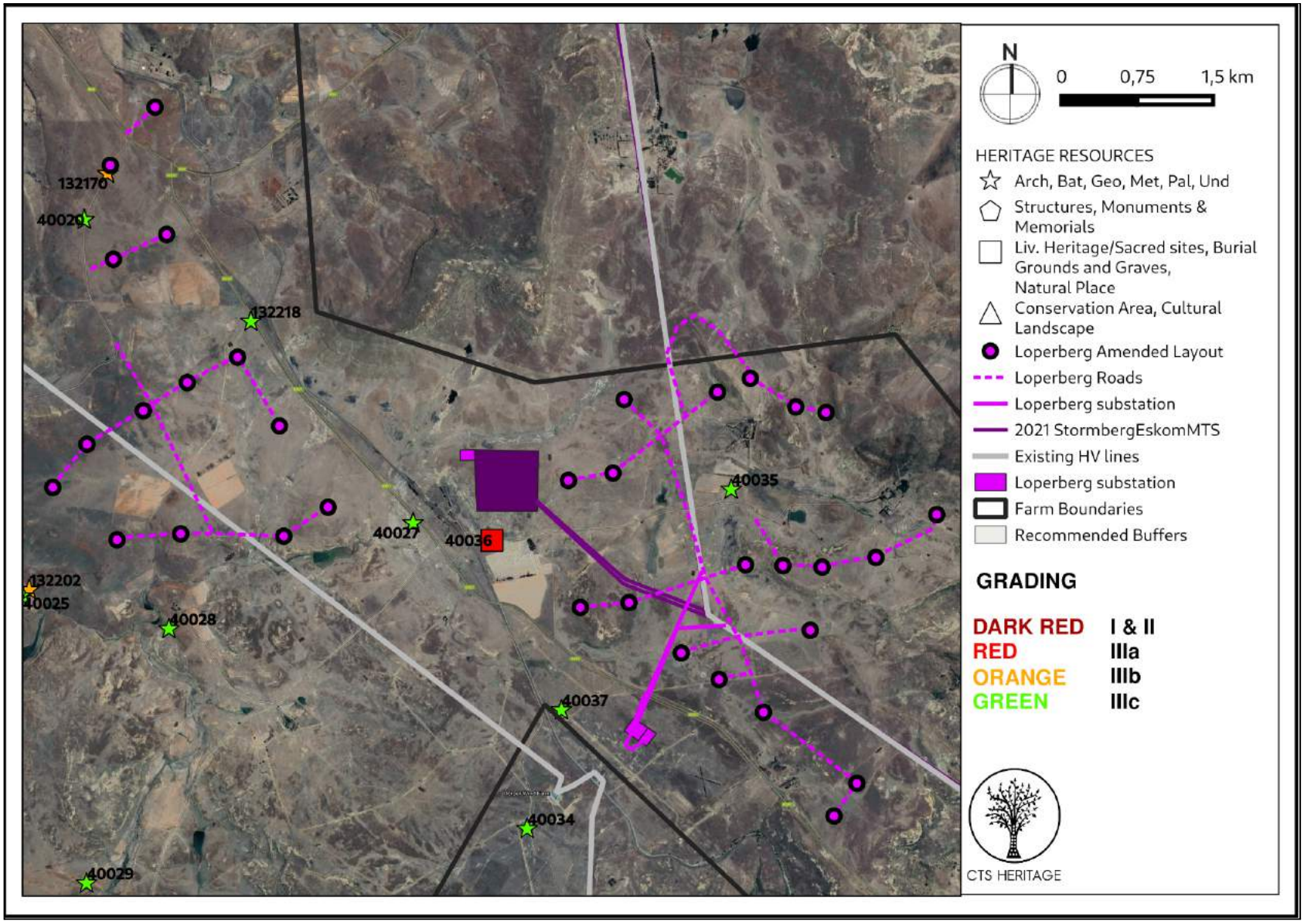

Figure 3a. Heritage Resources Map. Inset focusing on the Loperberg WEF amended layout

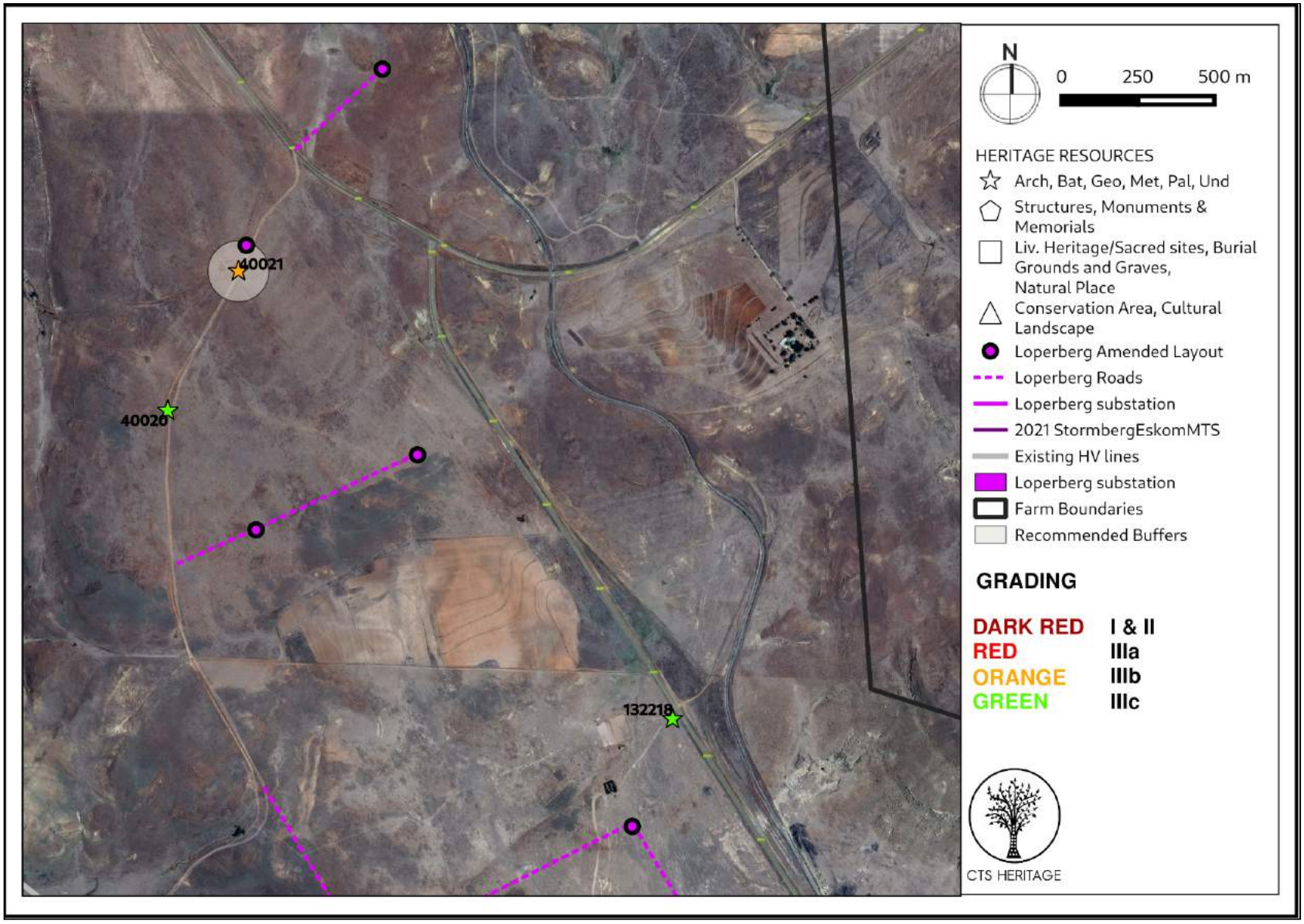

Figure 3b. Heritage Resources Map. Inset focussing on the Loperberg WEF amended layout and recommended buffers around site 40021

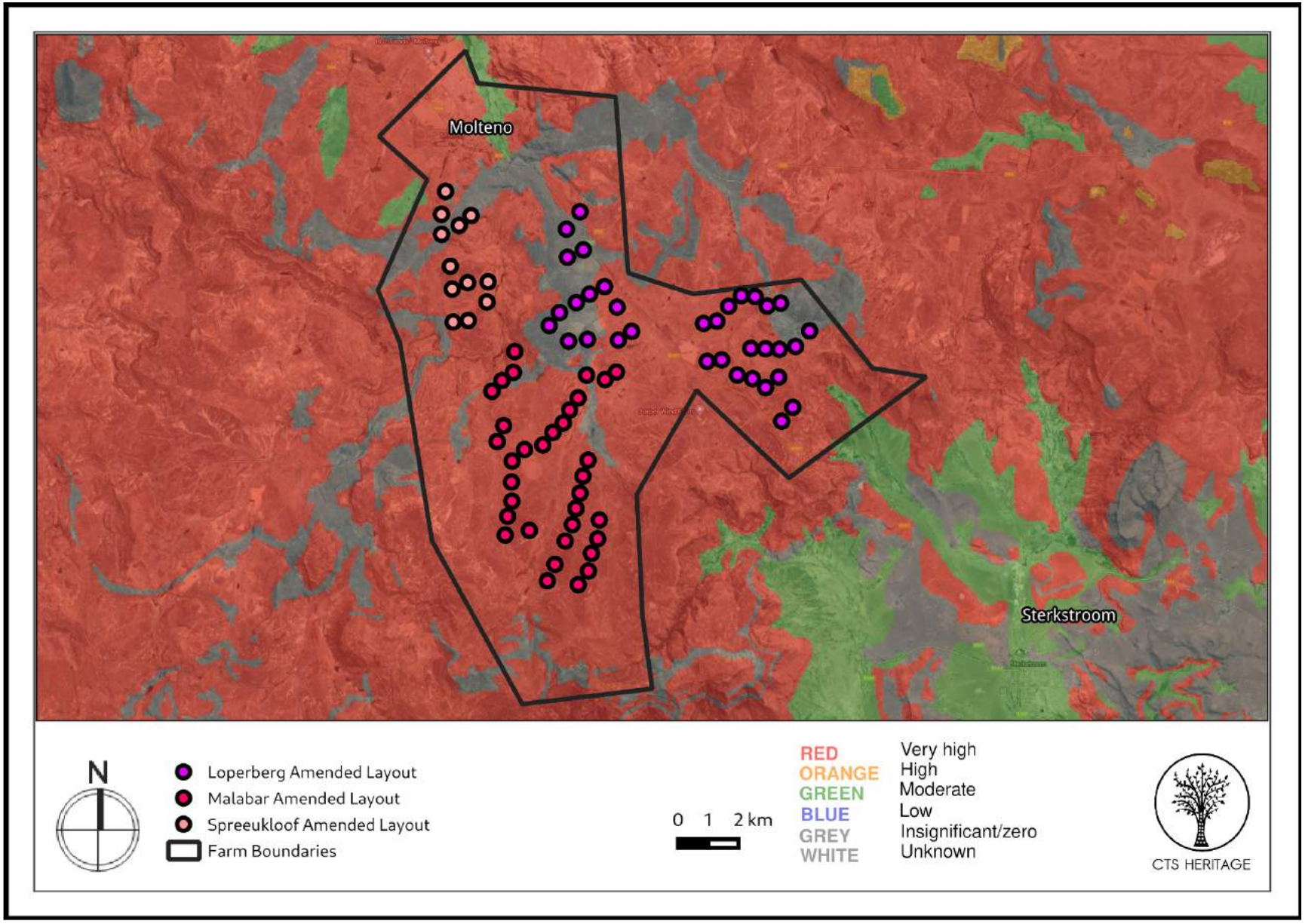

Figure 4a. Palaeosensitivity Map. Indicating varied fossil sensitivity underlying the study area. Please See Appendix 3 for a full guide to the legend.

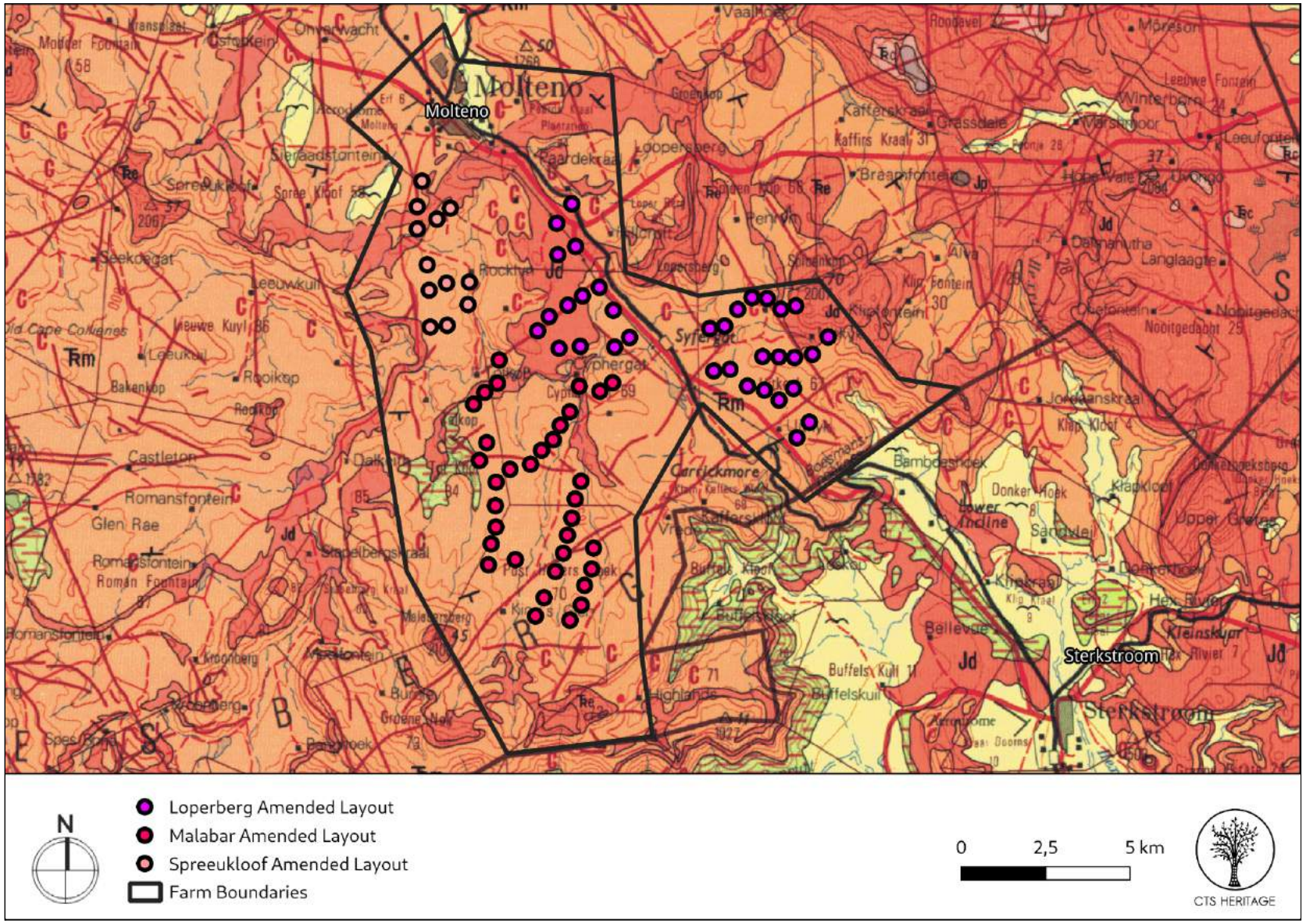

Figure 4b. Geology Map. Extract from the Council of GeoScience Geology Map tile 3126 for Queenstown indicating that the area proposed for development is underlain by Jd: Jurassic dolerite and TRm: Molteno Formation of the Karoo Supergroup

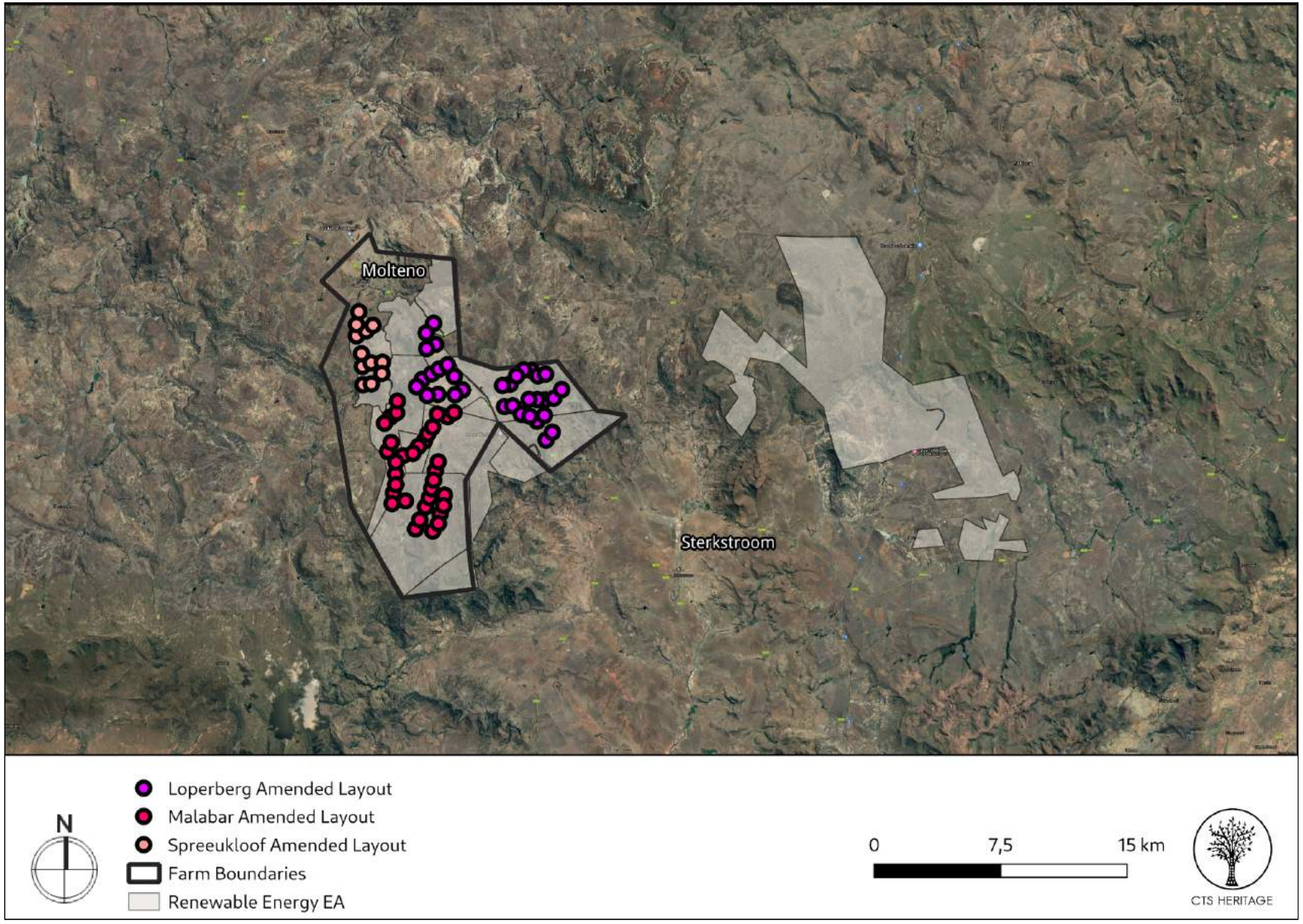

Figure 5. Renewable Energy Map. Approved Renewable Energy Facilities

8. Heritage Assessment

Background

This application is made in support of a proposed amendment to the proposed layout and turbine specifications of the authorised Loperberg WEF development which includes an amended layout, the powerline rerouting and the extension of validity amendment among others (see Development Summary in Section 1). The proposed road realignment adds approximately 535m to an already approved road. The original application for this WEF was issued to the Dorper Wind Energy Facility. Subsequently, the Dorper WEF was split into three Wind Energy projects - the Loperberg WEF, the Malabar WEF and the Spreeukloof WEF. Environmental Authorisation for the proposed development of the Loperberg Wind Farm to be located on various farms across the Eastern Cape has previously been issued (SAHRIS Ref: 713). As part of the original EIA process for the Dorper WEF, detailed heritage assessments were conducted that assessed impacts to archaeology, palaeontology and the cultural landscape. These assessments are reviewed below in order to determine the likely impact of the proposed WEF layout amendment on heritage resources.

Cultural Landscape and Built Environment Heritage

The area proposed for the development of the WEF is located in close proximity to the town of Molteno. The discovery of coal fields in the Stormberg Mountains in 1859 brought economic development to the area and resulted in the founding of Molteno town in 1874. At its founding, the town was officially named after an immigrant John Molteno, who had been born in London into a large Anglo-Italian family. Molteno became the first locally-elected leader of the Cape and fought against British imperial expansion in southern Africa. Several of the town's streets are similarly named after the members of the Cape's first locally-elected cabinet. Molteno became a primary source of coal for the region, supporting the expanding railway system at the Cape. The significance of the coal supply from Molteno reduced with the expansion of the railway into Natal and the Transvaal, and the associated access to coal fields located there.

In the 20th century, growing oppression by the Apartheid government was met by resistance that manifested in the town as protests and battles between Molteno residents and police. When the Group Areas Act was enforced across South Africa in the 1960s, the mixed neighbourhoods in Molteno were destroyed and the entire town was divided. Some mixed neighbourhoods such as Esigingqini had their residents evicted, others such as Nomonde were delimited by enforced segregation. As a result, the overall town suffered a severe economic and social decline. Resistance came to a head on 12 August 1985, when local residents and students confronted the Apartheid police in the area around the town's Ethiopian Church. In the resulting battle, three local Molteno activists were shot and killed (R. Mbango, S. Loliwe, N. Smile). The town commemorates the activists and the 12 August date annually, as "Molteno Day". The following years saw other community activists of the town lose their lives in the struggle. After the fall of Apartheid, the town erected a monument in what was named "Heroes Park" in the town centre. The monument honours the local Molteno "comrades in blood" who "... shall forever be remembered by the people of Molteno and South Africa as a whole". According to Binneman et al. “Most of the area (proposed for development) has been highly disturbed owing to farming activities such as the cultivation and ploughing of the lands, grazing by cattle and sheep, the construction of the farm and service roads, fences, telephone poles as well as Eskom power lines and substations.” While the proposed development of the WEF may impact on the sense of place associated with the Victorian town centre of Molteno, and Heroes Park, the anticipated impacts of the amended layout will be the same as the impacts assessed as part of the authorised layout.

Based on the information available, and due to the reduced number of turbines in the amended layout, the impact has reduced in significance as compared to the original assessment. The proposed amendments will have zero effect on the significance of impacts identified in the original EIA process on condition that the recommendations from SAHRA, repeated below, are implemented. In addition, no novel mitigation measures are required or recommended from a Cultural Landscape and Built Environment Heritage perspective.

Archaeology

As part of the original process followed for the Dorper Wind Energy Project and the authorized layout for the Loperberg WEF, Binneman, Booth and Higgitt conducted an archaeological impact assessment (2010, SAHRIS NID 6536). According to Binneman et al. (2010), "Surface scatters of Middle Stone Age (MSA) stone artefacts were observed over most of the area surveyed. These occur between the surface and approximately 50 cm below the current surface level. Later Stone Age (LSA) stone artefacts were also observed as surface scatters, but mainly occurred in density around the koppies and rocky outcrops. Stone walling and remains thereof occur on the landscape, mainly as dam walls, but also as remaining foundations of buildings. Stone walling was also observed in some rock shelters on the koppies/rocky outcrops, which may either have been used as stock kraals/pens and to provide shelter from the wind as occupation areas. Historical buildings and abandoned farmhouses with outside rubbish dumping areas containing stoneware and porcelain ceramics as well as glass, iron and copper also occur within the proposed area for development. Graveyards and informal burials were also observed within the proposed area, most of the burials are deemed to be older than 60 years… No other associated archaeological materials were observed with the stone artefact scatters, and it is unlikely that the stone artefacts would be in primary context. No sites containing any depth of deposit or other archaeological material associated with the stone tool artefacts and archaeological material were observed within the proposed area for development."

While Binneman et al. (2010) made no specific recommendations in their assessment, of relevance are the following recommendations included in the specialist archaeology assessment:

- If any of the existing buildings are planned to be demolished during the course of development, a built-environment heritage specialist or historian must be appointed to assess the significance of the built environment and historical buildings.
- The grave and burial areas must be identified and cordoned off prior to the commencement of development so that no negative impact and vandalism occurs.
- Once the exact coordinates for the wind turbines are established an archaeologist should be appointed to inspect the exact and immediate surrounding area for possible sites. Further recommendations may follow after the investigation.
- A professional archaeologist should be appointed during the construction phases to observe whether any depth of deposit and *in situ* archaeological material remains is uncovered.
- It is unknown whether any *in situ* archaeological sites/remains, and human remains would be uncovered during construction. However, if concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the South African Heritage Resources Agency (SAHRA) (021 642 4502) so that systematic and professional investigation/excavation can be undertaken (See Appendix A for a list of possible archaeological sites that maybe found in the area).
- Construction managers/foremen should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.

Based on the information available, and due to the reduced number of turbines in the amended layout, the impact has reduced in significance as compared to the original assessment. The proposed amendments will have zero effect on the significance of impacts identified in the original EIA process on condition that the recommendations from SAHRA, repeated below, are implemented. In addition, no novel mitigation measures are required or recommended from an archaeological perspective.

Palaeontology

The area proposed for the amended turbine layout is underlain by sediments of very high palaeontological sensitivity according to the SAHRIS Palaeosensitivity Map (Figure 4a). The sediments underlying the development consist of Jurassic Dolerite (zero palaeontological sensitivity) and the Molteno Formation of the Karoo Supergroup (very high palaeontological sensitivity). As part of the original EA process, a desktop palaeontological assessment was conducted by Dr John Almond (2010, SAHRIS NID 92684) and a Phase 1 Palaeontology field assessment was completed by Fourie (2012, SAHRIS NID 92690). According to Fourie (2012), "Sporadic overlying Elliot Formation is mapped in the southern and north eastern portions of the study area and minor underlying Burgersdorp Formation is mapped in the western and southern edges of the study area. The Molteno Formation is known to have the

richest Triassic (*c.* 220 million year old) fossil floras recorded anywhere in the world, as well as some of the oldest known dinosaur trackways. Several key fossil sites are already recorded within the Molteno Formation in the Molteno-Sterkstroom outcrop area." According to Fourie (2012), "Fossils such as plants, insects and dinosaur trackways were not observed due to the thick layer of topsoil and subsoil. Small Molteno outcrops were observed, but will not influence the placement of the wind turbines, but may be considered in the placement of the internal access roads and underground cabling." Fourie (2012) recommends that any significant fossils identified during the course of construction are recorded, removed and that associated geological data is collected. This can take place through the implementation of a Chance Fossil Finds Procedure.

Based on the information available, and due to the reduced number of turbines in the amended layout, the impact has reduced in significance as compared to the original assessment. The proposed amendments will have zero effect on the significance of impacts identified in the original EIA process on condition that the recommendations from SAHRA, repeated below, are implemented. n addition, no novel mitigation measures are required or recommended from a palaeontological perspective.

Cumulative Impacts

The proposed WEF amendment will form part of the infrastructure required for the approved Loperberg WEF. The approved Loperberg WEF is also located within a belt of approved renewable energy facilities (Figure 5). In terms of impacts to heritage resources, it is preferred that this kind of infrastructure development is concentrated in one location and is not sprawled across an otherwise culturally significant landscape. The construction of the proposed amended WEF is therefore unlikely to result in unacceptable risk or loss, nor will the proposed road realignment development result in a complete change to the sense of place of the area or result in an unacceptable increase in impact. There is therefore no increase or decrease anticipated to the cumulative impact of the facility due to the proposed amendment, and therefore remains considered acceptable from a heritage perspective.

SAHRA Comments on original application

In their response dated 10 July 2013, SAHRA made the following recommendations:

- Recording of the Stone Age scatters including the collection of an indicative sample must be undertaken for the identified sites. SAHRA will require that, in terms of s. 38 (4)(b&c) of the National Heritage Resources Act, the provisions of s. 35 apply, as appropriate. The specialist will require a collection permit from the Eastern Cape Provincial Heritage Resources Authority (ECPHRA).
- Monitoring by an archaeologist must be undertaken for the sites where a higher concentration of stone tools was recorded. A monitoring report must be then submitted to the ECPHRA for further comments.
- Monitoring by an archaeologist must be undertaken during vegetation clearing of sections which could not be surveyed because of the thick vegetation cover. A monitoring report must be then submitted to the ECPHRA for further comments.
- An ECO must be trained by a palaeontologist on the identification of fossil material and on procedures to follow if fossil material is identified during construction;
- Graves and burial grounds must be avoided by the proposed turbine sites. Any graves/burial grounds located close to the proposed sites must be properly fenced off, prior to development. The fence must be erected at least 5m from the graves and a buffer zone of 20-30m must be respected between the fence and the development.
- Where the identified graveyards are still in use, access must be allowed for communities to continue doing so, otherwise plans must be made to address their needs.
- A Phase 2 Impact Assessment needs to be undertaken for the historical graveyard (site 33). Recording and mapping of the graves including photographs should form part of the Phase 2 report, which should also give an indication of the state of the graves. A Heritage Management Plan should be included in this report.
- If any structure older than 60 years requires alteration or demolition a Conservation Architect must be contacted and a report sent to the Heritage Authority for comment. No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant heritage resources authority (s. 34 (1)).
- No development should occur within 50m from any stone walling sites. Stone walling sites should be fenced off if any development activities are meant to occur between 50 and 100m from the stone walling. If a buffer zone of 50m cannot be kept, a Phase 2 Impact Assessment must be undertaken. Where development occurs between 50 and 100m of a stone walling site, monitoring by an archaeologist is requested during construction and a report from monitoring activities must be submitted to the ECPHRA.

Conclusion

Based on the information available, and due to the reduced number of turbines in the amended layout, the impact has reduced in significance as compared to the original assessment. The proposed amendments including the powerline rerouting and the extension of validity amendment will have zero effect on the significance of impacts identified in the original EIA process on condition that the recommendations from SAHRA articulated above are implemented. From a heritage perspective the proposed amendment is therefore supported on condition that the recommendations from SAHRA articulated above are implemented. In addition, no novel mitigation measures are required or recommended from a heritage perspective.

Table 2: Impact Assessment Table

NATURE: Significant archaeological, built environment and palaeontological heritage resources may be impacted by the construction phase of the proposed amended layout								
		Archaeology, Built Environment and Cultural Landscape without Mitigation		**Archaeology, Built Environment and Cultural Landscape with Mitigation**		**Palaeontology without Mitigation**		**Palaeontology with Mitigation**
MAGNITUDE	**L (1)**	No significant archaeological or other heritage resources will be impacted by the proposed amended WEF layout	**L (1)**	No significant archaeological or other heritage resources will be impacted by the proposed amended WEF layout	**H (10)**	The sediments underlying the proposed development have very high palaeontological sensitivity.	**H (10)**	The sediments underlying the proposed development have very high palaeontological sensitivity.
DURATION	**H (5)**	Where manifest, the impact will be permanent.	**H (5)**	Where manifest, the impact will be permanent.	**H (5)**	Where manifest, the impact will be permanent.	**H (5)**	Where manifest, the impact will be permanent.
EXTENT	**L (1)**	Localised within the site boundary	**L (1)**	Localised within the site boundary	**L (1)**	Localised within the site boundary.	**L (1)**	Localised within the site boundary.
PROBABILITY	**L (1)**	Probability is low	**L (1)**	Probability is low	**P (3)**	It is probable that fossils Molteno formation would be impacted	**I (1)**	It is improbable that fossils Molteno formation would be impacted
SIGNIFICANCE	**L**	(1+5+1)x1=7 (Low)	**L**	(1+5+1)x1=7 (Low)	**L**	(10+5+1)x3=48 (Medium)	**L**	(10+5+1)x1=16 (Low)
STATUS		Neutral		Neutral		Negative		Neutral
REVERSIBILITY	**L**	Any impacts to heritage resources that do occur are irreversible	**L**	Any impacts to heritage resources that do occur are irreversible	**L**	Any impacts to heritage resources that do occur are irreversible	**L**	Any impacts to heritage resources that do occur are irreversible
IRREPLACEABLE LOSS OF RESOURCES?	**L**	Possible	**L**	Possible	**L**	Possible	**L**	Possible
CAN IMPACTS BE MITIGATED		Yes				Yes		

MITIGATION:

- Recording of the Stone Age scatters including the collection of an indicative sample must be undertaken for the identified sites. SAHRA will require that, in terms of s. 38 (4)(b&c) of the National Heritage Resources Act, the provisions of s. 35 apply, as appropriate. The specialist will require a collection permit from the Eastern Cape Provincial Heritage Resources Authority (ECPHRA).
- Monitoring by an archaeologist must be undertaken for the sites where a higher concentration of stone tools was recorded. A monitoring report must be then submitted to the ECPHRA for further comments.
- Monitoring by an archaeologist must be undertaken during vegetation clearing of sections which could not be surveyed because of the thick vegetation cover. A monitoring report must be then submitted to the ECPHRA for further comments.
- An ECO must be trained by a palaeontologist on the identification of fossil material and on procedures to follow if fossil material is identified during construction;
- Graves and burial grounds must be avoided by the proposed turbine sites. Any graves/burial grounds located close to the proposed sites must be properly fenced off, prior to development. The fence must be erected at least 5m from the graves and a buffer zone of 20-30m must be respected between the fence and the development.
- Where the identified graveyards are still in use, access must be allowed for communities to continue doing so, otherwise plans must be made to address their needs.
- A Phase 2 Impact Assessment needs to be undertaken for the historical graveyard (site 33). Recording and mapping of the graves including photographs should form part of the Phase 2 report, which should also give an indication of the state of the graves. A Heritage Management Plan should be included in this report.
- If any structure older than 60 years requires alteration or demolition a Conservation Architect must be contacted and a report sent to the Heritage Authority for comment. No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant heritage resources authority (s. 34 (1)).

• No development should occur within 50m from any stone walling sites. Stone walling sites should be fenced off if any development activities are meant to occur between 50 and 100m from the stone walling. If a buffer zone of 50m cannot be kept, a Phase 2 Impact Assessment must be undertaken. Where development occurs between 50 and 100m of a stone walling site, monitoring by an archaeologist is requested during construction and a report from monitoring activities must be submitted to the ECPHRA.
RESIDUAL RISK: • If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to ECPHRA so that systematic and professional investigation/ excavation can be undertaken.

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APPENDIX 1: List of heritage resources in proximity to the development area

Site ID	Site no	Full Site Name	Site Type	Grading	WEF
28164	9/2/062/0003	Magistrate's Court, Smith Street, Molteno	Building	Grade II	NA
88242	VRIES005	Vriesfontein Voerkraal 005	Building	Ungraded	Spreeukloof
40018	DOR001	Dorper 001	Artefacts	Grade IIIc	Malabar
40019	DOR002	Dorper 002	Artefacts	Grade IIIc	Malabar
40020	DOR003	Dorper 003	Artefacts	Grade IIIc	Loperberg
40021	DOR004	Dorper 004	Stone walling, Artefacts	Grade IIIb	Loperberg
40022	DOR005	Dorper 005	Artefacts	Grade IIIc	Loperberg
40024	DOR007	Dorper 007	Stone walling, Artefacts	Grade IIIb	Malabar
40025	DOR008	Dorper 008	Artefacts, Stone walling	Grade IIIc	Malabar
40027	DOR009	Dorper 009	Artefacts	Grade IIIc	Loperberg
40028	DOR011	Dorper 011	Artefacts	Grade IIIc	Malabar
40029	DOR012	Dorper 012	Artefacts	Grade IIIc	Malabar
40030	DOR013	Dorper 013	Artefacts, Building	Grade IIIc	Malabar
40031	DOR014	Dorper 014	Artefacts, Building	Grade IIIc	Malabar
40032	DOR015	Dorper 015	Building, Artefacts	Grade IIIb	Malabar
40033	DOR016	Dorper 016	Artefacts	Grade IIIc	Malabar

40034	DOR017	Dorper 017	Artefacts	Grade IIIc	Malabar
40035	DOR018	Dorper 018	Artefacts	Grade IIIc	Loperberg
40036	DOR019	Dorper 019	Artefacts, Burial Grounds & Graves	Grade IIIa	Loperberg
40037	DOR020	Dorper 020	Artefacts	Grade IIIc	Loperberg
40023	DOR006	Dorper 006	Burial Grounds & Graves	Grade IIIa	Loperberg
40026	DOR010	Dorper 010	Burial Grounds & Graves	Grade IIIa	Spreeukloof
135788	Heroes Park Memorial	Heroes Park Memorial, Molteno	Monuments & Memorials		Spreeukloof
132100	3126AD/ Wind/ Farm Spreeukloof/ Site 1	Surface scatter	Archaeological	Ungraded	Malabar
132101	3126AD/ Wind/ Farm Spreeukloof/ Site 2	Stone artefact scatter	Archaeological	Ungraded	Malabar
132163	3126AD/ Wind/ Farm Paarde Kraal/ Site 3	Stone artefacts	Archaeological	Ungraded	Loperberg
132170	3126AD/ Wind/ Farm Paarde Kraal/ Site 4	Stone wall remains	Archaeological	Ungraded	Loperberg
132171	3126AD/ Wind/ Farm Cyphergat/ Site 6	Informal burial grounds	Burial Grounds & Graves	Ungraded	Loperberg
132172	3126AD/ Wind/ Farm Cyphergat/ Site 10	Informal burial grounds	Burial Grounds & Graves	Ungraded	Spreeukloof
132202	3126AD/ Wind/ Farm Cyphergat/ Site 7	Stone walling	Archaeological	Ungraded	Malabar

132218	3126AD/ Wind/ Farm Cyphergat/ Site 5	Surface scatter	Archaeological	Ungraded	Loperberg
132219	3126AD/ Wind/ Farm Cyphergat/ Site 11	Surface scatter	Archaeological	Ungraded	Loperberg
132220	3126AD/ Wind/ Farm Uitekyk/ Site 33	Historical graveyard	Burial Grounds & Graves	Ungraded	Loperberg

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APPENDIX 2: Reference List

Heritage Impact Assessments				
Nid	**Report Type**	**Author/s**	**Date**	**Title**
6536	AIA Phase 1	Johan Binneman, Celeste Booth, Natasha Higgitt	19/08/2010	A Phase 1 AIA for the proposed Dorper Wind Energy Facility on a site near Molteno, CHDM, Eastern Cape Province
92684	PIA Desktop	John E Almond	01/07/2010	Dorper Wind Energy Facility near Molteno, Inkwanca Local Municipality, Eastern Cape Province
92690	PIA Phase 1	Heidi Fourie	17/08/2012	Phase 1 palaeontological impact assessment, Dorper Wind Energy Facility, Molteno, Eastern Cape

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APPENDIX 3 - Keys/Guides

Key/Guide to Acronyms

AIA	Archaeological Impact Assessment
DARD	Department of Agriculture and Rural Development (KwaZulu-Natal)
DEFF	Department of Environment, Forest and Fisheries (National)
DEADP	Department of Environmental Affairs and Development Planning (Western Cape)
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism (Eastern Cape)
DEDECT	Department of Economic Development, Environment, Conservation and Tourism (North West)
DEDT	Department of Economic Development and Tourism (Mpumalanga)
DEDTEA	Department of economic Development, Tourism and Environmental Affairs (Free State)
DENC	Department of Environment and Nature Conservation (Northern Cape)
DMR	Department of Mineral Resources (National)
GDARD	Gauteng Department of Agriculture and Rural Development (Gauteng)
HIA	Heritage Impact Assessment
LEDET	Department of Economic Development, Environment and Tourism (Limpopo)
MPRDA	Mineral and Petroleum Resources Development Act, no 28 of 2002
NEMA	National Environmental Management Act, no 107 of 1998
NHRA	National Heritage Resources Act, no 25 of 1999
PIA	Palaeontological Impact Assessment
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
VIA	Visual Impact Assessment

Full guide to Palaeosensitivity Map legend

	RED:	VERY HIGH - field assessment and protocol for finds is required
	ORANGE/YELLOW:	HIGH - desktop study is required and based on the outcome of the desktop study, a field assessment is likely
	GREEN:	MODERATE - desktop study is required
	BLUE/PURPLE:	LOW - no palaeontological studies are required however a protocol for chance finds is required
	GREY:	INSIGNIFICANT/ZERO - no palaeontological studies are required
	WHITE/CLEAR:	UNKNOWN - these areas will require a minimum of a desktop study.

CTS HERITAGE

APPENDIX 4 - Methodology

The Heritage Screener summarises the heritage impact assessments and studies previously undertaken within the area of the proposed development and its surroundings. Heritage resources identified in these reports are assessed by our team during the screening process.

The heritage resources will be described both in terms of **type**:

- Group 1: Archaeological, Underwater, Palaeontological and Geological sites, Meteorites, and Battlefields
- Group 2: Structures, Monuments and Memorials
- Group 3: Burial Grounds and Graves, Living Heritage, Sacred and Natural sites
- Group 4: Cultural Landscapes, Conservation Areas and Scenic routes

and **significance** (Grade I, II, IIIa, b or c, ungraded), as determined by the author of the original heritage impact assessment report or by formal grading and/or protection by the heritage authorities.

Sites identified and mapped during research projects will also be considered.

DETERMINATION OF THE EXTENT OF THE INCLUSION ZONE TO BE TAKEN INTO CONSIDERATION

The extent of the inclusion zone to be considered for the Heritage Screener will be determined by CTS based on:

- the size of the development,
- the number and outcome of previous surveys existing in the area
- the potential cumulative impact of the application.

The inclusion zone will be considered as the region within a maximum distance of 50 km from the boundary of the proposed development.

DETERMINATION OF THE PALAEONTOLOGICAL SENSITIVITY

The possible impact of the proposed development on palaeontological resources is gauged by:

- reviewing the fossil sensitivity maps available on the South African Heritage Resources Information System (SAHRIS)
- considering the nature of the proposed development
- when available, taking information provided by the applicant related to the geological background of the area into account

DETERMINATION OF THE COVERAGE RATING ASCRIBED TO A REPORT POLYGON

Each report assessed for the compilation of the Heritage Screener is colour-coded according to the level of coverage accomplished. The extent of the surveyed coverage is labeled in three categories, namely low, medium and high. In most instances the extent of the map corresponds to the extent of the development for which the specific report was undertaken.

Low coverage will be used for:

- desktop studies where no field assessment of the area was undertaken;
- reports where the sites are listed and described but no GPS coordinates were provided.
- older reports with GPS coordinates with low accuracy ratings;
- reports where the entire property was mapped, but only a small/limited area was surveyed.
- uploads on the National Inventory which are not properly mapped.

Medium coverage will be used for

- reports for which a field survey was undertaken but the area was not extensively covered. This may apply to instances where some impediments did not allow for full coverage such as thick vegetation, etc.
- reports for which the entire property was mapped, but only a specific area was surveyed thoroughly. This is differentiated from low ratings listed above when these surveys cover up to around 50% of the property.

High coverage will be used for

- reports where the area highlighted in the map was extensively surveyed as shown by the GPS track coordinates. This category will also apply to permit reports.

RECOMMENDATION GUIDE

The Heritage Screener includes a set of recommendations to the applicant based on whether an impact on heritage resources is anticipated. One of three possible recommendations is formulated:

(1) The heritage resources in the area proposed for development are sufficiently recorded - The surveys undertaken in the area adequately captured the heritage resources. There are no known sites which require mitigation or management plans. No further heritage work is recommended for the proposed development.

This recommendation is made when:

- enough work has been undertaken in the area
- it is the professional opinion of CTS that the area has already been assessed adequately from a heritage perspective for the type of development proposed

(2) The heritage resources and the area proposed for development are only partially recorded - The surveys undertaken in the area have not adequately captured the heritage resources and/or there are sites which require mitigation or management plans. Further specific heritage work is recommended for the proposed development.

This recommendation is made in instances in which there are already some studies undertaken in the area and/or in the adjacent area for the proposed development. Further studies in a limited HIA may include:

- improvement on some components of the heritage assessments already undertaken, for instance with a renewed field survey and/or with a specific specialist for the type of heritage resources expected in the area
- compilation of a report for a component of a heritage impact assessment not already undertaken in the area

- undertaking mitigation measures requested in previous assessments/records of decision.

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

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

APPENDIX 5 -Summary of Specialist Expertise

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

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

Since 2016, Jenna has drafted over 70 Heritage Impact Assessments throughout South Africa.