CTS HERITAGE

HERITAGE SCREENER

CTS Reference Number:	**CTS22_065**
SAHRIS Reference:	**15635**
Client:	**Savannah Environmental (Pty) Ltd**
Date:	**March 2022**
Title:	**HERITAGE SCREENING ASSESSMENT FOR THE PROPOSED AMENDMENT TO THE LICHTENBURG 3 PV FACILITY, NORTH WEST PROVINCE**

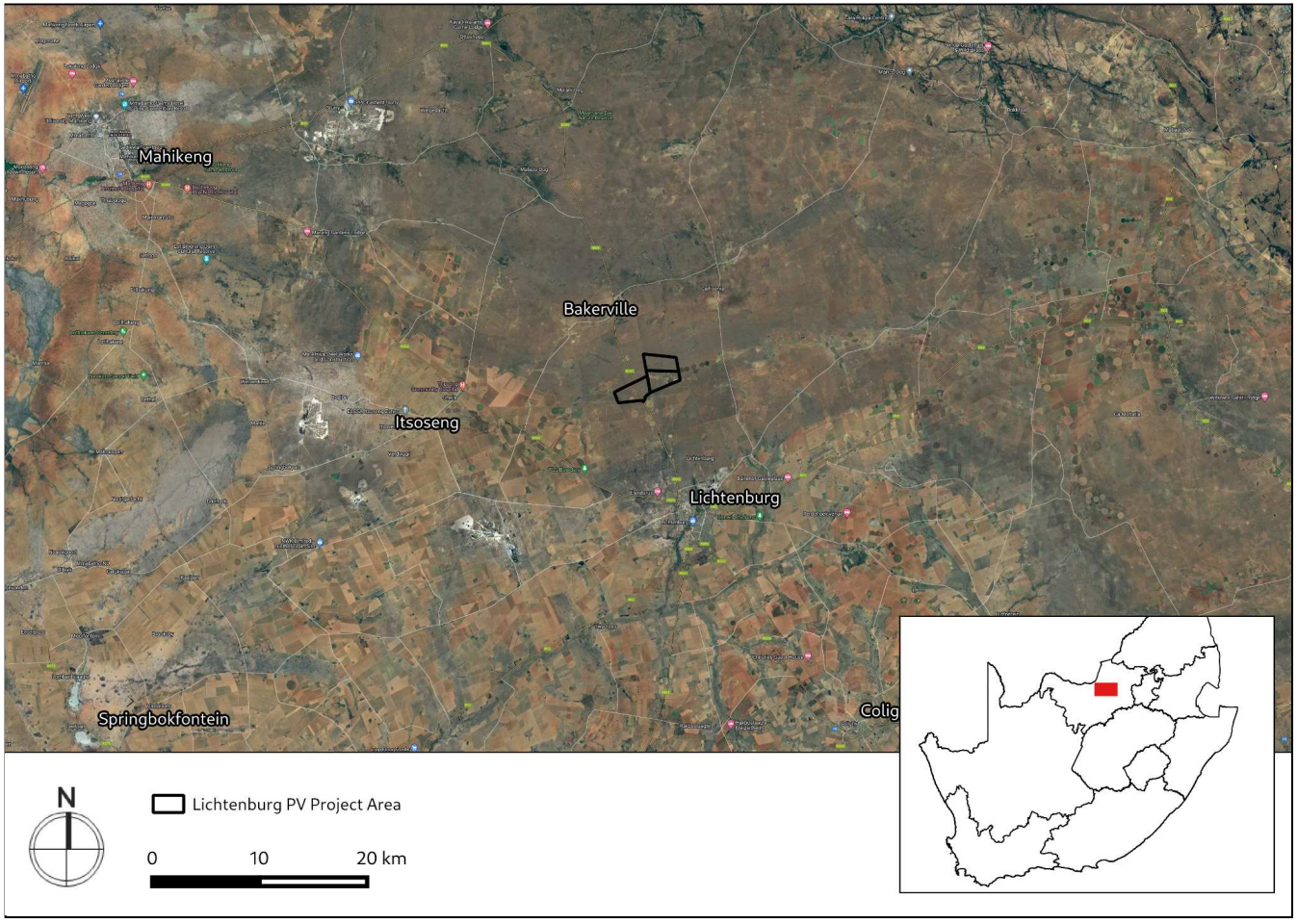

Figure 1a. Satellite map indicating the location of the proposed development in the North West Province

RECOMMENDATION

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.

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1. Proposed Development Summary

The authorised ABO Wind Lichtenburg 3 PV solar energy facility ('the project') is located 10km north of Lichtenburg and 7km south-east of Bakerville in the North West Province. The project is located within Ward 16 of the Ditsobotla Local Municipality and the Ngaka Modiri Molema District Municipality in the North West Province. The development footprint of the solar energy facility is located on the Remaining Extent of Portion 2 of Farm Zamenkomst No. 04. It is within this property that the project will be constructed and operated.

The following infrastructure was authorised for the project by DFFE, as fully assessed within the Environmental Impact Assessment (EIA) process:

- Photovoltaic modules with a net generation (contracted) capacity of 100MW;
- On-site 88/132kV substation;
- Mounting structures (fixed tilt/static, single-axis or double-axis tracking systems) for the PV arrays and related foundations;
- DC/AC Inverters, LV/MV power transformers and internal electrical reticulation (underground cabling);
- A new 88/132kV overhead power line from the on-site substation to the Mmabatho / Watershed DS 1 88kV Power Line;
- Access and internal road network;
- Temporary laydown area;
- Auxiliary buildings (gate-house and security, control centre, office, two warehouses, canteen & visitors centre, rainwater tanks, etc);
- Perimeter fencing; and
- Battery Energy Storage System (BESS), with a capacity of up to 500MW/500MWh, an extent of no more than 5ha, and a maximum height of 3.5m[1].

The amendment being applied for through this process relates to the following:

1. consideration of Grid Connection Corridor Alternative 2 as the preferred grid connection corridor. Furthermore, it is requested that the DFFE considers an extension to this corridor such that the proposed collector substation complex on Lichtenburg 3 PV is located within the corridor;
2. a change in the location of the step-up/on-site substation;
3. change in the capacity of the step-up/on-site substation from 88/132kV to 33/132kV; and
4. a substitution of the wording, *'a new 132kV overhead power line from the on-site substation to the Mmabatho/Watershed DS 1 88kV power line'*, with *'a 132kV power line from the collector substation complex to the Eskom Watershed Substation'.*

Considering the above, the amendments are proposed within the authorised footprint of Lichtenburg 3 PV. In addition, the proposed location of the collector (step-up/on-site) substation and extension to the grid connection corridor Alternative 2 for Lichtenburg 3 PV are proposed within an area that was assessed by Specialists during the EIA process. The reason for the extension to this corridor is on the basis that the location of the step-up/on-site substation for Lichtenburg 3 PV is being moved from its authorised location to a new location within the authorised footprint of the project as part of the proposed collector substation complex for all 3 projects. The change in the location of the substation is to collect the electricity from each of the three projects at one location (with a combined footprint of up to 6.92ha), the collector substation complex from which electricity will be transmitted to the Eskom Watershed Substation via a 132kV power line.

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2. Application References

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

3. Property Information

Latitude / Longitude	26° 1'55.92"S 26° 7'18.80"E
Erf number / Farm number	Portion 6 of the Farm Zamenkomst No. 4 and Remainder of Portion 04 of the Farm Houthaaldoorns No. 02
Local Municipality	Ditsobotla Local Municipality
District Municipality	Ngaka Modiri Molema District Municipality
Province	North West Province
Current Use	Agriculture with approved PV facility
Current Zoning	Agriculture

4. Nature of the Proposed Development

Total Area	NA
Depth of excavation (m)	NA
Height of development (m)	NA

5. Category of Development

x	**Triggers: Section 38(8) of the National Heritage Resources Act**
	Triggers: Section 38(1) of the National Heritage Resources Act
	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-
x	a) exceeding 5 000m^2 in extent
	b) involving three or more existing erven or subdivisions thereof
	c) involving three or more erven or divisions thereof which have been consolidated within the past five years
	4. Rezoning of a site exceeding 10 000m^2
	5. Other (state):

6. Additional Infrastructure Required for this Development

NA

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

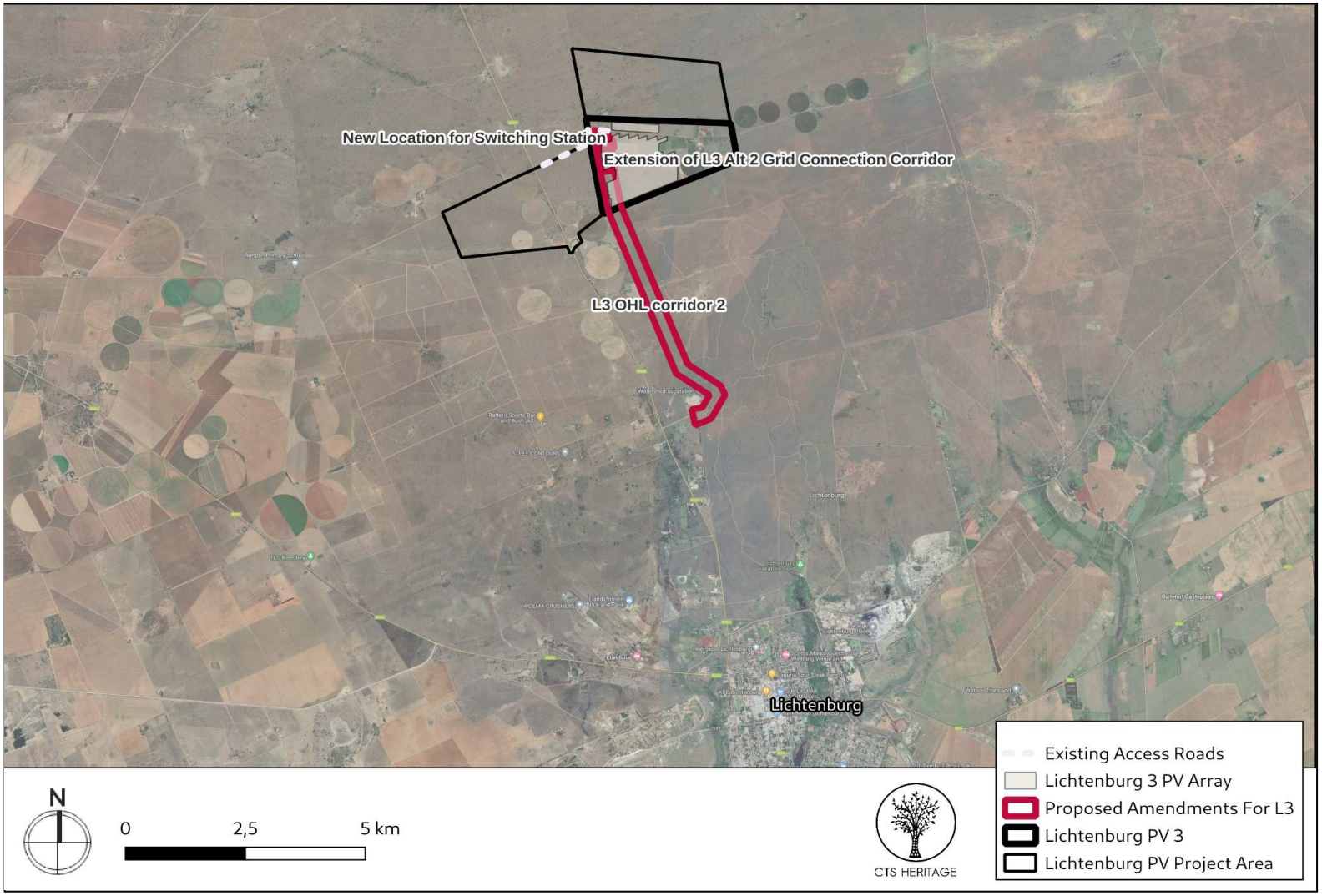

Figure 1b. Overview Map. Satellite image from GoogleEarth indicating the proposed development amendments relative to the approved Lichtenburg PV 3

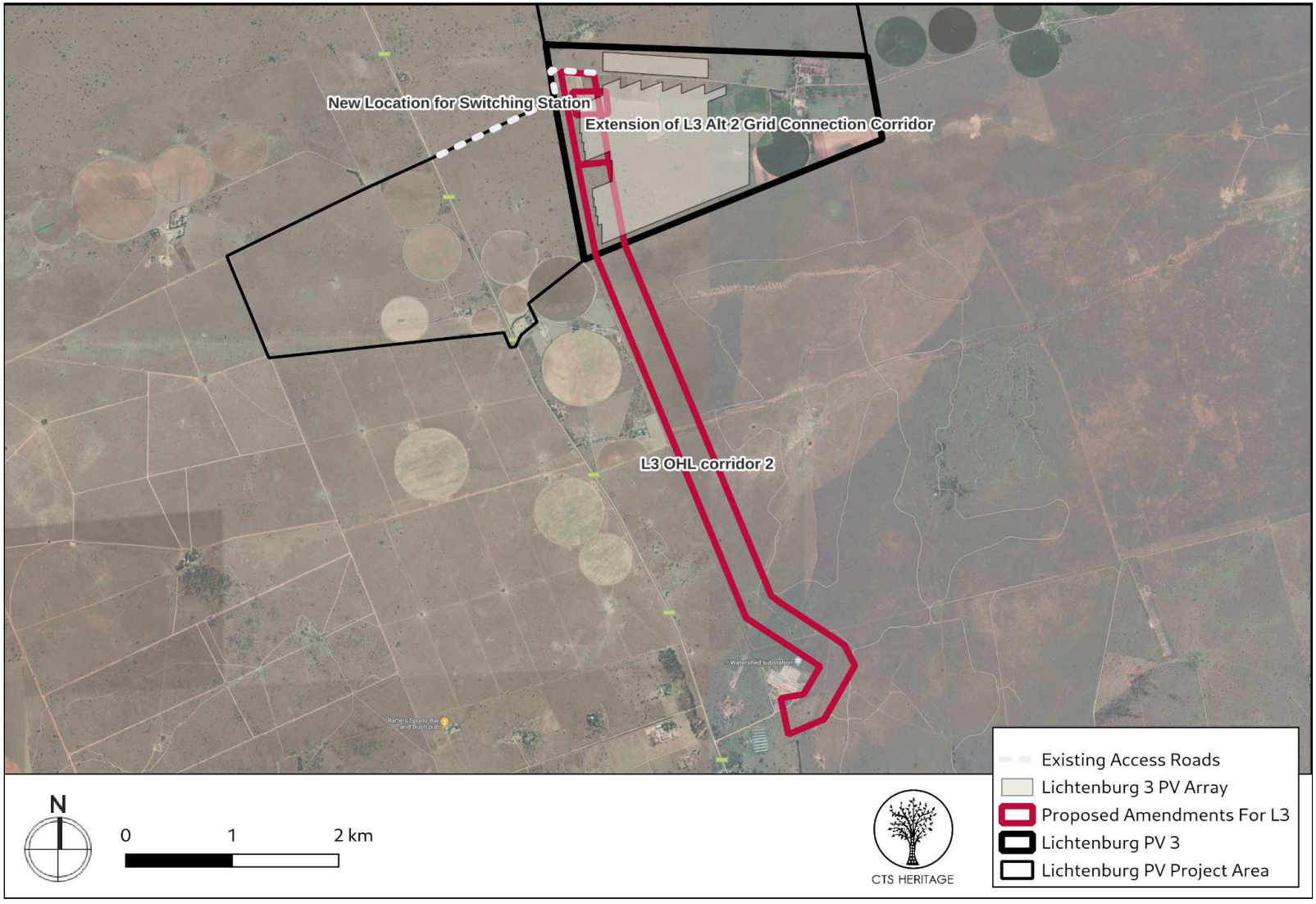

Figure 1c. Overview Map. Satellite image from GoogleEarth indicating the proposed development amendments relative to the approved Lichtenburg PV 3

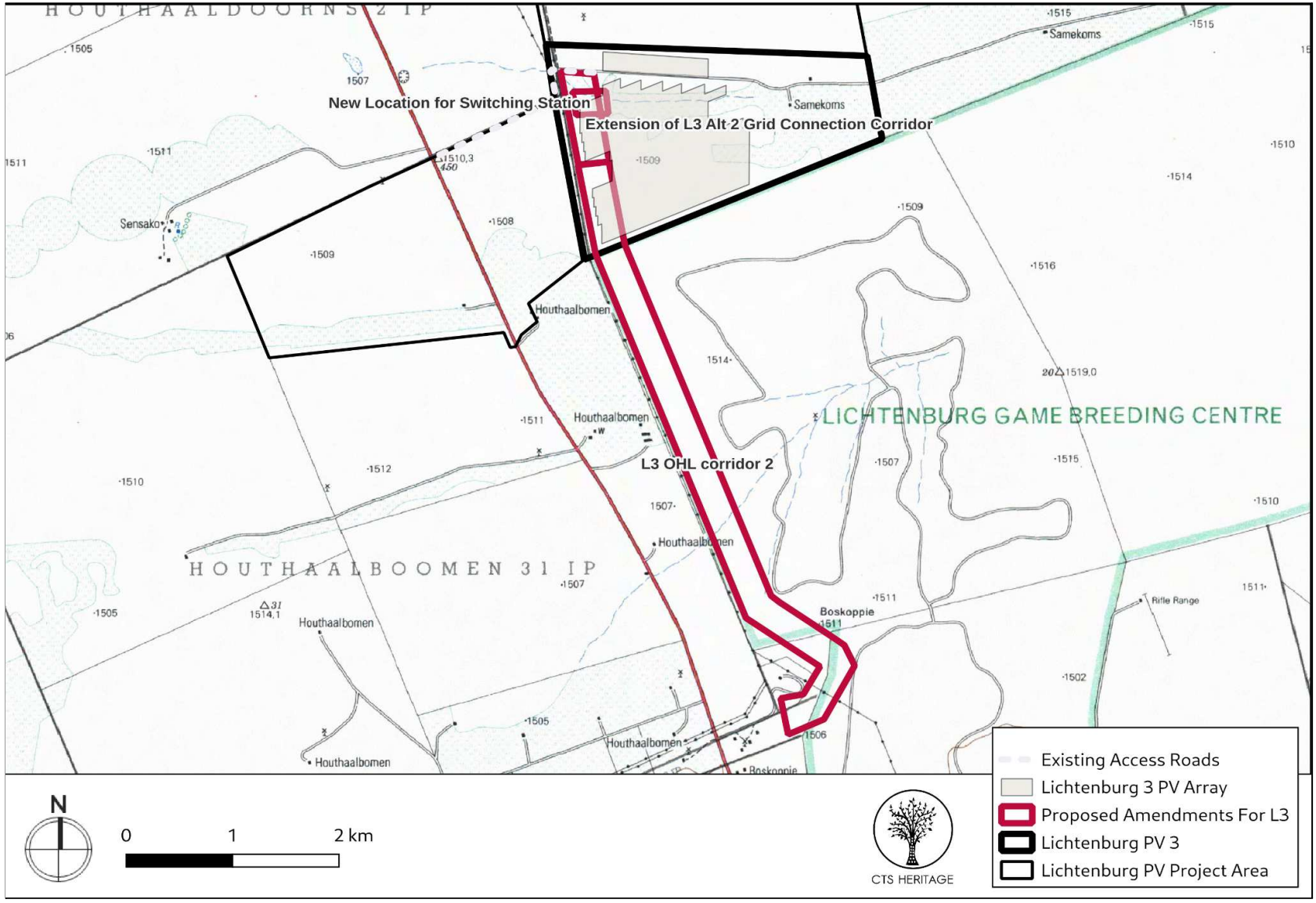

Figure 1d. Overview Map. Extract from the 1:50 000 Topo Map indicating the proposed amendments

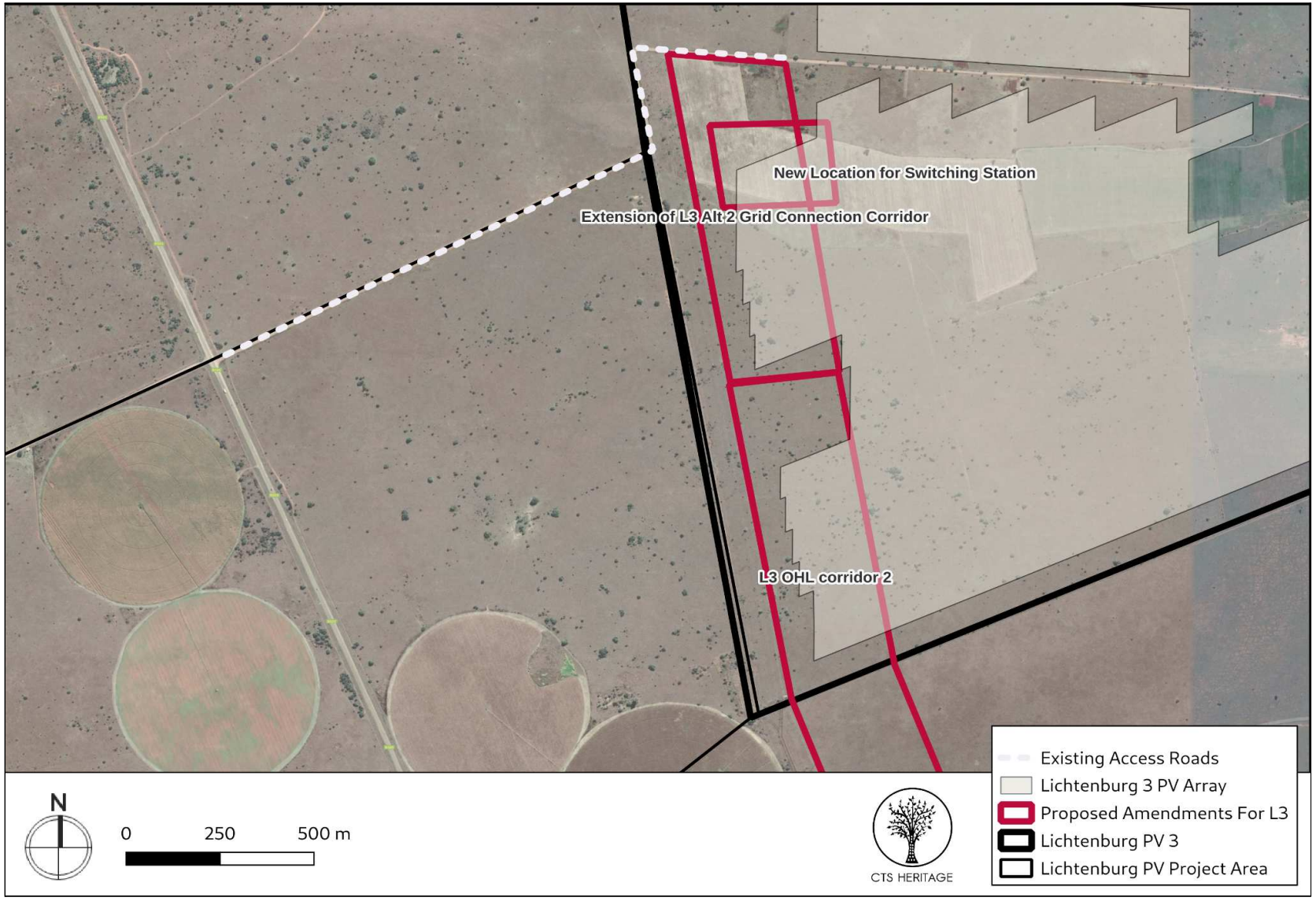

Figure 1e. Overview Map. Satellite image rom GoogleEarth indicating the proposed amendments

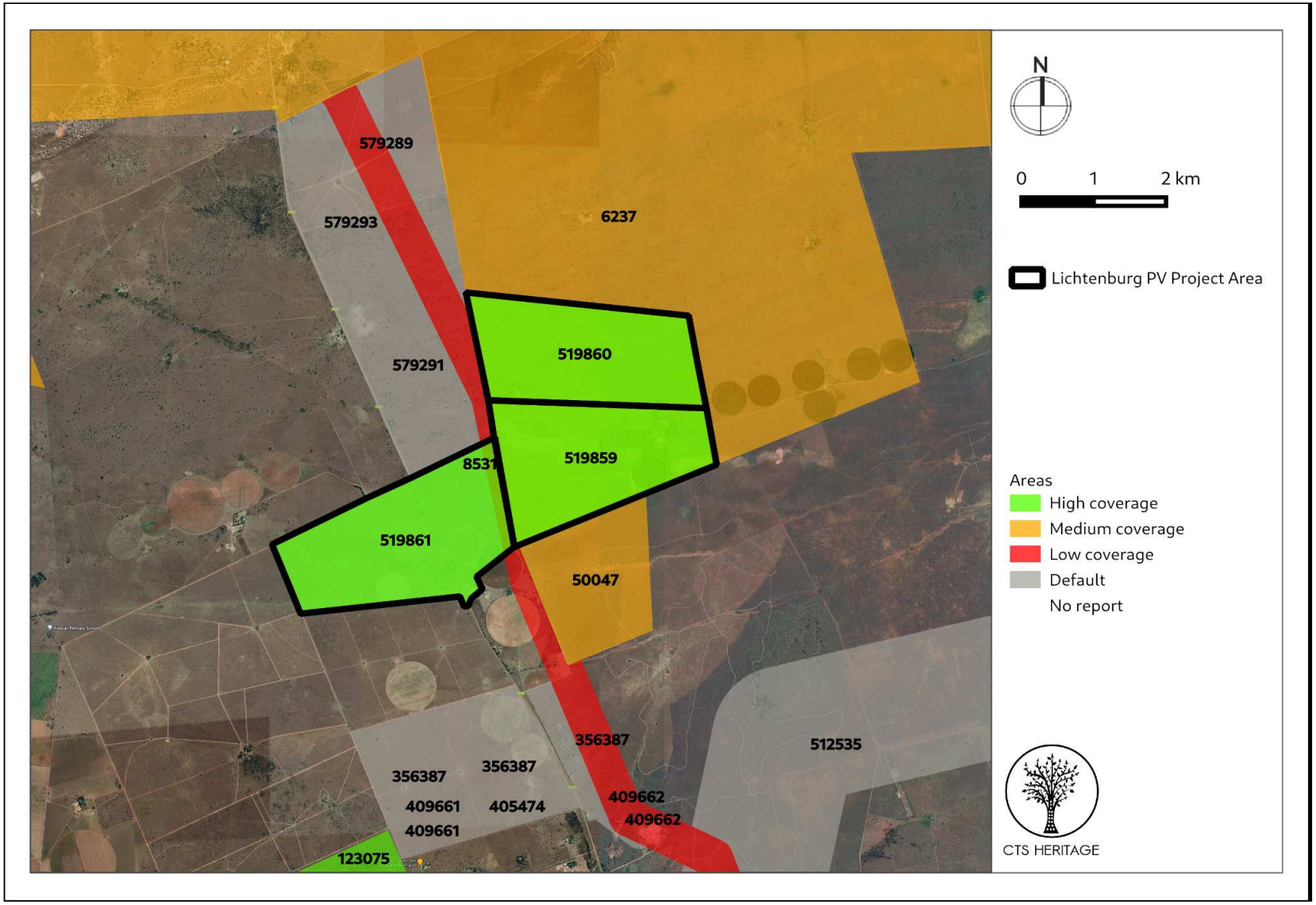

Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments covering the proposed development area with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.

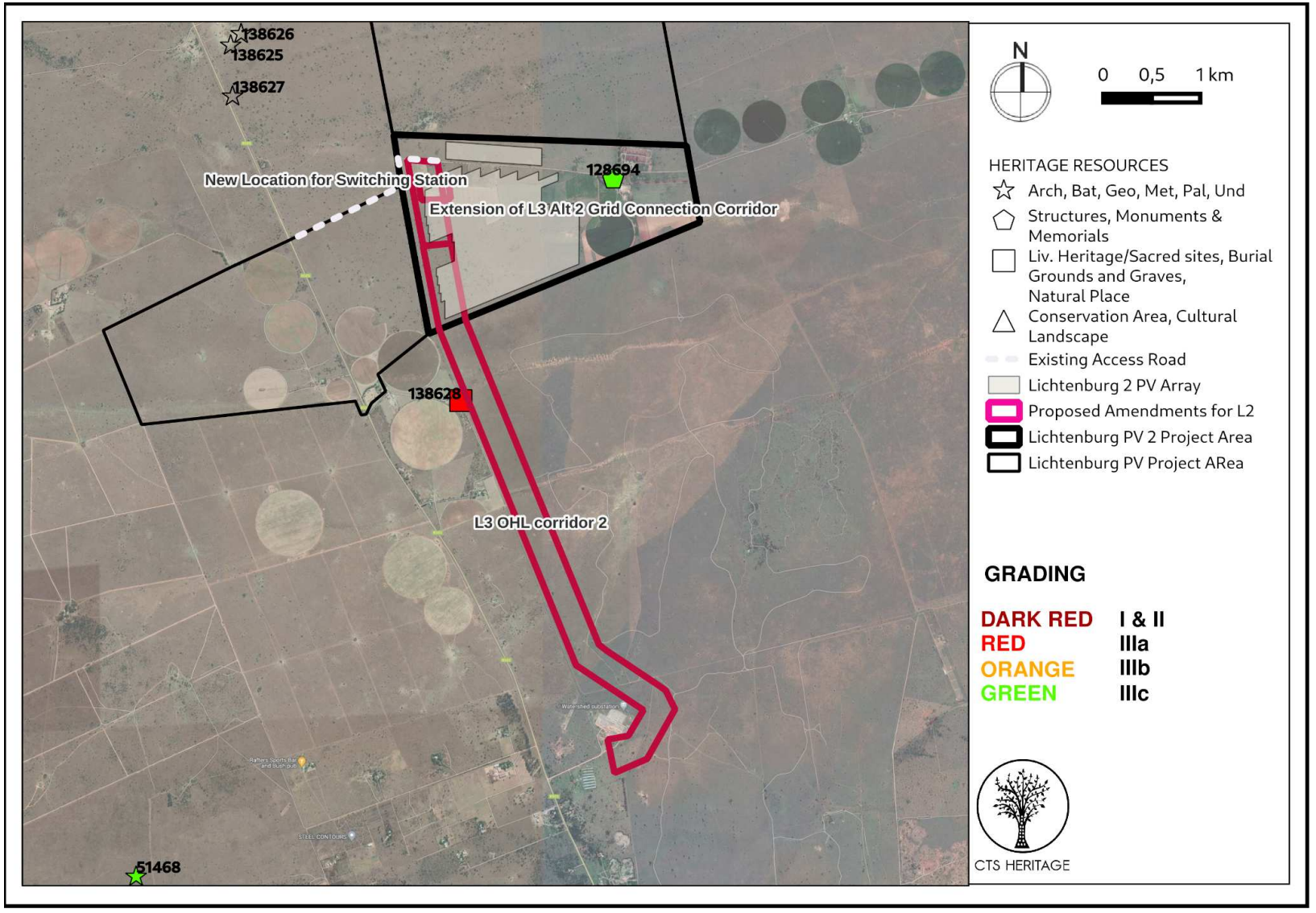

Figure 3. Heritage Resources Map. Heritage Resources previously identified within the study area, with SAHRIS Site IDs indicated in the insets below. Please See Appendix 4 for full description of heritage resource types.

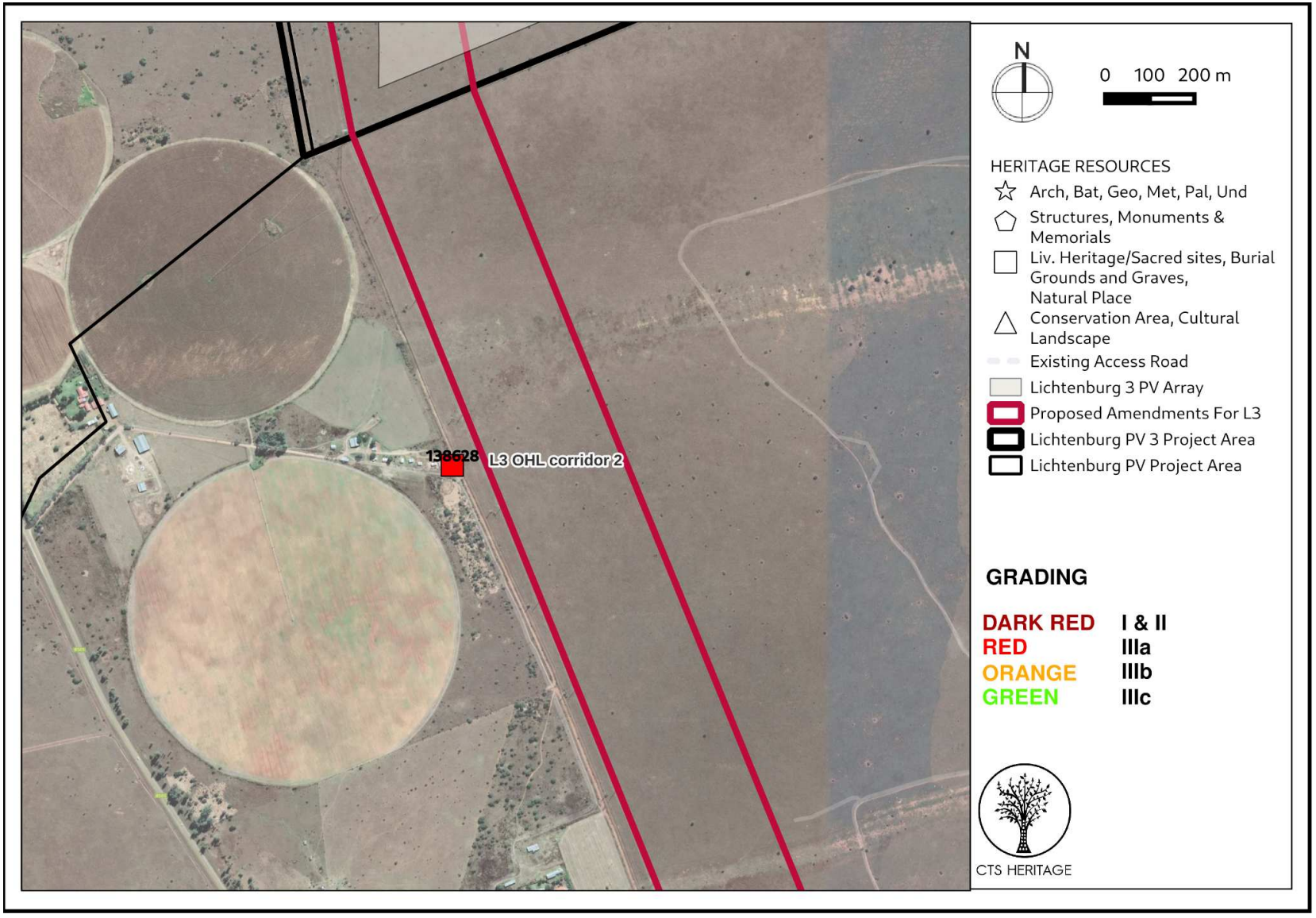

Figure 3a. Heritage Resources Map. Inset with focus on Site 138628

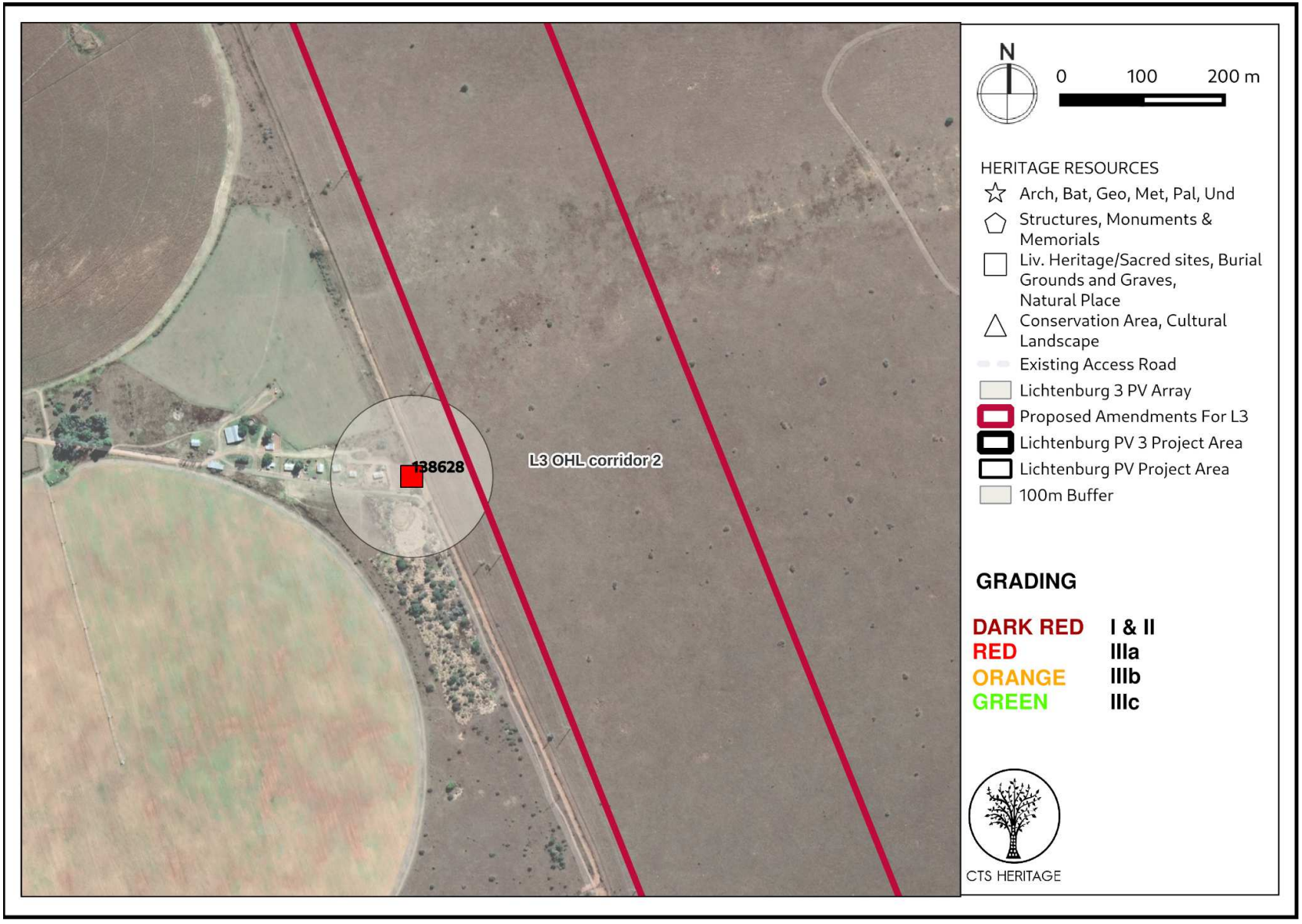

Figure 3b. Heritage Resources Map. Inset with focus on Site 138628 and recommended 100m buffer

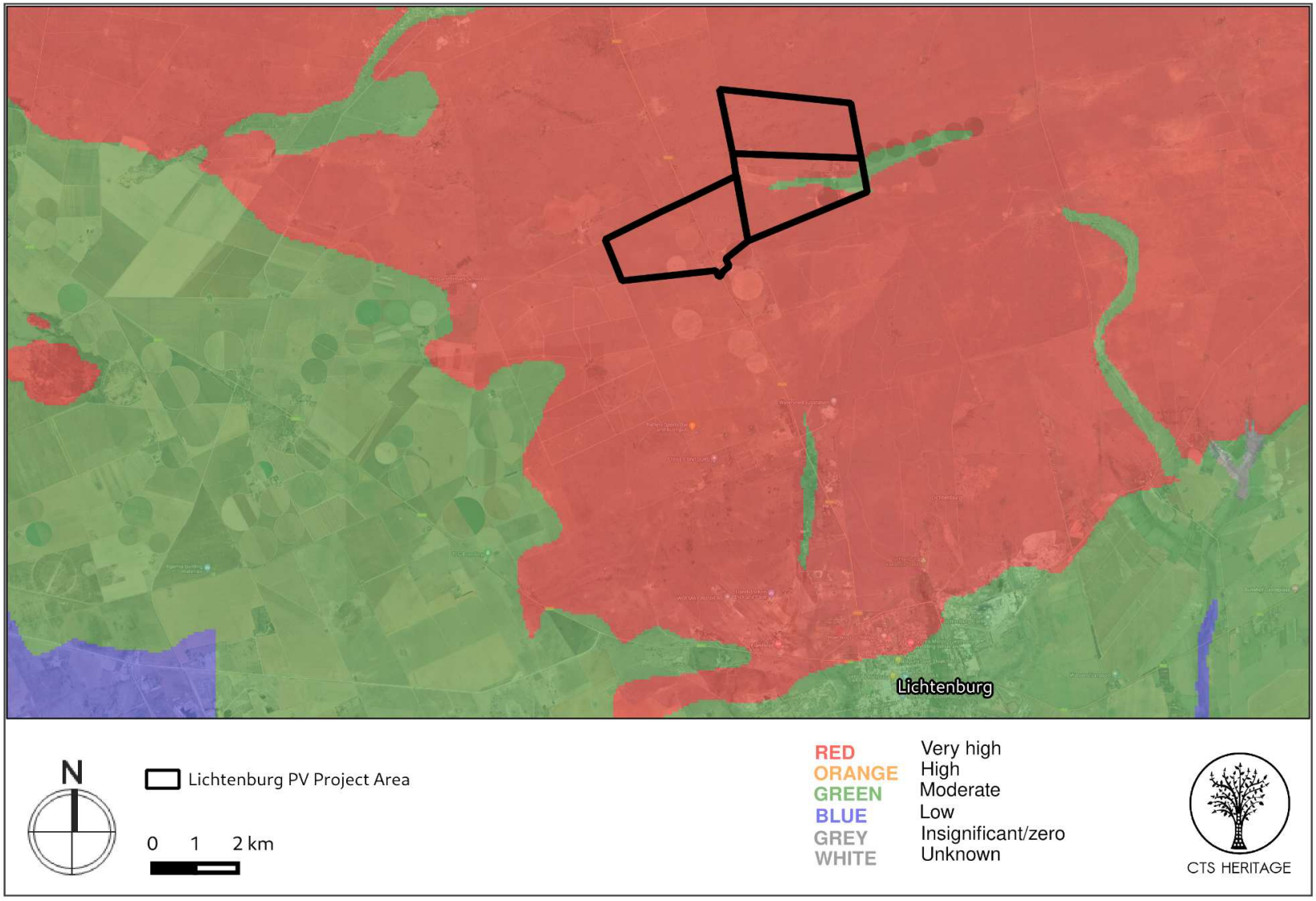

Figure 4a. Palaeosensitivity Map. Indicating fossil sensitivity underlying the study area. Please See Appendix 3 for a full guide to the legend.

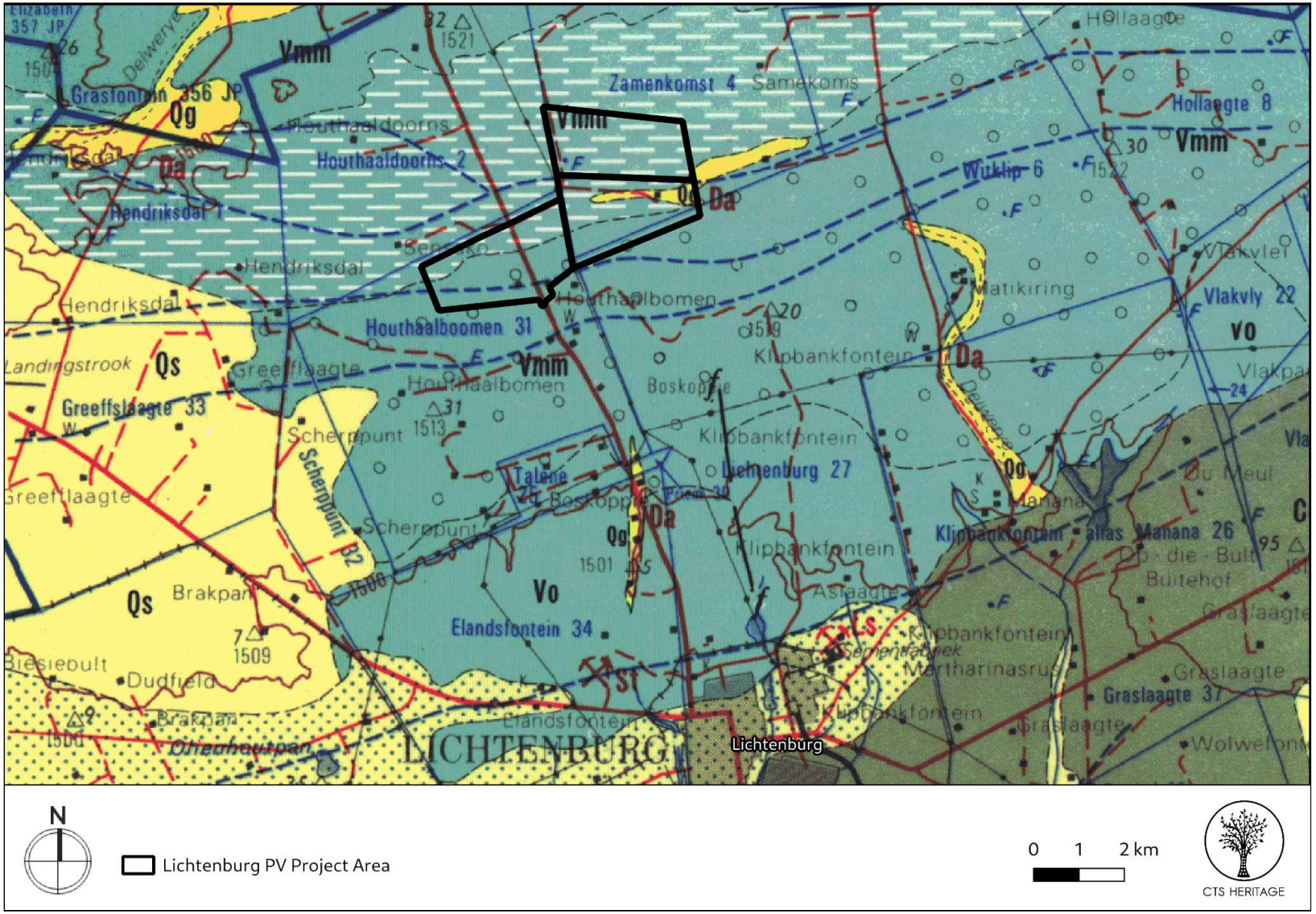

Figure 4b. Geology Map. Extract from the CGS 2626 West Rand Map indicating that the development area for the approved Lichtenburg PV Facilities is underlain by sediments of the Monte Christo Formation assigned to the Chuniespoort group, within the Malmani Subgroup (Vmm).

8. Heritage Assessment

Background

The authorised ABO Wind Lichtenburg 3 PV solar energy facility ('the project') is located 10km north of Lichtenburg and 7km south-east of Bakerville in the North West Province. The project is located within Ward 16 of the Ditsobotla Local Municipality and the Ngaka Modiri Molema District Municipality in the North West Province. The development footprint of the solar energy facility is located on the Remaining Extent of Portion 2 of Farm Zamenkomst No. 04. It is within this property that the project will be constructed and operated.

Archaeology and Built Environment Heritage

Lichtenburg town was established in 1873 and named "Town of Light". General Del la Rey was buried in Lichtenburg after a fatal shooting incident at Langlaagte. During the 1800's, more and more farmers settled in the area. During the Second Boer War, the strategically important town of Lichtenburg was occupied by both Boer and Briton for short spells. In November 1900, a large British force under Col. Robert Baden-Powell was transferred to Lichtenburg and secured the town, and much of the territory with it. In addition, the town is known from Rudyard Kipling's poem, Lichtenberg, which relays the story of a foreign combatant in the second South African War. In 1926, Lichtenburg experienced a gold rush that lasted approximately 10 years. Lichtenburg district is now mostly a farming area, combining cattle and crop-farming and large areas of former diamond mine diggings are now used as grazing.

According to van Schalkwyk et al (1995, SAHRIS NID 6237) in their report completed for the Bakerville Diamond Fields, "land use in the area goes back to the Early Stone Age, as can be determined by the number of stone artefacts found near the old mining commissioners office. This material seems to be disturbed from its primary context because of the mining activities. It is postulated that similar occurrences will be found in other parts of the diggings, but that this material would have been disturbed out of context." As a result of the dominant land use in the area, many of the heritage resources identified by van Schalkwyk et al (1995) are associated with past and present agriculture, and consist of farming implements, a few windmills, and dipping-troughs. One such trough, located at Elandsputte on the farm Uitgevonden 355JP, was the site where the first diamond was discovered. This structure is a proclaimed national monument (now Provincial Heritage Site). Van Schalkwyk et al (1995) identified a number of burial grounds within their surveyed area (Map 5 and 5a). Heritage resources known from this area include burial grounds and graves, archaeological artefacts and old structures, often associated with farming activities or diamond mining.

An archaeological field assessment was conducted for the Lichtenburg PV facilities in 2019. The physical survey focused on the areas proposed for Lichtenburg 3 PV Facility and included the area proposed for the proposed amendments. The field assessment noted that the area has been disturbed and transformed by agricultural activities. As such pre-existing agricultural plough fields, grazing areas and farm buildings were identified in the development area. Furthermore, throughout the farming areas, several heaps of rocks that were removed from the agricultural fields were identified. During the field assessment of the site *no archaeological resources, graves or burial grounds were identified* in the project area. However, graves are subterranean in nature and might not have been identified during the initial site visit and survey. In his assessment completed for an adjacent PV facility, Van Schalkwyk (2021) identified no significant archaeological heritage resources but did identify a number of informal burials. One of these burial grounds (Site 138628) is located in close proximity to the proposed L3 OHL Grid Corridor 2 (Figure 3A). This site is described as "An informal burial site with probably more than 30 graves. Most are only marked with stone cairns. It is not fenced off and occurs in close proximity of some houses." This site falls outside of the proposed grid corridor by approximately 80m and is on the other side of a road. To ensure that no impact occurs, it is recommended that a no-development buffer of 100m is implemented around this site as per Figure 3b. As long as this recommendation is implemented, it is very unlikely that the proposed amendments will negatively impact on significant archaeological or built environment heritage.

Palaeontology

The proposed development is located on geological deposits belonging to the Monte Christo Formation of the Chuniespoort Group. The Monte Christo Formation is within the Malmani

Subgroup. These deposits have a very high sensitivity for impacts to palaeontological resources. This group is known to contain a range of shallow marine to intertidal stromatolites (domes, columns *etc*) and organic-walled microfossils. In addition, it is within this group that fossiliferous Late Cenozoic cave breccias have been identified such as within the Cradle of Humankind region. The area under consideration in this assessment was surveyed on foot by Bamford et al. (2019) as part of the Heritage Impact Assessment completed for the Lichtenburg PV facilities in 2019.

According to Bamford (2019), the project area lies on rocks of the Malmani Subgroup, Chuniespoort Group. The Malmani Subgroup is up to 2000m thick and comprises five formations distinguished by the amount of chert, stromatolite morphology, intercalated shales and erosion surfaces (Eriksson et al., 2006). The basal Oaktree Formation overlies the Black Reef Formation, and is made up of carbonaceous shales, stromatolitic dolomites and locally developed quartzites. Above this is the Monte Christo Formation comprising erosive breccia, overlain by stromatolitic and oolitic platformal dolomites. Next is the Lyttleton Formation of shales quartzites and stromatolitic dolomites. The Eccles Formation comprises a series of erosional breccias and the overlying Frisco Formation is made up mostly of stromatolitic dolomites.

The palaeontological sensitivity of the area under consideration is presented in Figure 4a. The site proposed for development is in the Malmani Subgroup which contains a number of stromatolitic dolomites. These were formed in warm shallow sea and are the accumulation of layer upon layer of minerals deposited by blue-green algae (also known as cyanobacteria) and rarely some filamentous algae. Minerals deposited by the algae include calcium carbonate, calcium sulphate and magnesium carbonate. Very rarely are the algal cells preserved in the stromatolites and these are microscopic. Stromatolites are essentially trace fossils and these ones are 2750 to 2650 million years old and very abundant. Based on the nature of the project, surface activities may impact upon the fossil heritage if preserved in the development footprint. The geological structures suggest that the rocks are much too old to contain fossils other than blue-green algae. Taking account of the defined criteria, the potential impact to fossil heritage resources is negligible to extremely low. As such, the proposed amendments are unlikely to negatively impact significant palaeontological heritage resources.

Cumulative Impacts

The proposed amendments will form part of the infrastructure required for the Lichtenburg 3 PV development and are located immediately adjacent to the substation and operations and maintenance facilities associated with the Lichtenburg PV development. Furthermore, the proposed amendments are located within an already approved PV facility development footprint which is also located within a belt of approved renewable energy facilities. 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 proposed amendments are therefore unlikely to result in unacceptable risk or loss, nor will the proposed amendments result in a complete change to the sense of place of the area or result in an unacceptable increase in impact. No additional cumulative impacts have been identified in addition to those already covered in the EIA.

Conclusion

There is no objection to the proposed amendments to the Lichtenburg 1 PV on heritage grounds and no monitoring protocols are recommended. There are no disadvantages or advantages associated with the proposed amendment from a heritage perspective however, it should be noted that, although there were no other archaeological or heritage resources identified during the survey conducted for the already approved PV facility; some archaeological material, including artefacts and graves, can be buried underground and as such, may not have been identified during the initial survey and site visits. In the case where the proposed development activities bring these materials to the surface, work must cease and SAHRA must be contacted immediately to determine a way forward. The following findings have been made:

- No archaeological resources were identified in the project area identified for the proposed amendments.
- No graves or burial grounds were identified in the project area identified for the proposed amendments. However, graves are subterranean in nature and might not have been identified during the initial site visit and survey.

- One burial ground (Site 138628) is located in close proximity to the proposed L3 OHL Grid Corridor 2 (Figure 3b) and as such, a 100m no development buffer is recommended around this site.
- Based on the experience of the palaeontologist and the lack of any previously recorded fossils from the area, it is extremely unlikely that any fossils would be preserved in the stromatolites or overlying soils of the Quaternary.
- If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the South African Heritage Resources Agency (SAHRA) (021 642 4502) so that systematic and professional investigation/ excavation can be undertaken.

RECOMMENDATION

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.

Table 2: Impact Assessment Table

NATURE: Significant archaeological, built environment and palaeontological heritage resources may be impacted by the construction phase of the proposed development							
		Archaeology without Mitigation		**Archaeology with Mitigation**		**Palaeontology without Mitigation**		**Palaeontology with Mitigation**
MAGNITUDE	**M (5)**	No significant heritage resources were identified within the proposed development and no negative impact is anticipated from the proposed amendments. However, one burial ground (Site 138628) is located in close proximity to the proposed L3 OHL Grid Corridor 2	**M (5)**	No significant heritage resources were identified within the proposed development and no negative impact is anticipated from the proposed amendments. However, one burial ground (Site 138628) is located in close proximity to the proposed L3 OHL Grid Corridor 2.	**L (1)**	According to the PIA conducted for the Lichtenburg PV Facility, "The geological structures suggest that the rocks are much too old to contain fossils other than blue-green algae. Taking account of the defined criteria, the potential impact to fossil heritage resources is negligible to extremely low." As such, the proposed amendments are unlikely to negatively impact significant palaeontological heritage resources.	**L (1)**	According to the PIA conducted for the Lichtenburg PV Facility, "The geological structures suggest that the rocks are much too old to contain fossils other than blue-green algae. Taking account of the defined criteria, the potential impact to fossil heritage resources is negligible to extremely low." As such, the proposed amendments are unlikely to negatively impact significant palaeontological heritage resources.
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	**M (3)**	Probability is moderate	**L (1)**	Probability is low	**L (1)**	Probability is low	**L (1)**	Probability is low
SIGNIFICANCE	**M**	(5+5+1)x3=33	**L**	(5+5+1)x1=11	**L**	(1+5+1)x1=7	**L**	(1+5+1)x1=7
STATUS		Neutral		Neutral		Neutral		Neutral
REVERSIBILITY	**L**	Any impacts to heritage resources that do occur are irreversible	**L**	Any impacts to heritage resources that do occur are irreversible	**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: ● One burial ground (Site 138628) is located in close proximity to the proposed L3 OHL Grid Corridor 2 (Figure 3b) and as such, a 100m no development buffer is recommended around this site.							
RESIDUAL RISK: ● If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the South African Heritage Resources Agency (SAHRA) (021 642 4502) so that systematic and professional investigation/ excavation can be undertaken.							

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APPENDIX 1

List of heritage resources within close proximity to the development area

Site ID	Site no	Full Site Name	Site Type	Grading
32832	AEPC 3	Steenkoolspruit farm,Ogies Emalahleni Mpumalanga Province **MAPPED INCORRECTLY ON SAHRIS**	Burial Grounds & Graves	Grade IIIa
130171	2626AA/ Solar/ Farm Zamenkomst 04/ Site 1	Old farm house	Structures, Structures	Grade IIIc
128694	ZKT1	Zamenkomst 1	Building	Grade IIIc
138628	FHDN-013	FARM HOUTHAALDOORNS 2	Burial Grounds & Graves	Grade IIIa

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Palaeontological Observations (Bamford, 2019)

Stop	Latitude	Longitude	Location and Observation
1	-26° 01.329’	26° 07.098’	Farm Zamenkomst: starting point; some weathered rock, most likely dolomite or dolostone; no fossils (Figure 1)
2	-26° 01.520’	26° 07.144’	Zamenkomst: area of broken rocks mostly dolomite; some stromatolites broken up (Figure 2).
3	-26° 01.619’	26° 07.161’	Zamenkomst – some dolomite; no fossils
4	-26° 01.783’	26° 07.136’	Zamenkomst – large patch of exposed rock
5	-26° 02.042’	26° 07.250’	Zamenkomst – boulders; no fossils
6	-26° 02.121’	26° 07.291’	Zamenkomst – patch of weathered rock
7	-26° 02.070	26° 07.396’	Zamenkomst – few weathered rocks; breccia not in situ
8	-26° 02.266’	26° 07.299’	Zamenkomst entrance – no in situ rocks
9	-26° 02.444’	26° 07.339’	Zamenkomst – section portion entrance; no rocks
10	-26° 02.336’	26° 07.433’	Zamenkomst – some weathered rocks
11	-26° 03.234’	26° 07.501’	Zamenkomst – no exposed rocks
14	-26° 02.945’	26° 07.244’	Houthaalbomen – pile of rocks
15	-26° 02.957’	26° 06.251’	Houthaalbomen – rock fragments, some possibly stromatolitic
16	-26° 03.586’	26° 07.093’	Houthaalbomen – other entrance to farm; no rocks
17	-26° 02.774’	26° 06.661’	Houthaalbomen – some rocky outcrops; no fossils
18	-26° 02.879’	26° 06.718’	Houthaalbomen – no rocks
19	-26° 02.981’	26° 06.742’	Houthaalbomen – pile of collected rocks
20	-26° 01.316’	26° 07.154’	Zamenkomst - Stromatolites, loose sample taken
21	-26° 01.316’	26° 07.159’	Zamenkomst – stromatolites, loose sample taken
22	-26° 03.269’	26° 06.893’	Houthaalbomen – loose boulders; no fossils

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APPENDIX 2

Reference List with relevant AIAs and PIAs

Heritage Impact Assessments				
Nid	**Report Type**	**Author/s**	**Date**	**Title**
6237	AIA Phase 1	Johnny Van Schalkwyk, Robert de Jong, S Smith	01/08/1995	Reconnaissance of Remaining Cultural Resources in the Bakerville Diamond Fields
8330	AIA Phase 1	Francois P Coetzee	01/03/2008	Cultural Heritage Survey of the PPC Slurry Operation, near Zeerust, North West Province
8455	HIA Phase 1	Udo Kusel	25/07/2008	Cultural Heritage Resources Impact Assessment of Portion 151 of Lichtenburg Town and Townlands 27 IP (Lichtenburg Extension 10) North West Province
8531	HIA Phase 1	Johnny Van Schalkwyk	01/11/2008	Heritage Impact Report for the Proposed 88 kV Power Line from Watershed Substation, Lichtenburg, to the Mmabatho Substation, North West Gauteng Province
50047	HIA Phase 1	M Hutten	01/05/2012	Heritage Impact Assessment for the Proposed Lichtenburg Solar Park North of Lichtenburg, North West Province
50048	PIA Phase 1	Bruce Rubidge	14/07/2012	Palaeontological Assessment - Lichtenburg Solar Park
110338	HIA Phase 1	Julius CC Pistorius	01/06/2011	A PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR THE PROPOSED MAFIKENG CEMENT PROJECT NEAR ITSOSENG IN THE NORTH-WEST PROVINCE OF SOUTH AFRICA
123075	Heritage Scoping	Jaco van der Walt	12/11/2013	Archaeological Impact Assessment Report
138895	HIA Phase 1	Jaco van der Walt, John E Almond	14/10/2013	Archaeological Impact Assessment for the Proposed Hibernia Solar Project near the town of Lichtenburg in the North West Province of South Africa & Paleontological Report: Recommended Exemption From Further Palaeontological Studies: Proposed Hibernia Pv S
579293	HIA Phase 1	Johnny Van Schalkwyk	30/07/2021	THE PROPOSED LERATO SOLAR POWER PLANT NEAR LICHTENBURG, NORTH WEST PROVINCE

Additional Reports:

- Lavin, J. 2018. HERITAGE IMPACT ASSESSMENT In terms of Section 38(8) of the NHRA for the DEVELOPMENT OF THE LICHTENBURG 1, 2 and 3 PV SOLAR ENERGY FACILITY AND ASSOCIATED INFRASTRUCTURE ON A SITE NEAR LICHTENBURG, NORTH WEST PROVINCE. Unpublished Report.
- Lavin, J. 2018. ARCHAEOLOGICAL IMPACT ASSESSMENT In terms of Section 38(8) of the NHRA for the DEVELOPMENT OF THE LICHTENBURG 1, 2 and 3 PV SOLAR ENERGY FACILITY AND ASSOCIATED INFRASTRUCTURE ON A SITE NEAR LICHTENBURG, NORTH WEST PROVINCE. Unpublished Report.
- Bamford, M. 2018. Palaeontological Impact Assessment for the proposed DEVELOPMENT OF THE LICHTENBURG 1, 2 and 3 PV SOLAR ENERGY FACILITY AND ASSOCIATED INFRASTRUCTURE ON A SITE NEAR LICHTENBURG, NORTH WEST PROVINCE. Unpublished Report.

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

Full guide to Palaeosensitivity Map legend

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

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 since 2016, 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 100 Heritage Impact Assessments and Screening Assessments throughout South Africa.