CTS HERITAGE

HERITAGE SCREENER

CTS Reference Number:	**CTS18_231**
HWC Ref:	
Client:	**EnviroAfrica**
Date:	**March 2019**
Title:	**Proposed extension of existing dam, on Farm RE/792 Zwartfontein Malmesbury, Western Cape**

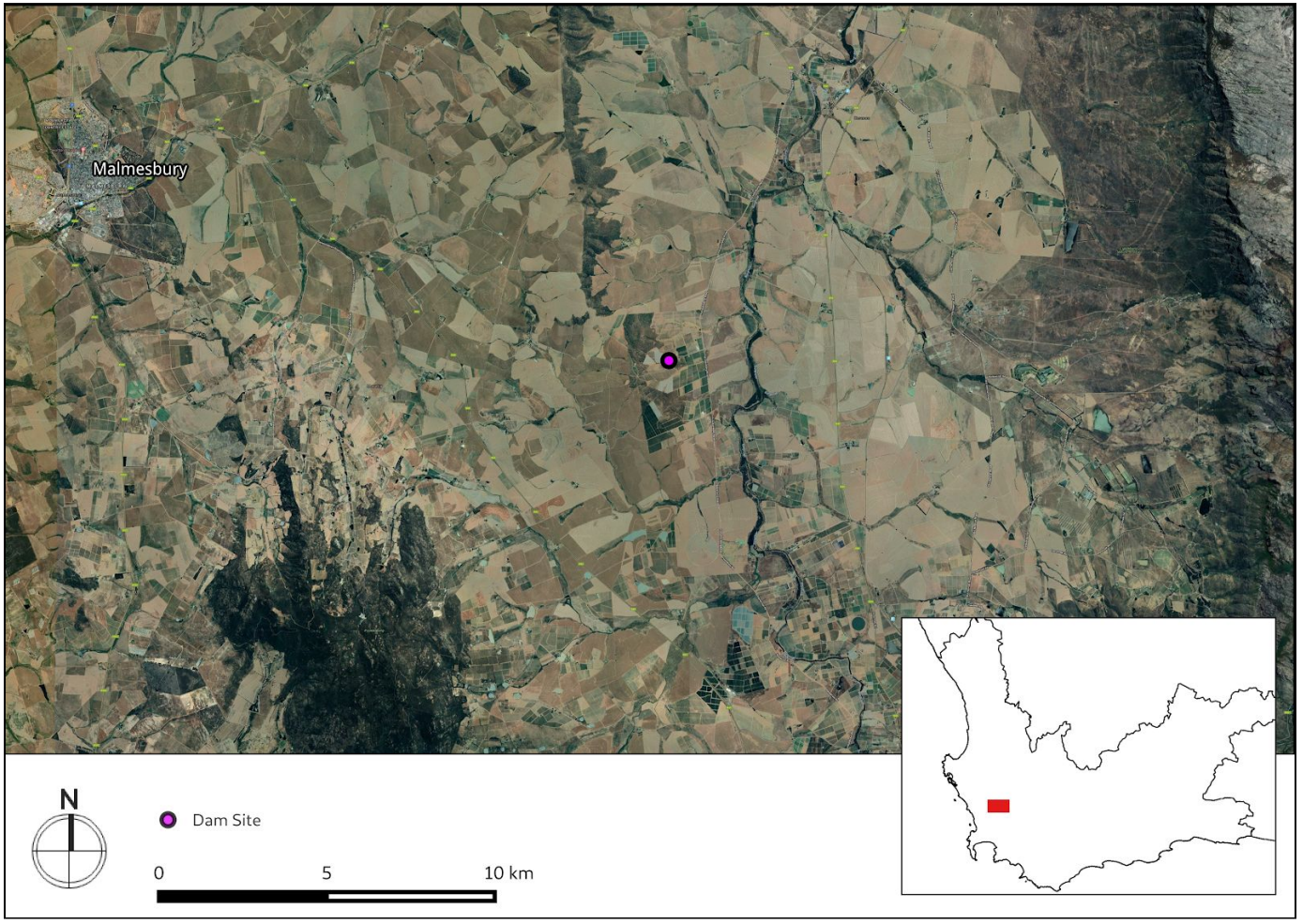

Figure 1a. Satellite map indicating the location of the proposed development in the Western Cape Province

Recommendation by CTS Heritage Specialists	**RECOMMENDATION:** **The heritage resources in the area proposed for development are sufficiently recorded** **Due to the location and nature of the proposed development, it is unlikely that significant heritage resources will be impacted by the development and as such, it is recommended that no further heritage studies are required.**

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1. Proposed Development Summary

The proposed development entails the increase in height of the existing Zwartfontein dam wall with 2.3m. The existing dam wall height is ±11.7m and with the increase the maximum dam wall height will be 14m. The increase of the dam wall height will result in an increase of the dam's total footprint from 4.2ha to 5.8ha (1.6ha increase). The current dam capacity is at 150 000m³ and will be increased to 268 000m³ (118 000m³ increase). Irrigation pipelines as well as the pipeline feeding water to the dam from the Bergriver is in place. Water is being pumped from the Berg River and is an existing water use right.

2. Application References

Name of relevant heritage authority(s)	HWC
Name of decision making authority(s)	DEADP

3. Property Information

Latitude / Longitude	33°30'34.48"S 18°54'40.07"E
Erf number / Farm number	RE/792 Zwartfontein
Local Municipality	Swartland
District Municipality	West Coast
Previous Magisterial District	Malmesbury
Province	Western Cape
Current Use	Agricultural Dam
Current Zoning	Agriculture
Total Extent	255.85ha

4. Nature of the Proposed Development

Total Surface Area	5.8ha
Depth of excavation (m)	3m
Height of development (m)	Wall height will be increased from 11.7m to 14m
Expected years of operation before decommission	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

No additional infrastructure, pipelines already installed

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

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

Figure 1c. Overview Map. Satellite image (2017) indicating the proposed development area at closer range - note existing dam.

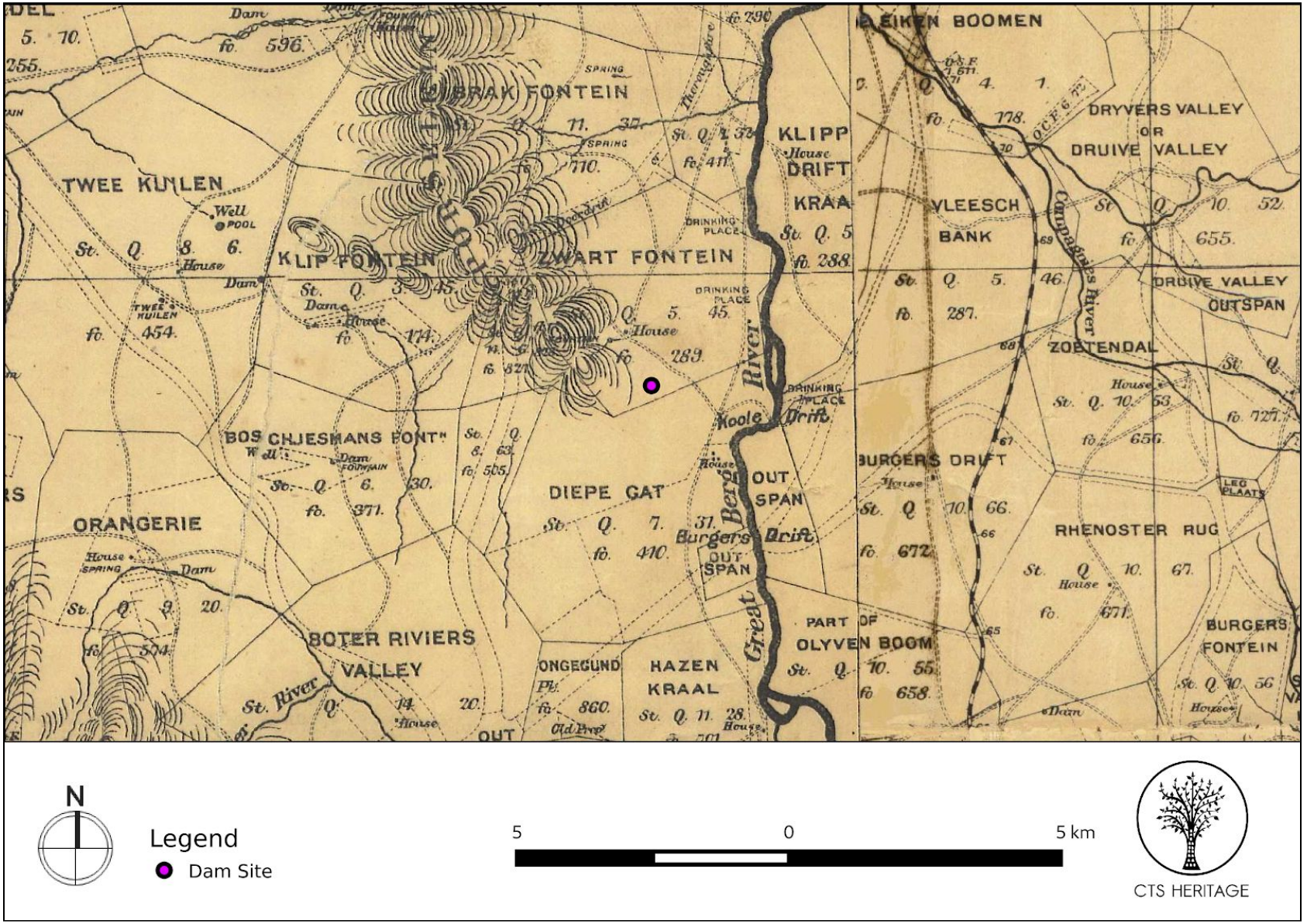

Figure 1c. Overview Map. Extract from Cape Malmesbury Map (1880-1890) indicating approximate location of dam

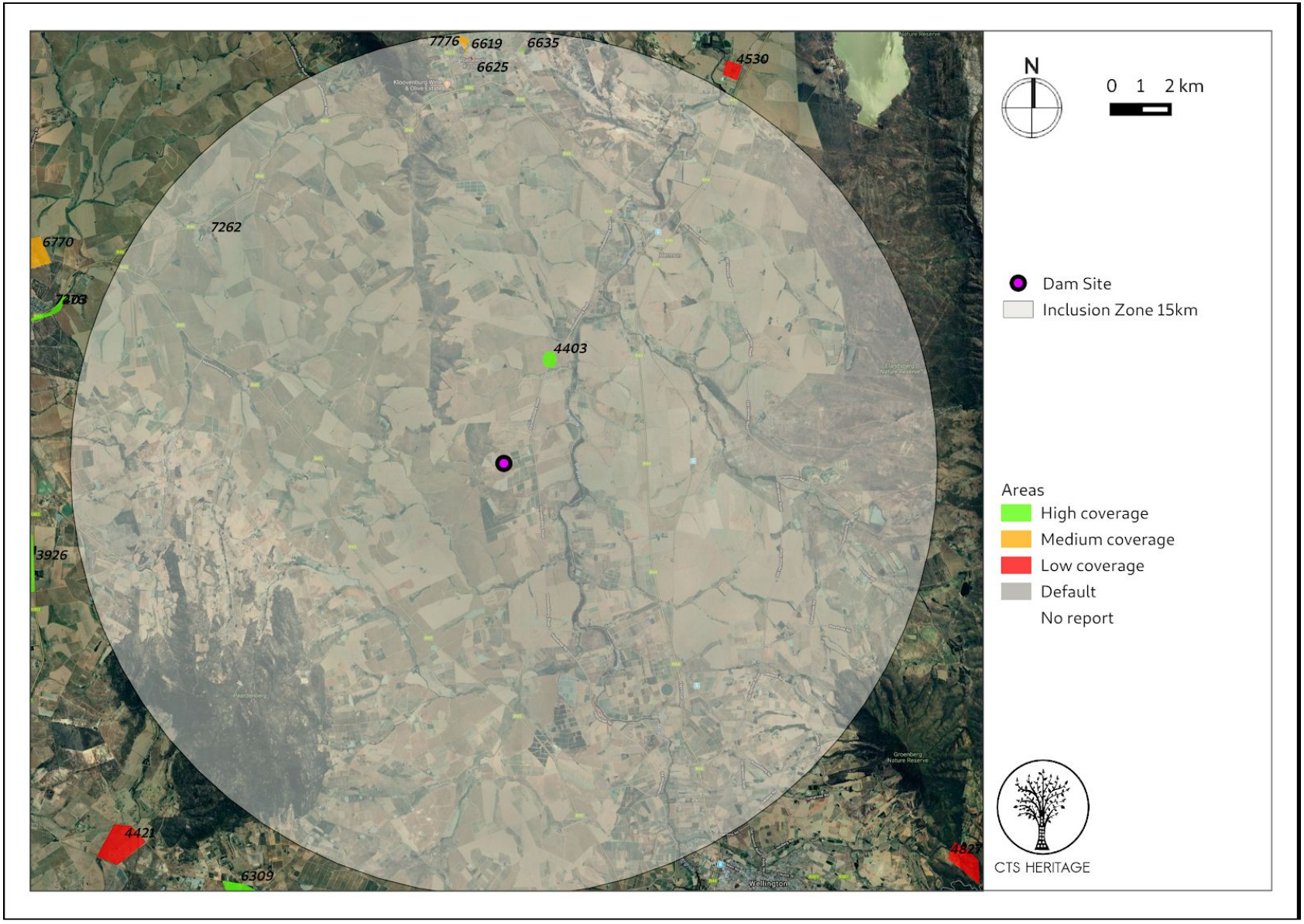

Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments surrounding the proposed development area within 5km, with SAHRIS NIDS indicated. Please see Appendix 2 for full reference list.

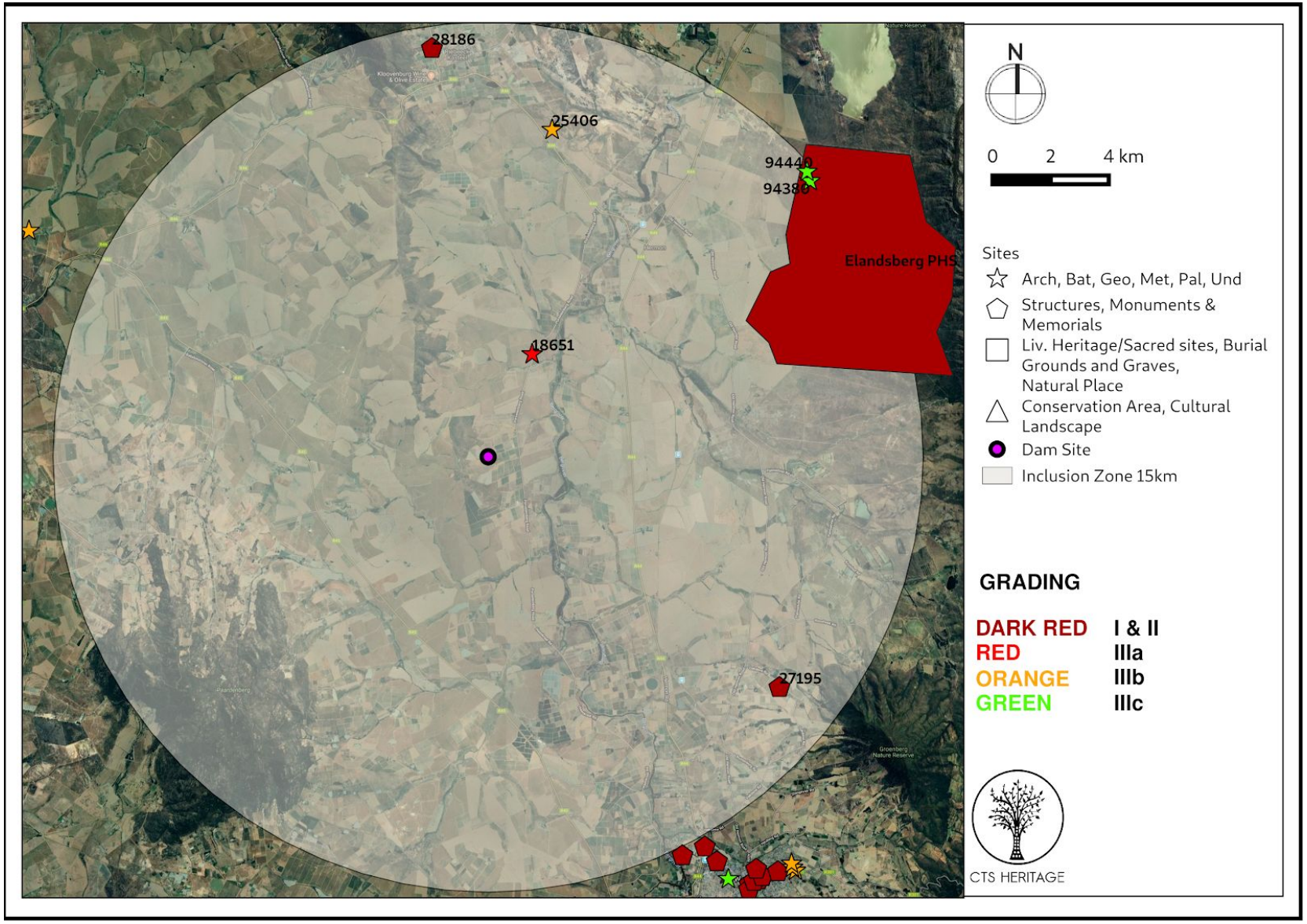

Figure 3. Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated (see Figures 3a for inset). Please See Appendix 4 for full description of heritage resource types.

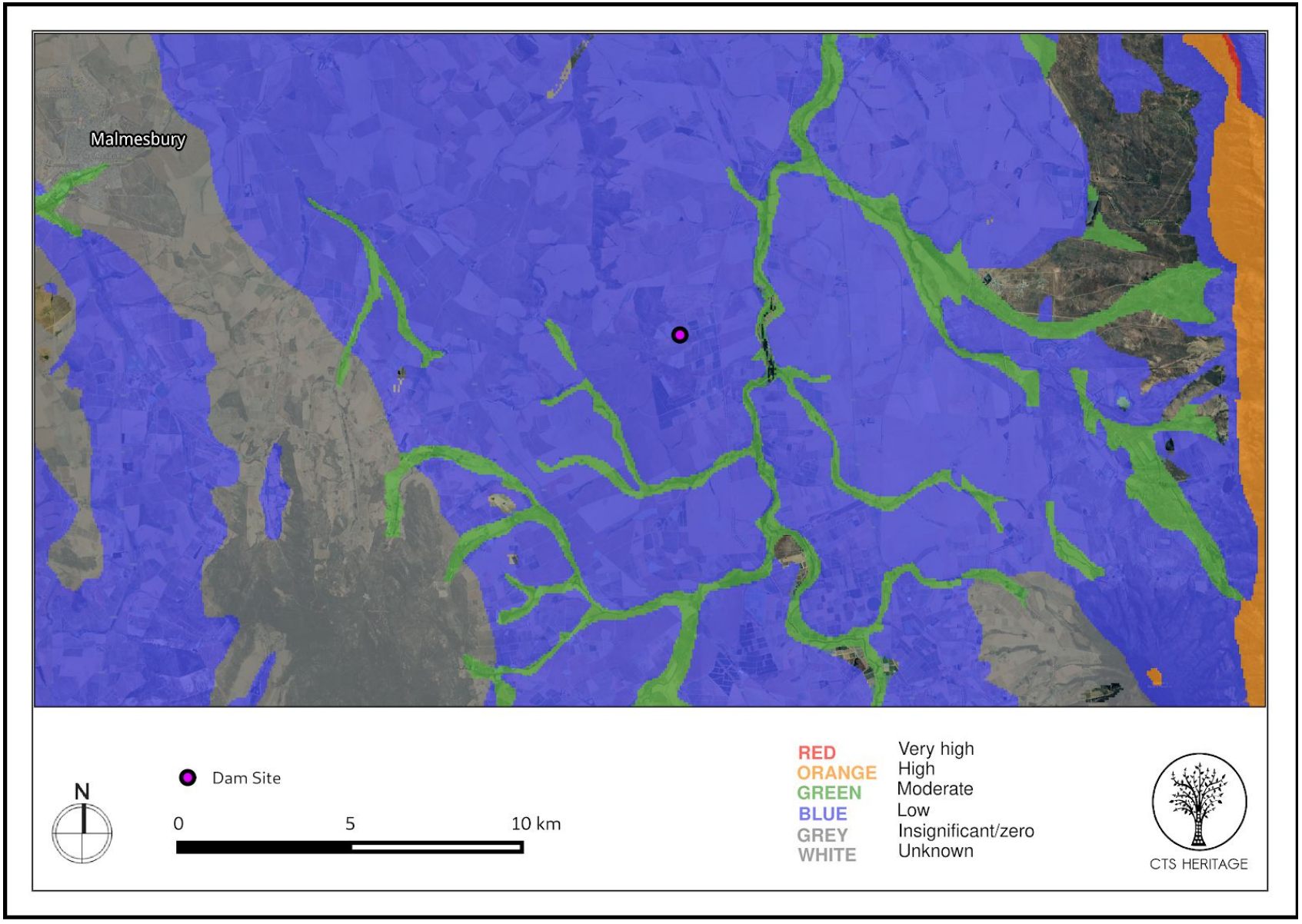

Figure 4a. SAHRIS Palaeosensitivity Map. Indicating low fossil sensitivity underlying the study area. Please See Appendix 3 for full guide to the legend.

Figure 5. GoogleMap. Indicating existing structures in proximity to existing dam

8. Heritage statement and character of the area

The proposed development entails the increase in height of the existing Zwartfontein dam wall with 2.3m. The existing dam wall height is ±11.7m and with the increase the maximum dam wall height will be 14m. The increase of the dam wall height will result in an increase of the dam's total footprint from 4.2ha to 5.8ha (1.6ha increase). The current dam capacity is at 150 000m³ and will be increased to 268 000m³ (118 000m³ increase). Irrigation pipelines as well as the pipeline feeding water to the dam from the Bergriver is in place. Water is being pumped from the Berg River and is an existing water use right.

According to Hart and Finnegan (2008 SAHRIS ID 8488) “The study area lies in the Swartland - a broad rural expanse of low rolling hills interspersed with farms, small communities and towns. Before the advent of wheat farming , the Swartland was characterised by "Renosterveld" plant communities which gave the area a dark-grey olive-green appearance when viewed from afar - hence the name Swartland (black country). The underlying geology which consists of schists and shales of the Malmesbury Group is considered to be good agricultural land, the shale being rich in trace elements, which before the advent of agriculture supported large quantities of game. The Berg River alluvial terraces contain copious quantities of Early and Middle Stone Age artefacts attesting to the occupation of this landscape by humans for a million years or more. Today the Swartland is one of the most important wheat producing areas of the nation. Almost every farmer is involved in the cultivation of wheat which has given the entire area its particular character and texture.” The area under investigation is currently cultivated and has been under cultivation since the late 19th Century at least (Figure 1c). As such, the proposed dam expansion is consistent with the existing agricultural cultural landscape of the Swartland.

There are some structures that may have some heritage significance located in close proximity to the development area (Figure 5). However, as the proposed development is for the expansion of the existing dam, it is unlikely that the proposed development will impact negatively on these built environment heritage resources. In addition, the Provincial Heritage Site of Elandsberg Private Nature Reserve is located approximately 10km from the proposed dam expansion area. This heritage resources will not be impacted by the proposed development.

According to Hart and Finnegan (2008 SAHRIS ID 8488) “Previous experience has shown that pre-colonial archaeological material is relatively limited in the Swartland as the shale bedrock offers very poor quality material for making stone artefacts. Early and Middle Stone Age finds are p*lentiful along the banks of the Berg River where alluvial quartzites are to be found*, but decrease with distance from the river. It is highly possible that pre-colonial archaeology ranging from Late to Early Stone Age is present in the study area, however years of plowing has destroyed its context and diminished the scientific value of any such material.” The nearest known significant archaeological sites recorded on SAHRIS are identified as Limekiln1 (SAHRIS SID 18651), a historic lime kiln located along the side of the road, and KSB-01 (Kasteelberg SID 25406) however it is suspected that this site has been incorrectly mapped, and should represent the site known as Kasteelberg near Vredenburg. While it may be likely that, due to its proximity to the Berg River, that archaeological resources may be located within the proposed development area, it is unlikely that these resources will be *in situ* due to the extensive agricultural activity that has occured on this site.

The area proposed for development is underlain by the Porterville Formation and Quarternary sands, both with low palaeontological sensitivity (Figure 4). The Porterville Formation forms part of the Malmesbury Group. No fossils have yet been recorded from this group but there is a potential for organic-walled microfossils, trace fossils, stromatolites, even vendobiontans and shelly fossils like *Cloudina*. However, the resource to be accessed by the sand mine is the Quarternary sands. As such, no impacts to significant palaeontological resources are anticipated.

RECOMMENDATION:

The heritage resources in the area proposed for development are sufficiently recorded.

Due to the location and nature of the proposed development, it is unlikely that significant heritage resources will be impacted by the development and as such, it is recommended that no further heritage studies are required

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APPENDIX 1

List of heritage resources within the 15km Inclusion Zone

Site ID	Site no	Full Site Name	Site Type	Grading
18651	LIMEKILN1	Lime Kiln 1	Artefacts, Ruin > 100 years	Grade IIIa
94381	Elberg	Elandsberg	Archaeological, Artefacts	Grade IIIc
94380	Eberg	Elandsberg ESA	Artefacts, Archaeological	Grade IIIc
94440	Elb 1	Elandsberg 1	Artefacts	Grade IIIc
25406	KSB -01	Kasteelberg	Archaeological	Grade IIIb
28186	9/2/060/0002	Oude Kerk Museum, Main Street, Riebeeck-Kasteel	Building	Grade II
27195	9/2/106/0002	Groenberg School, Wellington District	Building	Grade II

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APPENDIX 2

Reference List

Heritage Impact Assessments				
Nid	**Report Type**	**Author/s**	**Date**	**Title**
6625	AIA Phase 1	Jonathan Kaplan	11/08/2008	Archaeological Scoping Proposed Development of Erf 321, Riebeek Kasteel, Western Cape Province
7776	AIA Phase 1	Jonathan Kaplan	08/09/2008	Archaeological Impact Assessment: Proposed Development of Erf 42, Riebeek Kasteel, Western Cape Province
7262	AIA Phase 1	Hilary Deacon	28/04/2008	Archaeological and Heritage Impact Assessment: Majuba Cattle Housing (Farm Majuba, nr Malmesbury)
6619	AIA Phase 1	Jonathan Kaplan	04/08/2008	Archaeological Impact Assessment: Proposed Development of Erf 2021, Riebeek Kasteel, Western Cape Province
4403	AIA Phase 1	Jonathan Kaplan	20/04/2006	Archaeological Inspection and Assessment of a Historic Lime Kiln Alongside Divisional Road 1131 Malmesbury
6635	AIA Phase 1	Jonathan Kaplan	30/01/2009	Archaeological Assessment: Proposed Rezoning of Erf 407, Riebeek Kasteel, Western Cape Province
8488	HIA	Timothy Hart, Erin Finnegan	01/03/2008	Heritage Impact Assessment of Proposed Expansion of the Riebeek West Portland Cement Facility Malmesbury District, Western 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)
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.

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APPENDIX 4 - Methodology

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

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

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

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

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

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

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

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

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

DETERMINATION OF THE PALAEONTOLOGICAL SENSITIVITY

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

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

DETERMINATION OF THE COVERAGE RATING ASCRIBED TO A REPORT POLYGON

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

Low coverage will be used for:

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

Medium coverage will be used for

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

High coverage will be used for

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

RECOMMENDATION GUIDE

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

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

This recommendation is made when:

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

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

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

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

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

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

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

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