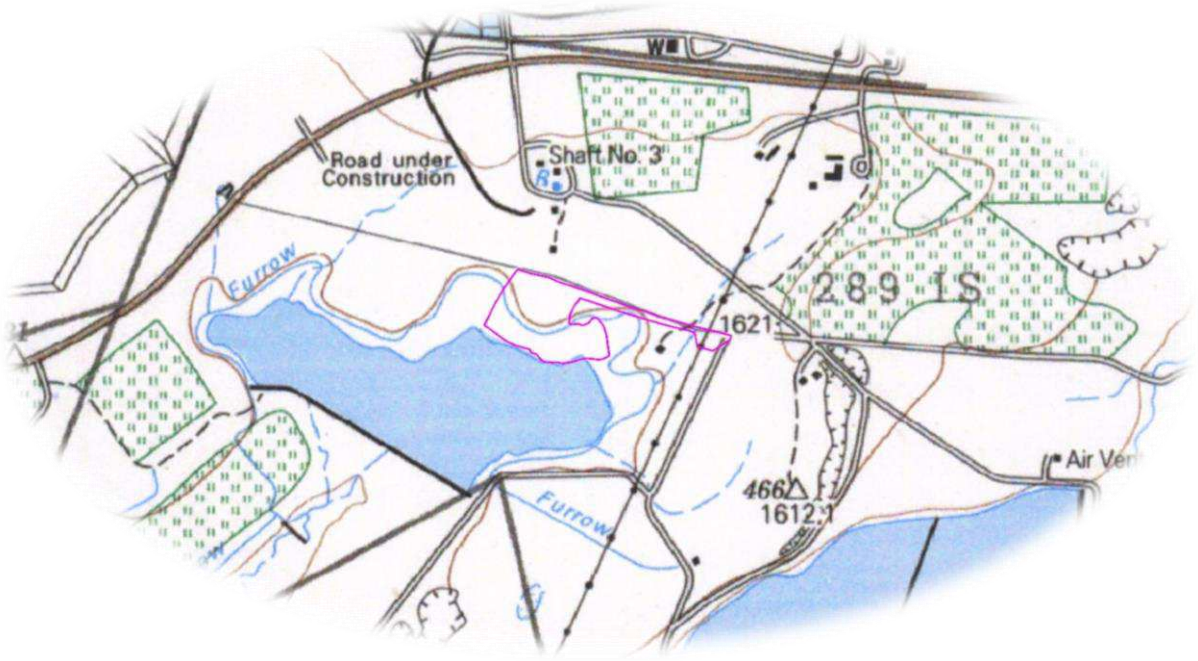
APPENDIX C3

HERITAGE IMPACT ASSESSMENT

MEGCHEM (PTY) LTD



PROCESS WATER DAMS – ENHANCED EVAPORATION PROJECT, SASOL SECUNDA OPERATIONS, SECUNDA, MPUMALANGA PROVINCE

PHASE 1 HERITAGE IMPACT ASSESSMENT

6 FEBRUARY 2026 (Revised 31 March 2026)

Submitted to : Nemai Consulting (Pty) Ltd

Prepared by:

Jennifer Kitto

Nitai Consulting (PTY) Ltd

147 Bram Fischer Drive

Ferndale

2194

NITAI CONSULTING
Sustainability Specialists

The heritage impact assessment report has been compiled considering the NEMA Appendix 6 requirements for specialist reports as indicated in the table below.

Requirements of Appendix 6 – GN R326 EIAs Regulations (2014, amended 2017)	**Relevant section in report**
1.(1) (a) (i) Details of the specialist who prepared the report	Section 1.1.3 of Report
(ii) The expertise of that person to compile a specialist report including a curriculum vita	Section 1.1.3 and of Report and Appendix 2
(b) A declaration that the person is independent in a form as may be specified by the competent authority	Page iii of the report
(c) An indication of the scope of, and the purpose for which, the report was prepared	Section 1.1
(cA) An indication of the quality and age of base data used for the specialist report	N/A
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change	Section 5
(d) The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment	Section 6
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	Section 8
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Section 7 and 8
(g) An identification of any areas to be avoided, including buffers	Section 6
(h) A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Appendix 1
(i) A description of any assumptions made and any uncertainties or gaps in knowledge;	Section 3
(j) A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives, on the environment	Sections 6, 11
(k) Any mitigation measures for inclusion in the EMPr	Section 8, 12, 13
(l) Any conditions for inclusion in the environmental authorisation	N/A
(m) Any monitoring requirements for inclusion in the EMPr or environmental authorisation	N/A
(n)(i) A reasoned opinion as to whether the proposed activity, activities or portions thereof should be authorised and	Section 13
(n)(iA) A reasoned opinion regarding the acceptability of the proposed activity or activities; and	
(n)(ii) If the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	Section 8, 12, 13
(o) A description of any consultation process that was undertaken during the course of carrying out the study	Not applicable. A public consultation process will be handled as part of the BA and EMPr process.

Requirements of Appendix 6 – GN R326 EIAs Regulations (2014, amended 2017)	**Relevant section in report**
(p) A summary and copies if any comments that were received during any consultation process	Not applicable. To date no comments have been raised regarding heritage resources that require input from a specialist.
(q) Any other information requested by the competent authority.	Not applicable.
(2) Where a government notice by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	Section 38(3) of the NHRA

Declaration of Independence

The report has been compiled by Nitai Consulting (Pty) Ltd, an appointed Heritage Specialist for Nemai Consulting for the Proposed Sasol Evaporation Plant, Secunda, Govan Mbeki Local Municipality, in the Gert Sibande District Municipality, Mpumalanga Province. The views contained in this report are purely objective and no other interests are displayed during the Heritage Impact Assessment Process.

I, Jennifer Kitto, declare that –

General declaration:

- *I act as the independent heritage specialist*
- *I will perform the work in an objective manner, even if this results in views and findings that are not favourable to the project;*
- *I declare that there are no circumstances that may compromise my objectivity in performing such work;*
- *I have expertise in conducting heritage impact assessments, including knowledge of the National Heritage Resources Act, No 25 of 1999 (NHRA), associated Regulations and any guidelines that have relevance to the proposed activity;*
- *I will comply with the NHRA, associated Regulations and all other applicable legislation, specifically the National Environmental Management Act, No 107 of 1998 (NEMA);*
- *I will take into account, to the extent possible, the matters listed in section 38 of the NHRA;*
- *I have no, and will not engage in, conflicting interests in the undertaking of the activity;*
- *I undertake to disclose to the project proponent and the competent authority all material information in my possession that reasonably has or may have the potential of influencing -any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;*
- *I will ensure that information containing all relevant facts in respect of the project is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;*
- *I will provide the competent authority with access to all information at my disposal regarding the project, whether such information is favourable to the project or not*
- *All the particulars furnished by me in this form are true and correct;*
- *I will perform all other obligations as expected of a heritage specialist in terms of the NHRA and NEMA, associated Regulations, the constitutions of my affiliated professional bodies; and*
- *I realise that a false declaration is an offence in terms of regulation 71 of the NEMA Regulations and is punishable in terms of section 24F of the NEMA.*

Disclosure of Vested Interest

I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the NEMA Regulations;

HERITAGE CONSULTANT - Nitai Consulting (Pty) Ltd

PRINCIPAL HERITAGE PRACTITIONER – Jennifer Kitto

CONTACT PERSON - Jennifer Kitto

Tel - +27 (0) 633316606

Email – jenniferK@nitaiconsulting.co.za

SIGNATURE - _____

ACKNOWLEDGEMENT OF RECEIPT

CLIENT - Nemai Consulting

CONTACT PERSON - Marilie Pretorius

Tel - +27 (0) 11 781 1730

Fax - +27 (0) 11 781 1731

Email - marilieP@nemai.co.za

SIGNATURE - _____

Executive Summary

Introduction

Nemai Consulting (Pty) Ltd (hereinafter referred to as Nemai Consulting) was appointed by MegChem (Pty) Ltd (hereinafter referred to as MegChem) to undertake a Basic Assessment (BA) for the Process Water Dams – Enhanced Evaporation Project at SASOL, Secunda (the Project).

Nitai Consulting was sub-contracted by Nemai Consulting to undertake the Heritage Impact Assessment (HIA) for the BA. This document forms the (HIA) Report.

Proposed Project

The SASOL Secunda Operations (SO) is currently looking to install a forced evaporation system to enhance evaporation at the Process Water Dams (PWD), specifically Dam 10 A, as another way of managing effluent dam levels. The PWD at Water Recovery (WR) serve as the holding area for excess effluent generated in the process and relies on natural evaporation.

The scope of this Project entails the development of a detailed design engineering package for a complete enhanced evaporation system to achieve a total average of 6 megalitres per day (Ml/day) of evaporation from the process water system.

Methodology

A literature review / historical desktop study was undertaken of both published literature and past Heritage Impact Assessment reports for the general region. This included an examination of available editions (1964 to 2013) of the relevant 1:50 000 topographical map. Historical satellite imagery available on Google Earth was also examined and the DFFE Environmental Screening tool was utilised.

A physical Site Inspection or Field Survey was conducted of the project area (28 January 2026), predominantly by vehicle with selected areas traversed on foot, by an experienced heritage specialist, together with the client as part of a specialist team. This focussed on identifying and documenting heritage resources situated within and immediately adjacent to the proposed project area footprint, such as graves, historical structures or remains and archaeological sites or material.

Note that the temporary access road was assessed only at the desktop level as this component was added after the site visit was conducted.

The final step involved the recording and documentation of the identified heritage resources, the assessment of such resources in terms of heritage significance and impact assessment criteria, producing a heritage sensitivity map and compiling the heritage impact assessment report with constructive recommendations for mitigation, if required.

Significance Impact

The Sasol Secunda Operations (SO) is currently looking to install a forced evaporation system to enhance evaporation at the Process Water Dams (PWD) as another way of managing effluent dam levels. The project footprint is therefore located on a heavily industrialised site with evidence of past disturbance as well as historical and continuing mining on the adjacent property.

The impact of the proposed project on protected **historical structures is low** as the only heritage resource identified is the remains of an old livestock enclosure located just outside the boundary of the project footprint (EVAP-01).

As noted above, the impact significance of the project on **graves and cemeteries is negligible to low** as no graves were identified. However, there is a low possibility that unidentified burials could be uncovered during site clearance or construction.

The impact significance of the proposed project on **archaeological resources is low** as no archaeological sites or material were identified. However, there is a low possibility that sub-surface material could be uncovered during site clearance or construction.

The impact significance of the project on **intangible and living heritage resources is negligible** as no living heritage resources were identified.

Note: the addition of the temporary access road should not affect the above significance as the property affected has been used for mining activities since at least the early 1950s.

Mitigation Measures

The recommendations below are provided to mitigate the potential impact of the proposed project on the single identified heritage resource:

Demolished Historical Structure

- The demolished remains of the livestock enclosure (EVAP-01) are situated outside the project footprint and not considered to be conservation worthy and therefore no mitigation is required.

Unidentified Graves and Cemeteries

- If a burial or human remains are uncovered during site clearance or construction activities, a buffer of at least 30m must be placed around the site to ensure that the burial/human remains are not damaged. In addition, all site clearance or construction activities in the immediate vicinity of the burial/human remains must be suspended.
- The Chance Finds Procedure set out in this report must be implemented

Palaeontological Heritage

- A separate desktop palaeontological assessment of the footprint is being undertaken and will provide any mitigation measures considered necessary.

Conclusion

Taking all of the above into account, the considered opinion of the heritage specialist is that no fatal flaws with respect to heritage resources have been identified during this HIA study. Therefore, there are no objections to the proposed project from a heritage perspective provided that the recommendations and mitigation measures contained in this report and in the recommended palaeontological assessment are implemented where necessary.

Table of Contents

1 INTRODUCTION 1

1.1 Scope & Terms of Reference for the HIA report 1

1.1.1 Summary of Key Issues & Triggers Identified 1

1.1.2 Approach 1

1.1.3 Nominated Specialist Details 2

1.2 Project Description 2

2 LEGISLATION 2

2.1 South African Legislation 2

2.1.1 National Heritage Resources Act (Act No 25 of 1999; NHRA) 2

2.1.2 National Environmental Management Act (Act 107 of 1998; NEMA) 3

2.1.3 The National Health Act (Act No. 61 of 2003; NHA) and associated Regulations (2013) 3

3 ASSUMPTIONS AND CONSTRAINTS 3

4 PROJECT DESCRIPTION 4

4.1 Location 4

4.2 Project Overview 5

4.2.1 Current Process Description 5

4.2.2 Particulars of Dam 10A 6

4.2.3 Proposed Process Description 6

5 *STATUS QUO* ANALYSIS 8

5.1 General Existing Condition of Receiving Environment 8

5.2 Cultural-Heritage Receiving Environment 10

5.2.1 DFFE Screening Tool 10

5.2.2 Historical Background of Surrounding Region (archaeological and historical literature survey) 11

5.2.3 Cartographic findings 15

5.3 Previous HIA reports in the area 20

5.4 Palaeontological sensitivity 21

5.5 Findings of the Historical Desktop Study 21

6 SITE SURVEY/FIELDWORK RESULTS 21

7 SITE SENSITIVITY VERIFICATION ____ 27

8 SIGNIFICANCE ASSESSMENT ____ 27

9 IDENTIFICATION OF IMPACTS ____ 31

9.1 Impacts and Mitigation Framework 31

9.2 Identification of Activities and Aspects 33

9.3 Impact and Mitigation Assessment 33

9.4 Impacts During the Planning, Construction and Operation Phase 34

9.5 Cumulative impacts 35

10 ANALYSIS OF ALTERNATIVES ____ 35

10.1 "No-Go" Option 35

11 STATEMENT OF IMPACT SIGNIFICANCE ____ 36

12 CHANCE FINDS PROCEDURE ____ 36

13 RECOMMENDATIONS AND CONCLUSION ____ 37

14 REFERENCES ____ 38

APPENDIX 1: HERITAGE SENSITIVITY MAP/S ____ 40

APPENDIX 2: CURRICULUM VITAE OF HERITAGE SPECIALIST ____ 41

List of Tables

Table 1: Literature sources accessed 28

Table 2: Rating system for archaeological resources 28

Table 3: Rating system for built environment resources 29

Table 4: Site significance classification standards as prescribed by SAHRA. 31

Table 5: Impact and Mitigation Quantification Framework 31

Table 6: Impact Methodology Table 32

Table 7: Activity, Aspects and Impacts of the Project 33

Table 8: Heritage Resources – Historical Structures Mitigation Table 34

Table 9: Heritage Resources –Unidentified Graves Mitigation Table 34

List of Figures

Figure 1: Locality of the proposed Project footprint (blue polygon) 4
Figure 2: Aerial view of the Process Water Dams (Sasol 2024/Nemai 2025) 5
Figure 3: Layout of MCC Proposed Evaporators in the North-eastern corner of Dam 10A (Nemai, 2025) 6
Figure 4: Detailed Layout Plan (Sasol, 2026) 7
Figure 5: Enlargement of detailed layout overlain on project area footprint 7
Figure 6: Detailed layout with temporary access road, overlain on project area footprint 8
Figure 7: View of Dam 10A, looking west and showing the dam wall 9
Figure 8: General View of Dam10A, looking north 9
Figure 9: View of the eastern end of the footprint, showing existing powerlines with Dam 10A to the south 9
Figure 10: View looking west, showing the existing access road along the northern boundary 9
Figure 11: View looking south to Dam 10A, showing part of a recent culvert 9
Figure 12: View of recently constructed culvert under the gravel access road 9
Figure 13: View showing recently constructed culverts along gravel road 9
Figure 14: View looking south to Dam 10A, showing dense long grass and vegetation cover 9
Figure 16: View western section of the footprint area showing the long dense vegetation cover 10
Figure 17: View showing vegetation cover indicating previous disturbance 10
Figure 18: View showing the ditch and berm that crosses the entire project footprint 10
Figure 19: View towards the ditch and berm, looking north from Dam 10A 10
Figure 20: Map of relative Archaeological and Cultural heritage sensitivity for the Proposed Project footprint (DFFE Screening Tool, 2023) 11
Figure 21: Enlarged view of topographic map 2629CA Ed 1 1964, depicting no heritage features within the project footprint (pink polygon). A few structures are depicted just outside the boundaries of the footprint: three are associated with Winkelhaak Mines Ltd, and one could be a house (red circles) 16
Figure 22: Enlarged view of topographic map 2629CA Ed2 1984, depicting several heritage features circled in red outside the boundaries of the footprint: the structures associated with the mine have been replaced with Shaft No 3 and there is a kraal situated near the house. 17
Figure 23: Enlarged view of topographic map 2629CA Ed 3 1995, depicting further changes to the few structures located outside the footprint (red circles). This sheet also depicts the development of a dam immediately south of the footprint with a water furrow that crosses the footprint. 18
Figure 24: Enlarged view of topographic map 2629CA Ed 4 2009, depicting further changes to the few structures located outside the footprint (red circles). The dam immediately south of the footprint with a water furrow that crosses the footprint is still shown 19
Figure 25: EVAP-01, View of the remains of the livestock enclosure, showing metal entrance as well as dense and long vegetation cover 22
Figure 26: View of the area adjacent to the enclosure remains with shorter grass 23

Figure 27: View showing concrete remains at the livestock enclosure 23
Figure 28: Identified Heritage Sites overlaid on satellite imagery showing the project Footprint. The survey identified one heritage resource located just outside the footprint (green icon) 24
Figure 29: Features identified from desktop study (topographic maps or satellite imagery) overlaid on project footprint 25
Figure 30: Site Survey Tracklog (blue lines) overlaid on the project footprint 26

List of Abbreviations

APHP	Association of Professional Heritage Practitioners
ASAPA	Association of Southern African Professional Archaeologists
ANC	African National Congress
BA	Basic Assessment
BGG	Burial Grounds and Graves
CRM	Cultural Resources Management
CTL	coal-to-liquid
DLRRD	Department of Land Reform & Rural Development
DFFE	Department of Fisheries Forestry and Environment
EHS	Environmental, Health and Safety
EAP	Environmental Assessment Practitioner
EIA	Early Iron Age
EMPr	Environmental Management Programme
ESA	Early Stone Age
ESIA	Environmental and Social Impact Assessment
GIS	Geographic Information System
GNR	Government Notice Regulation
GPS	Global Positioning System
ha	Hectare
HIA	Heritage Impact Assessment
IAIAsa	International Association for Impact Assessment South Africa
km	Kilometre (1 000m)
kPa	Kilo Pascal
LIA	Late Iron Age
LSA	Later Stone Age
MK	Umkhonto weSizwe
Ml/day	megalitres per day
MPHRA	Mpumalanga Provincial Heritage Resources Authority
MSA	Middle Stone Age
N/A	Not Applicable
NCW	Not Conservation Worthy
NEMA	National Environmental Management Act (No. 107 of 1998)
NHA	National Health Act, (No. 61 of 2003)
NHRA	National Heritage Resources Act (No 25 of 1999)

PHRA	Provincial Heritage Resources Authority
PWD	Process Water Dams
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SHEQ	Safety, Health Environment and Quality ()
SCO	Secunda Chemicals Operations
SO	Sasol Secunda Operations
WR	Water Recovery

1 INTRODUCTION

The Sasol Secunda Operations (SO) is currently looking to install a forced evaporation system to enhance evaporation at the Process Water Dams (PWD) as another way of managing effluent dam levels. The PWD at Water Recovery (WR) serve as the holding area for excess effluent generated in the process and relies on natural evaporation.

The scope of this Project entails the development of a detailed design engineering package for a complete enhanced evaporation system to achieve a total of 6 megalitres per day (Ml/day) of evaporation from the process water system.

Nemai Consulting (Pty) Ltd (hereinafter referred to as Nemai Consulting) was appointed by MegChem (Pty) Ltd (hereinafter referred to as MegChem) to undertake the Basic Assessment (BA) for the project for the Process Water Dams – Enhanced Evaporation Project at Sasol, Secunda (the Project).

Nitai Consulting was sub-contracted by Nemai Consulting to undertake the Heritage Impact Assessment (HIA) for the BA. This document forms the HIA Report.

1.1 Scope & Terms of Reference for the HIA report

1.1.1 Summary of Key Issues & Triggers Identified

In terms of the National Heritage Resources Act, No 25 of 1999 (NHRA), the following proposed activities trigger the need for a Heritage Impact Assessment (HIA):

- Proposed development that is more than 5000m^2.
- Proposed development where an impact assessment is triggered in terms of National Environmental Management Act, No 107 of 1998 (NEMA).

1.1.2 Approach

- Undertake a Heritage Impact Assessment in accordance with the NHRA.
- Identify and map all heritage resources in the area affected, as defined in Section 2 of the NHRA, including archaeological sites on or near the proposed development.
- Assess the significance of such resources in terms of the heritage assessment criteria as set out in the regulations.
- Assess the impacts of the Project on such heritage resources.
- Prepare a heritage sensitivity map (GIS-based), based on the findings of the study.
- Identify heritage resources to be monitored.
- Comply with specific requirements and guidelines of Mpumalanga Provincial Heritage Resources Authority (MPHRA) and SAHRA.

1.1.3 Nominated Specialist Details

Organisation:	Nitai Consulting
Name:	Jennifer Kitto
Qualifications:	BA Archaeology and Social Anthropology; BA (Hons) Social Anthropology
No. of years' experience:	28
Affiliation (if applicable):	Association of Southern African Professional Archaeologists (ASAPA) - Technical member No.444 Association of Professional Heritage Practitioners (APHP) - Professional Member No. PHP0156 International Association for Impact Assessment (IAIAsa) – Member No. 7151

1.2 Project Description

The Sasol Secunda Operations is currently looking to install a forced evaporation system to enhance evaporation at the Process Water Dams (PWD) as another way of managing effluent dam levels. The PWD at Water Resources (WR) serve as the holding area for excess effluent generated in the process and relies on natural evaporation.

2 LEGISLATION

The identification, evaluation and assessment of any cultural heritage site, artefact or find in the South African context is required and governed by various pieces of legislation, including the National Heritage Resources Act, 25 of 1999 (NHRA) and associated Regulations, National Environmental Management Act, Act 107 of 1998 (NEMA) and associated Regulations (as amended) as well as the National Health Act, Act No. 61 of 2003 (NHA), and associated specific Regulations governing human remains.

2.1 South African Legislation

2.1.1 National Heritage Resources Act (Act No 25 of 1999; NHRA)

The NHRA is the legislation that defines cultural heritage resources (section 3), provides protection to specific types of heritage resources (sections 34, 35, 36) and also requires an impact assessment of such resources for specific development activities (section 38(1)). Section 38(8) further allows for cooperation and integration of the management of such impact assessment between the national South African Heritage

Resources Agency (SAHRA) or provincial heritage resources authority (SAHRA or a PHRA) and the national Department of Forestry, Fisheries and Environment (DFFE).

In terms of section 38(1)(a) of the NHRA, the specific types of development activity that may require a Heritage Impact Assessment (HIA) include: proposed development that is more than 5000m^2 in extent. As the proposed project area extent is ±12.2 ha, this study falls under s38(8) and requires comment from the relevant heritage resources authority (SAHRA and/or the Mpumalanga Provincial Heritage Authority - MPHRA).

Sections 34-36 of the NHRA further stipulate the protections afforded to specific types of heritage resources, *i.e*., structures older than 60 years (s34); archaeological, palaeontological, meteorites (s35); graves and burial grounds (s36)), as well as the mitigation process to be followed if these resources need to be disturbed. The construction of the proposed evaporation plant may result in impacts to any of these types of heritage resources.

2.1.2 National Environmental Management Act (Act 107 of 1998; NEMA)

NEMA states that Environmental Management Programme (EMPr) should, (23 -2 (b)) "…identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage". In addition, the NEMA and associated Regulations Government Notice Regulation (GNR) 982 (Government Gazette 38282, 14 December 2014, amended 2017) state that, "the objective of an environmental impact assessment process is to, … identify the location of the development footprint within the preferred site … focussing on the geographical, physical, biological, social, economic, *cultural and heritage aspects* of the environment" (GNR 982, Appendix 3(2)(c), emphasis added).

The EIA Regulations, 2014 (as amended), published in GNR 982 (Government Gazette 38282, 14 December 2014, amended 2017) promulgated under the NEMA contain specific requirements to be addressed in the different types of impact assessment reports (Regulations 19, 21 and 23) as well as requirements for Specialist Reports (Appendix 6).

2.1.3 The National Health Act (Act No. 61 of 2003; NHA) and associated Regulations (2013)

In the case of graves and/or burial grounds that could be impacted by a proposed development, and which are identified through an impact assessment, specific Regulations relating to the Management of Human Remains (GNR 363 of 2013 in Government Gazette 36473) address the exhumation and reburial of human remains: Regulations 26, 27 and 28.

3 ASSUMPTIONS AND CONSTRAINTS

This assessment assumes that all the information provided by the client and the Environmental Assessment Practitioner (EAP) regarding the project footprint is correct and current.

The majority of the project footprint area was covered in extremely dense and long vegetation which meant that archaeological and heritage visibility was relatively low. However, the footprint area has been subject to considerable previous disturbance by the construction of the dam (Dam 10A) located immediately south

and an associated substantial ditch and berm which runs across the entire footprint. Therefore, the possibility that some heritage resources have not been identified, specifically, informal graves or burial sites and demolished building remains, is considered to be very low.

Note that the temporary access road was assessed only at the desktop level as this component was added after the site visit was conducted.

4 PROJECT DESCRIPTION

4.1 Location

The Project footprint falls within the Sasol Secunda Operations property, in the town of Secunda, Govan Mbeki Local Municipality (LM), in the Gert Sibande District Municipality (DM), within Mpumalanga Province (**Figure 1** below).

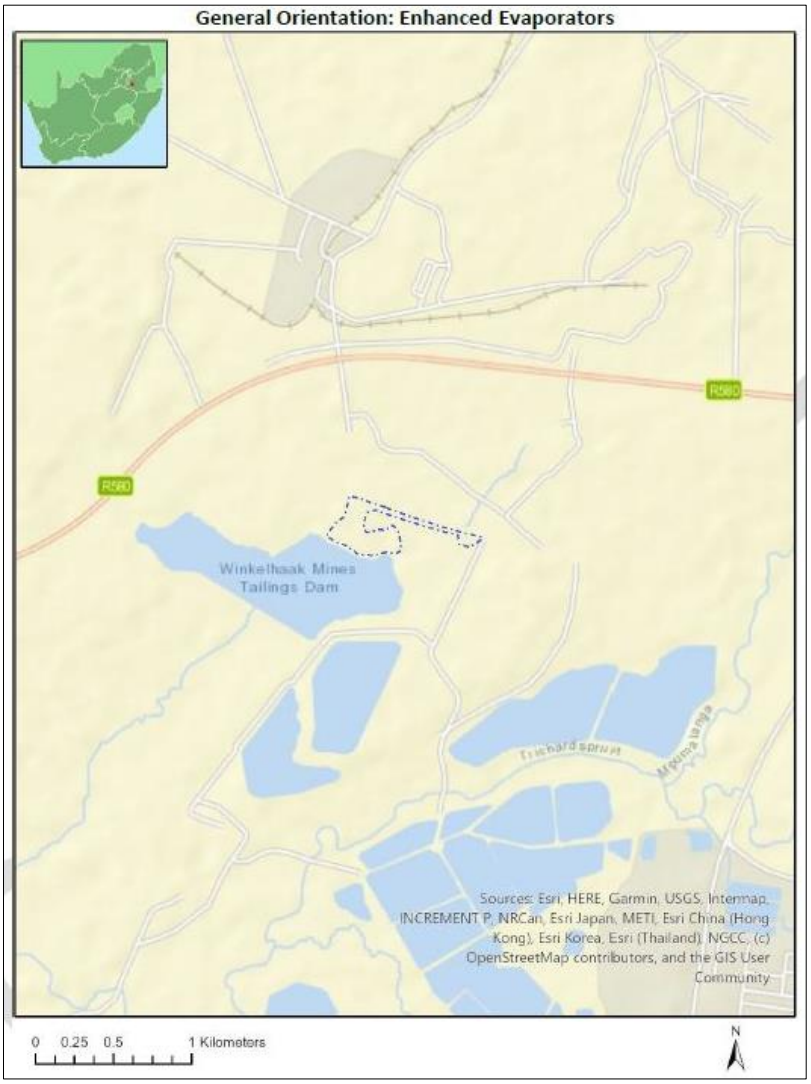


Figure 1: Locality of the proposed Project footprint (blue polygon)

4.2 Project Overview

The SASOL Secunda Operations (SO) is currently looking to install a forced evaporation system to enhance evaporation at the Process Water Dams (PWD) as another way of managing effluent dam levels. The PWD at Water Recovery (WR) serve as the holding area for excess effluent generated in the process and relies on natural evaporation.

The scope of this Project entails the development of a detailed design engineering package for a complete enhanced evaporation system to achieve a total of 6 megalitres per day (Ml/day) of evaporation from the process water system.

4.2.1 Current Process Description

The PWD system consists of two overall sections, namely the primary and secondary dam system. The primary dam system contains Dams 1, 2, 3 and 4 while the secondary dam system consists of Dams 6A & B, 7A & B, 8, 9,10A, 10B and 10C as depicted in **Figure 2**.

Process water from WR enters the dams through Dam 1 and 2. From these two dams, water is transferred between the dams from Dam 1 to Dam 2 to Dam 3 and Dam 4 through gravity. A pump station in the common wall of Dams 2, 4, and 7 is utilised to pump the water back to the plant or to Dams 8 and 10. Dam 7A and B and Dam 6 are filled through pipelines from Dams 8, 9 and 10. The storage effluent Dam selected as most optimal for the proposed Project during the feasibility phase is Dam 10A..

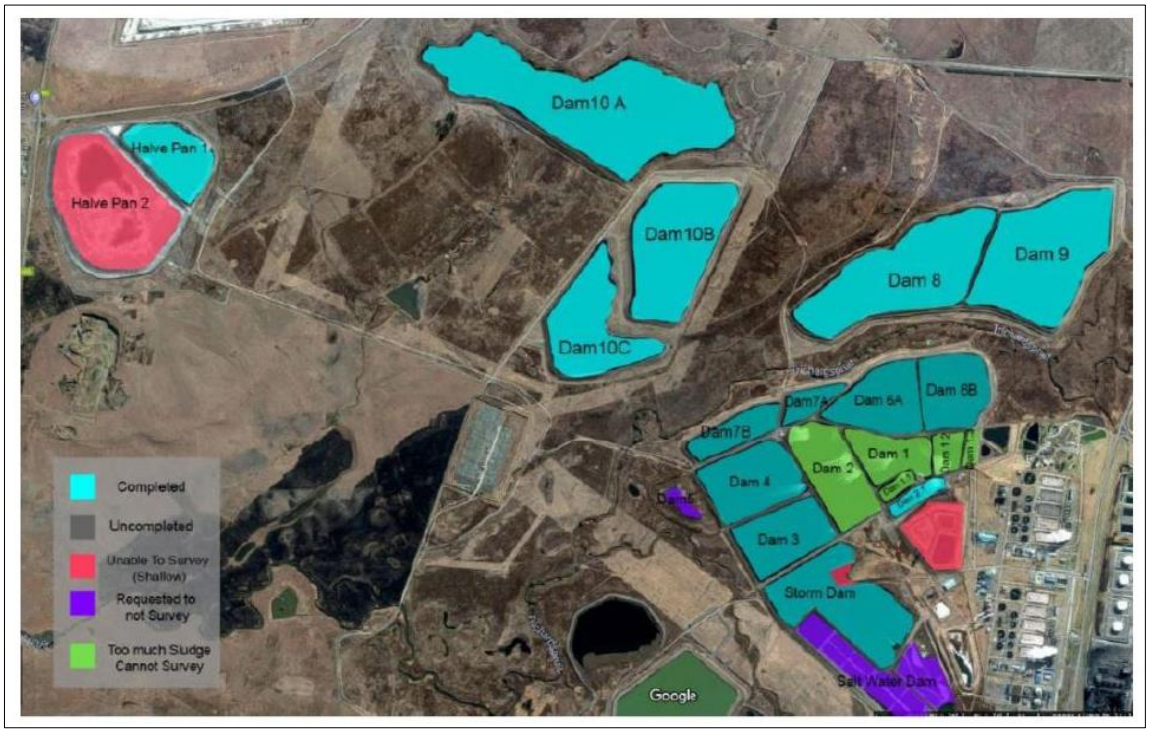


Figure 2: Aerial view of the Process Water Dams (Sasol 2024/Nemai 2025)

4.2.2 Particulars of Dam 10A

Secunda Dam 10A is situated in a tributary of the Klipspruit, approximately 3 km northwest of the Sasol Secunda Petrochemical Plant and 5 km south-southwest of Secunda town in Mpumalanga Province. A low-level embankment and an external stormwater trench divert rainwater runoff from the dam's catchment area to its downstream side.

4.2.3 Proposed Process Description

The PWDs function as storage areas for the surplus effluent generated during the facility's operations, typically depending on natural evaporation to regulate water levels. However, due to the increasing volumes of industrial wastewater, there is a growing need for an improved evaporation technique to complement natural processes and maintain consistent effluent management.

To ensure the Recovery Water Dams manage the increased flow of process water from Sasol SO with their current storage capacity within the PWDs it would be advantageous to increase the evaporation rate from the dams using a mechanical system. The enhancement of natural evaporation can be achieved through the process of making use of mechanical forced evaporators to drive an evaporation process.

Water is drawn from Dam 10A via a pump (suction capacity of 70.6 kPa) to the evaporation unit. The water is then circulated through a water spray ring on the fan of the evaporation unit which blows the water droplets over Dam 10A from the North-eastern corner of the dam. The droplets produced by the evaporators are small, which increases the total surface area available for evaporation, resulting in enhanced evaporation rates. However, not all the water supplied to the mechanical evaporators evaporates, and some falls back into Dam 10A (See **Figure 3, Figure 4, Figure 5**, below).

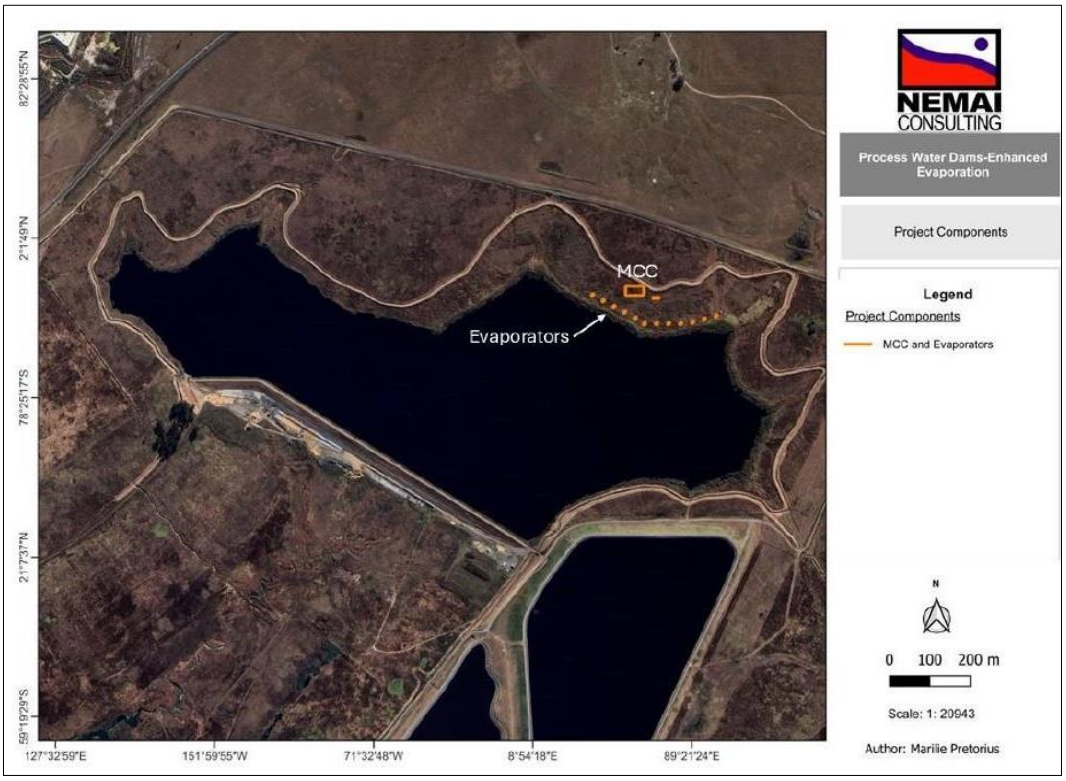


Figure 3: Layout of MCC Proposed Evaporators in the North-eastern corner of Dam 10A (Nemai, 2025)

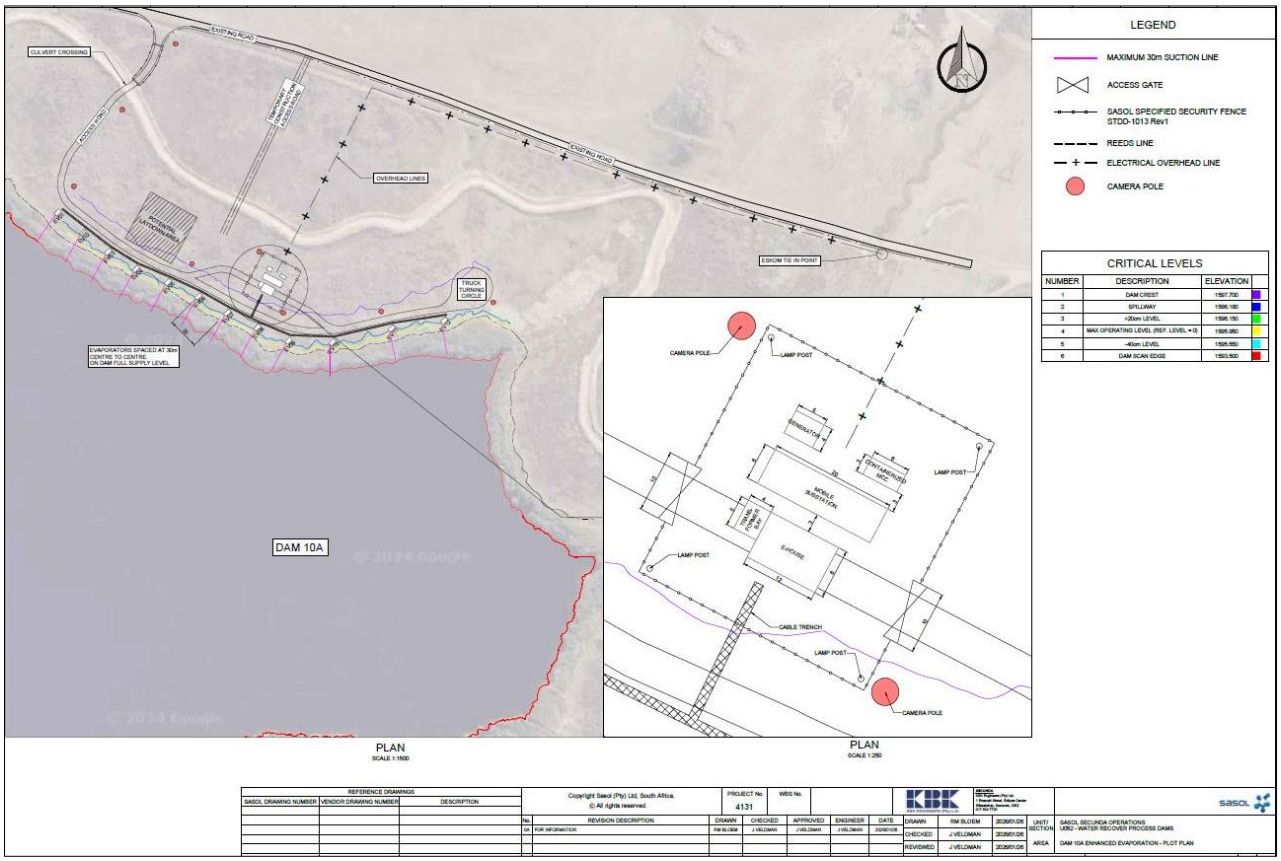


Figure 4: Detailed Layout Plan (Sasol, 2026)

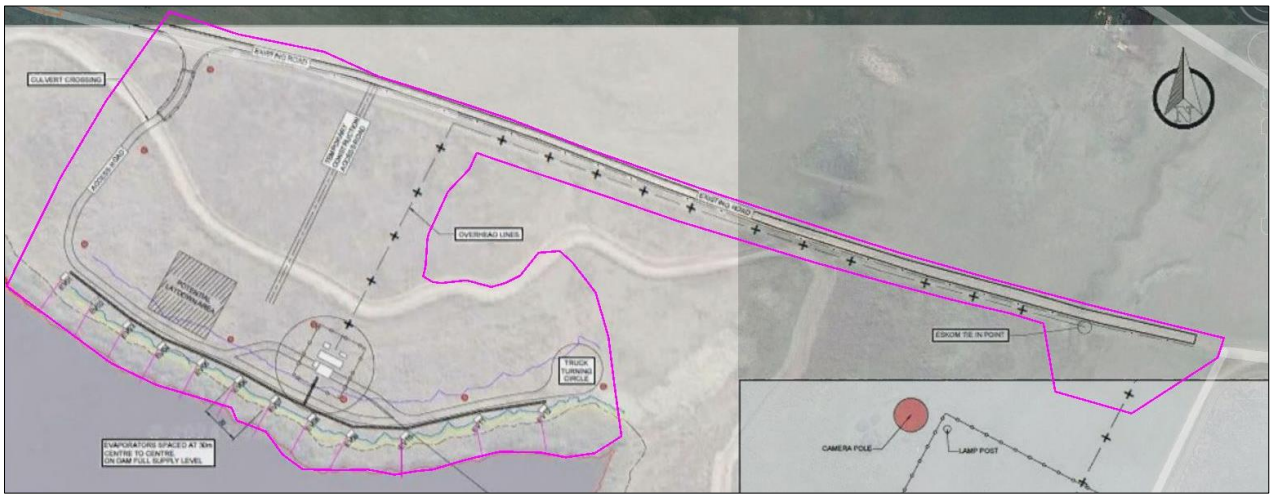


Figure 5: Enlargement of detailed layout overlain on project area footprint



Figure 6: Detailed layout with temporary access road, overlain on project area footprint

5 STATUS QUO ANALYSIS

5.1 General Existing Condition of Receiving Environment

The dominant land uses in the general region include coal and gold mining and agriculture, with scattered towns. The project area is located in the Sasol Secunda Complex which is a heavily industrialised site that has been developed since 1975/76. The existing Dam 10A was constructed in the 1980s and the immediate project area has a substantial ditch and berm running across the site to contain any overflow from the dam. At the time of the site visit, the project area was covered by extremely long and grass and secondary dense vegetation (**Figure 7** to **Figure 18)**.



Figure 7: View of Dam 10A, looking west and showing the dam wall



Figure 8: General View of Dam10A, looking north



Figure 9: View of the eastern end of the footprint, showing existing powerlines with Dam 10A to the south



Figure 10: View looking west, showing the existing access road along the northern boundary



Figure 11: View looking south to Dam 10A, showing part of a recent culvert



Figure 12: View of recently constructed culvert under the gravel access road



Figure 13: View showing recently constructed culverts along gravel road



Figure 14: View looking south to Dam 10A, showing dense long grass and vegetation cover



Figure 15: View western section of the footprint area showing the long dense vegetation cover



Figure 16: View showing vegetation cover indicating previous disturbance



Figure 17: View showing the ditch and berm that crosses the entire project footprint



Figure 18: View towards the ditch and berm, looking north from Dam 10A

5.2 Cultural-Heritage Receiving Environment

5.2.1 DFFE Screening Tool

The DFFE National Web Based Environmental Screening Tool was accessed for information on the cultural-heritage sensitivity of the general region. This indicated that the archaeological and cultural heritage sensitivity of the project area is low (**Figure 19**Figure 19).

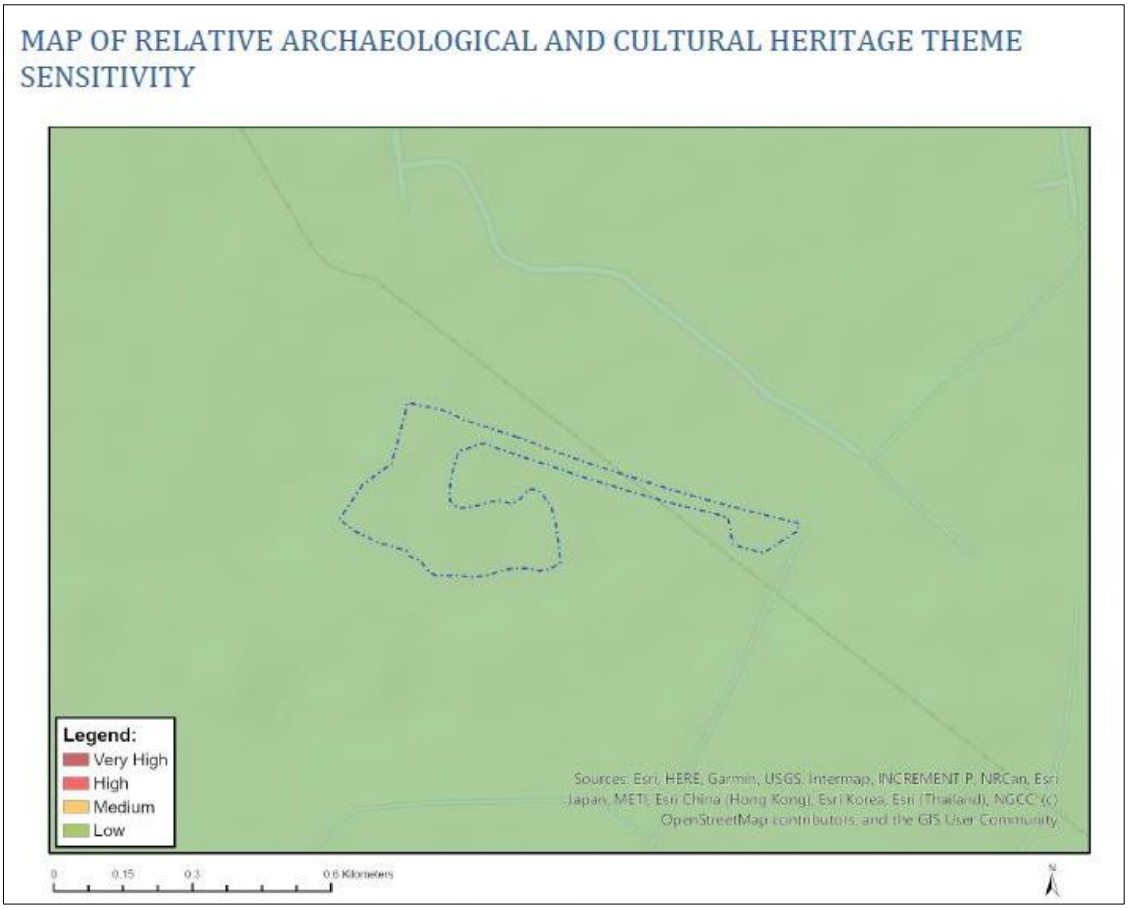


Figure 19: Map of relative Archaeological and Cultural heritage sensitivity for the Proposed Project footprint (DFFE Screening Tool, 2023)

5.2.2 Historical Background of Surrounding Region (archaeological and historical literature survey)

The archaeological history of south Africa can be divided broadly into a Stone Age, Iron Age and Historic or Colonial Period. An archaeological and historical overview of the general region is presented below.

The Stone Age

In South Africa the oldest archaeological period is referred to by archaeologist as the Earlier Stone Age (ESA). The ESA dates from about 2 million to 250 000 years ago. The ESA comprises two technological phases. The earliest of these is known as Oldowan, after Olduvai Gorge in Tanzania where the stone tools were first recognised in the 1960s (Esterhuysen and Smith, 2007). This phase is associated with simple flakes and hammer stones. It dates to approximately 2 million years ago. The second technological phase is the Acheulian (named after a site in France where they were first discovered in the 1800s), which comprises more specialised stone artefacts such as the cleaver and bifacial hand axe. The Acheulian dates to approximately 1.5 million years ago.

The Middle Stone Age (MSA) is associated with a definite change in the technique used to produce stone tools from *circa* 250 000 years ago. The new technique produced flakes, points and blades from a prepared core. The attaching of stone tools onto bone or wood shafts to produce spears, knives or axes is also associated with the MSA (Esterhuysen and Smith, 2007). This phase is also associated with modern humans and complex cognition (Wadley, 2013). Although not much research has been undertaken on the MSA in

Mpumalanga, the Bushman Rock Shelter (BRS) on the farm Klipfonteinhoek in the Ohrigstad District is a well-known site with occupation layers dated to between c.40 000 years ago to c.27 000BP (Esterhuysen and Smith, 2007). No Early Stone Age sites are known in the direct vicinity of the study area.

The Later Stone Age (LSA) is the third archaeological phase, which occurred from about 20 000 years ago, and is marked by further technological changes and social transformations. The technological changes include the production of very small stone tools called microliths; the bow and the link-shaft arrow; stones with holes bored through the middle which were used as digging-stick weights; polished and decorated bone tools; ostrich eggshell beads and the production of rock paintings and engravings. Evidence of ritual practices and complex societies is also significant (Deacon & Deacon 1999). This period is associated with both hunter-gatherers (San) and early pastoralists (Khoekhoe). It continued until the arrival of Iron Age farming groups and European settlers (including a period of interaction). Two LSA sites are known on the farm Honingklip near Badplaas in the Carolina District. They are located on opposite sides of a bend in the Nhlazatshe River, in the foothills of the Drakensberg (Esterhuysen and Smith, 2007; Delius (ed) 2006). No Middle Stone Age sites are known in the direct vicinity of the study area.

Rock Art

Several rock painting sites are known from the greater region: including Carolina (10), Ermelo (8), Middleburg (1) and Witbank (4). No engraving sites are known (Smith and Zubieta, 2007). A recent research study by Maseko (2020) has identified 31 rock painting sites in the area around the towns of Hendrina, Breyten, Lake Chrissie and Carolina.

The Iron Age

The Early Iron Age (EIA) in South Africa begins from c.AD 500 until c.AD1100. This period is associated with the migration of Bantu-speaking farming communities into the Mpumalanga region and the continued movement of such communities between the Lowveld and Highveld of Mpumalanga until the 12th century (Esterhuysen and Smith, 2007). These people practised a mixed farming economy and had the technology to work metals like iron and copper.

The Late Iron Age (LIA) in South Africa (AD 1600 – AD 1840) is associated with pre-colonial farming communities (both agricultural and pastoralist), who lived in distinctive and often extensive stone-walled settlements (to which Huffman has given the label, 'Central Cattle Pattern') (Delius 2006; Huffman, 2007). The general area between Carolina and Lydenburg contains a large number of LIA settlements which indicates a substantial increase in population or movement of people into the area from the 15th century (Esterhuysen and Smith 2007).

Two main groups or periods (distinguished by ceramic styles called facies) have been identified by Huffman (2007) as occurring in the general region: Uitkomst and Buispoort. The Uitkomst subgroup (facies) of the Blackburn Branch of the Urewe Ceramic Tradition represents the first Iron Age period to be identified in this general area. The decoration on the ceramics seems to combine characteristics associated with both Nguni-speaking and Sotho-speaking groups and is generally accepted to date between AD 1650 and AD 1820. The Buispoort facies of the Moloko branch of the Urewe Ceramic Tradition is the other phase and is accepted to date between AD 1700 and AD 1840. (Huffman, 2007). However, no sites associated with either ceramic style are known from the study area.

Historical/ Colonial period

Esterhuysen (2008) and Skhosana (2010) both note that according to the earliest researchers (Van Warmelo and Jackson) the Transvaal Ndebele were understood to be descended from an Nguni group that originated in what is now KwaZulu-Natal where they formed part of the Hlubi people. The group that became known as the Transvaal Ndebele was formed from the descendants of the same ancestral chief, commonly known as Musi or Msi. Some branches of the main group moved out of Natal between 1650 to 1700 and subsequently settled in the area north of present-day Pretoria, around Bon Accord. Skhosana (2010) states that around the turn of the 19th century the original group split into two main groups, known as the Northern Ndebele and the Southern Ndebele, respectively, which subsequently fragmented further. Nzunza and his brother Mthombeni, with their followers, moved eastwards and settled in the vicinity of the present-day town of Belfast. Mthombeni and his followers moved northwards towards Zebediela where they eventually settled. Another son, Manala, and his group occupied the area northeast of Pretoria, which is now known as Wallmansthal (Skhosana 2010).

During the 18th and 19th century the existing groups in the general region were dislocated by the consequences of the expansion of the Zulu Kingdom, which became known as the Difaqane/Mfecane (Makhura 2007). In the north-eastern area, the Pedi under King Thulane became dominant, until they were defeated by the Ndebele group of Mzilikazi. This resulted in the existing Sotho tribes moving out of the area (Kitto 2015).

The vacuum resulting from the Difaqane/Mfecane was subsequently filled by Swazi groups under the reign of King Sobhuza, who established various small chiefdoms in the Mpumalanga area (Bonner, 1983; Makhura, 2007).

The earliest European traveller who visited the area was Robert Scoon in 1836; while the earliest Voortrekker party to cross over the Vaal River was the group led by Louis Trichardt and Johannes Jacobus Janse van Rensburg. They were followed by increasing numbers of Voortrekkers in the general vicinity of the study area (Bergh 1999). King Mswati II of the Swazi/Swati people subsequently ceded the southern Transvaal to the colonial system (Bonner 1983).

In 1845, both the district and town of Lydenburg were established (Bergh, 1999). The district of Lydenburg was extremely large and it seems that the study area fell just within this district.

The South African War (1899 – 1902) was fought between the Boer Republics of the Transvaal and Free State on the one side and Great Britain on the other, but the victims and participants of the war were not limited to only British or Boer citizens.

No events or activities during the war can be associated with the Secunda area. However, it is known that a significant battle took place in the general area around Bethal. The Battle of Bakenlaagte took place on 30 October 1901 when the combined forces of Generals Grobler, Brits, Viljoen and Louis Botha attacked the rear guard of Colonel GE Benson's No. 3 Flying Column. The British soldiers managed to establish themselves on a hill known as Gun Hill and ensured that the main column under Lieutenant-Colonel Wools-Sampson had enough time to establish a defensive perimeter which deterred any further Boer attacks. However, they were heavily outnumbered by the Boer commandos and of the original 210 troops, 73 were killed and 134 wounded. Colonel Benson, who was wounded during the battle, died a few days later. The Boer losses were

only 14 killed (including General Opperman) and 48 wounded. (https://samilitaryhistory.org/jnl2/vol184rs.html; Birkholtz 2017).

Recent/ Modern History

The Manala and Nzunza Ndebele groups lived separately until the late 1970s, when the so-called "bantustan" of KwaNdebele was created under the "homeland system" of the apartheid government This caused extreme disruption to the local African communities in the area (Skhosana 2010; https://sahistory.org.za/sites/default/files/archive-files/BSAug86.0036.4843.029.002.Aug1986.14.pdf).

Winkelhaak Mine

The Winkelhaak Gold Mine is significant in terms of regional mining heritage as it was the first mine developed on the Evander goldfield in 1955. The goldfields at Evander had been discovered by the Union Corporation through prospecting activities undertaken in the area from 1949 to 1951. Winkelhaak Mines was floated in 1955 and four years later Bracken Mines and Leslie Mines were granted mining leases. Finally Kinross Mines was formed and began production towards the end of 1967 (Union Corporation Ltd 1974).

Secunda

The town of Secunda was established in the 1970s for Sasol's second coal-to-liquid (CTL) plant after crude oil prices rose steeply in 1973. On 5 December 1974, it was announced that Sasol would build a second industrial site. The name Secunda name means "second" in Latin. On 28 June 1976 Secunda was officially proclaimed a town. The site, 120 kilometres south-east of Johannesburg, was strategically chosen close to coal deposits and with access to a water supply. Construction of Sasol Two was completed in July 1980, and shortly thereafter, approval to build Sasol Three (a replica of Sasol Two) was granted. At the time, it was the world's largest single petrochemical complex construction site. Sasol Two and Sasol Three have subsequently merged into the regional operating hub (https://www.sasol.com/celebrating-our-heritage#:~:text=On%205%20December%201974%2C%20it,with%20access%20to%20water%20supply).

Secunda Chemicals Operations (SCO)

Secunda Chemicals Operations (SCO) encompasses all the Sasol Secunda-based chemical operating facilities. Its diverse product range includes industrial explosives, fertilisers, polypropylene, ethylene, propylene, solvents and detergent alcohol. In addition, SCO provides site services, infrastructure maintenance and product logistics services for the Secunda site (https://www.mpumalanga.com/places-to-go/cosmos-country/secunda; https://www.sasol.com/celebrating-our-heritage#:~:text=On%205%20December%201974%2C%20it,with%20access%20to%20water%20supply).

Liberation History

Since the Sasol plants reduced the apartheid government's reliance on imported fuel supplies and contributed substantially to the South African economy, the Sasol plants were high-priority targets for liberation movements. This resulted in the bombing of both the Sasol I and Sasol II plant in 1980 by the Umkhonto weSizwe (MK) Special Operations Unit of the African National Congress (ANC). The three members involved were Vincent Sekete (aka Sydney Sebephu), Victor Khayiyane (aka Bongane Mthetwa) and Richard Barney Molokoane (aka Mmutle Ramanase) under the command of Joe Slovo. The petrochemical plants burned for five days, which led the three to become known as "The Sasol Three"

(https://sahistory.org.za/dated-event/sasol-plant-under-attack; https://www.mpumalanga.com/places-to-go/cosmos-country/secunda).

The Sasol Three were later killed by the South African Defence Force on 28 November 1985 during an ambush in Houtkop, outside Mkhondo (formerly Piet Retief), while they were trying to enter Swaziland. They were buried in Thandakukhanya Township and exhumed between 10-12 December 1997 to be reburied. That year, Molokoane was posthumously honoured with the Gold Order of the Mendi, by then president, Thabo Mbeki for his bravery (https://sahistory.org.za/dated-event/sasol-plant-under-attack; https://www.mpumalanga.com/places-to-go/cosmos-country/secunda).

Patrick Chamusso, who was a foreman at the Secunda Sasol plant when the 1980 bombing took place was the last to leave the power plant the evening it exploded. The next morning he was arrested, beaten and severely interrogated, but he insisted that he had nothing to do with the bombing. After his release, this experience motivated Chamusso to join Umkhonto in Mozambique. Because of his knowledge of the Sasol Secunda plant, he was sent to Angola to train in explosives and was subsequently responsible for a second bombing of the Sasol II plant at Secunda. He chose to work alone, which was unusual for MK operatives. Over the next three days Chamusso also bombed two electrical sub-stations near Witbank, plunging the entire town into darkness. After having been shot in the leg and arrested, Chamusso was sentenced to 24 years on Robben Island for terrorism, high treason and the possession of false passports. In 1991, after serving 10 years, he was released, alongside other political prisoners, as part of the new government's amnesty policy. He refused a position in the current government and instead established the Two Sisters Orphanage, which cares for AIDS orphans. In 2008, Chamusso received the National Heritage Council Ubuntu award for his humanitarian work (https://sahistory.org.za/dated-event/sasol-plant-under-attack; https://www.mpumalanga.com/places-to-go/cosmos-country/secunda).

5.2.3 Cartographic findings

An assessment of available historical topographical maps was undertaken to establish a historic layering for the study area. Overlays of the maps were made on Google Earth. These historic maps are valuable resources in identifying possible heritage sites and features located within the study area. It should be noted that the earliest edition of the map sheet for this area dates to the 1960s (see **Figure 20** below). The topographical maps were obtained from the Department of Land Reform and Rural Development (DLRRD) in Pretoria.

The following 1:50 000 map sheet editions were assessed for the project footprint: 2629CA Charl Celliers Edition 1 1964, Edition 2 1984, Edition 3 1995 and Edition 4 2009. The various editions of the map sheet depict no heritage features within the project footprint, although a few structures (some associated with the Winkelhaak/Evander Mine to the north) are depicted just outside the footprint boundary (**Figure 20** to **Figure 23**).

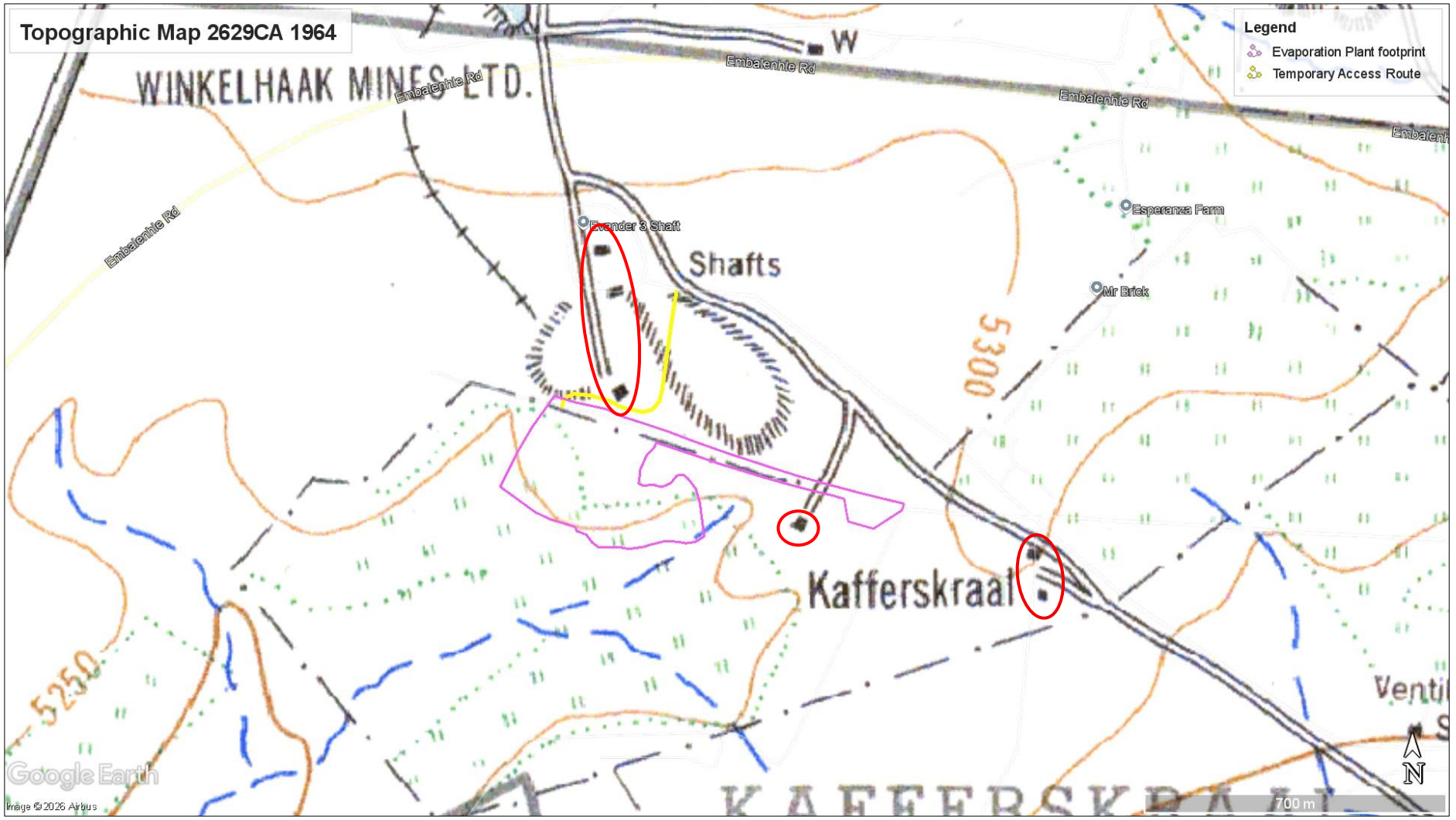


Figure 20: Enlarged view of topographic map 2629CA Ed 1 1964, depicting no heritage features within the project footprint (pink polygon). A few structures are depicted just outside the boundaries of the footprint: three are associated with Winkelhaak Mines Ltd, and one could be a house (red circles)

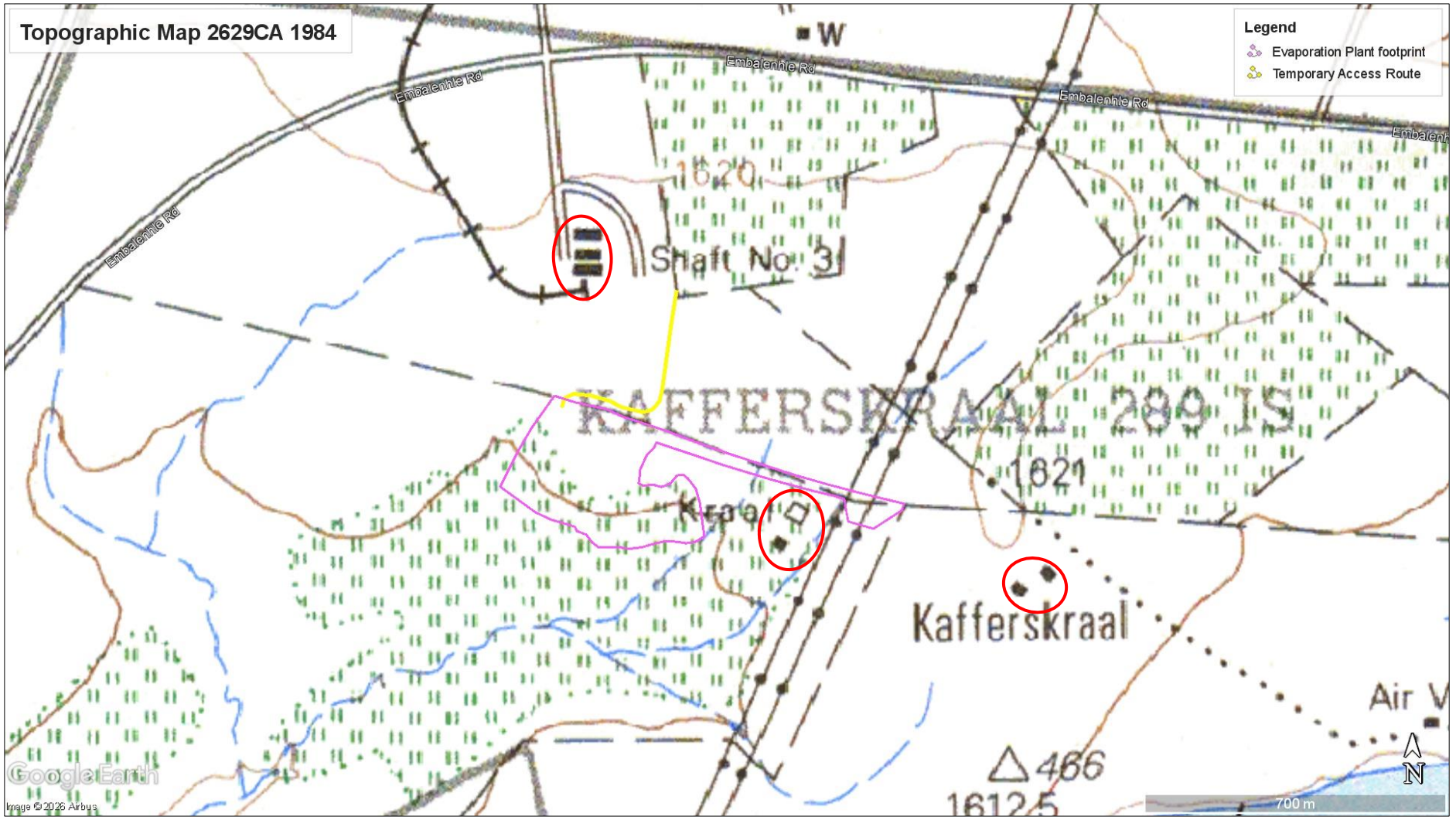


Figure 21: Enlarged view of topographic map 2629CA Ed2 1984, depicting several heritage features circled in red outside the boundaries of the footprint: the structures associated with the mine have been replaced with Shaft No 3 and there is a kraal situated near the house.

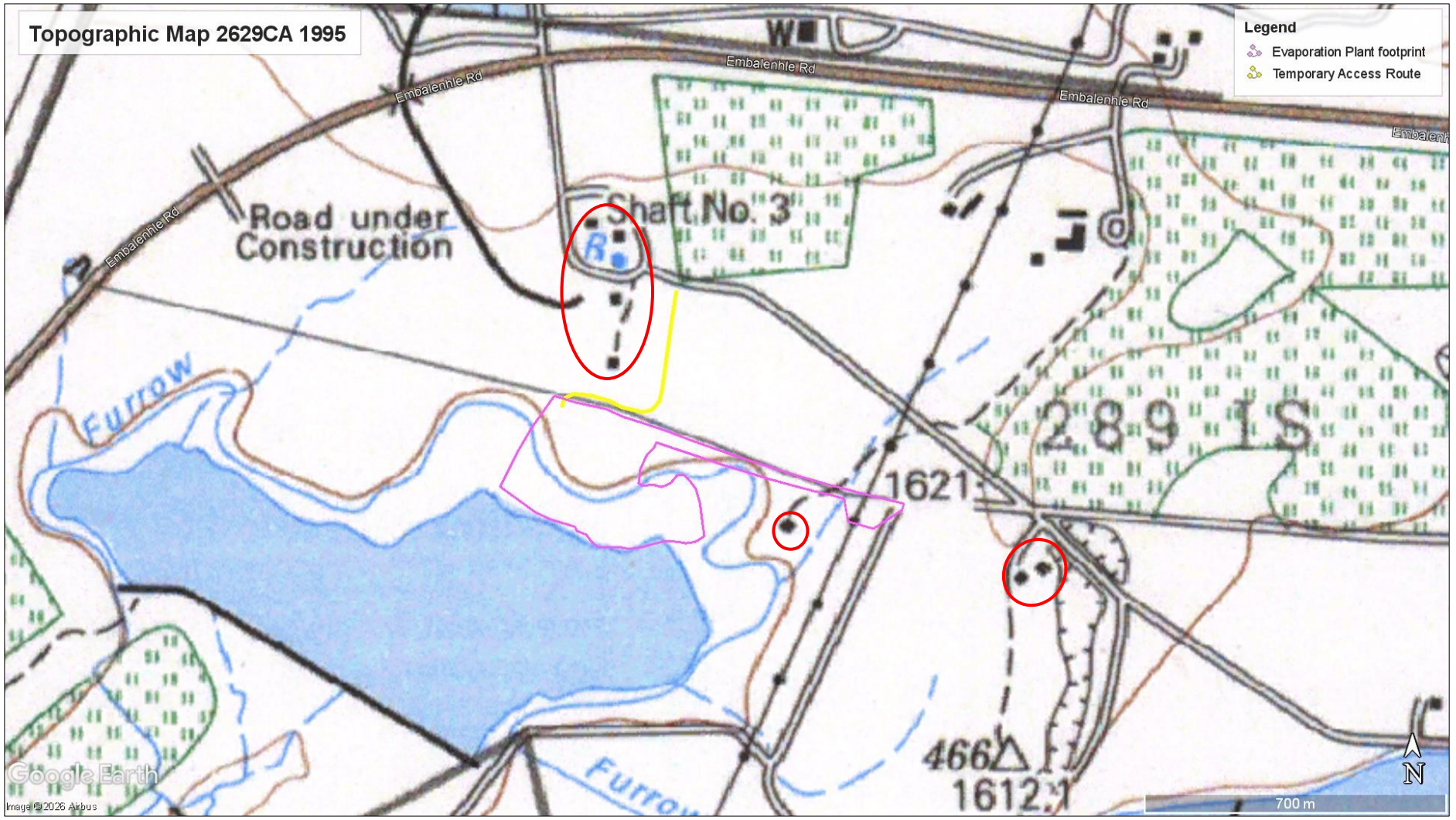


Figure 22: Enlarged view of topographic map 2629CA Ed 3 1995, depicting further changes to the few structures located outside the footprint (red circles). This sheet also depicts the development of a dam immediately south of the footprint with a water furrow that crosses the footprint.

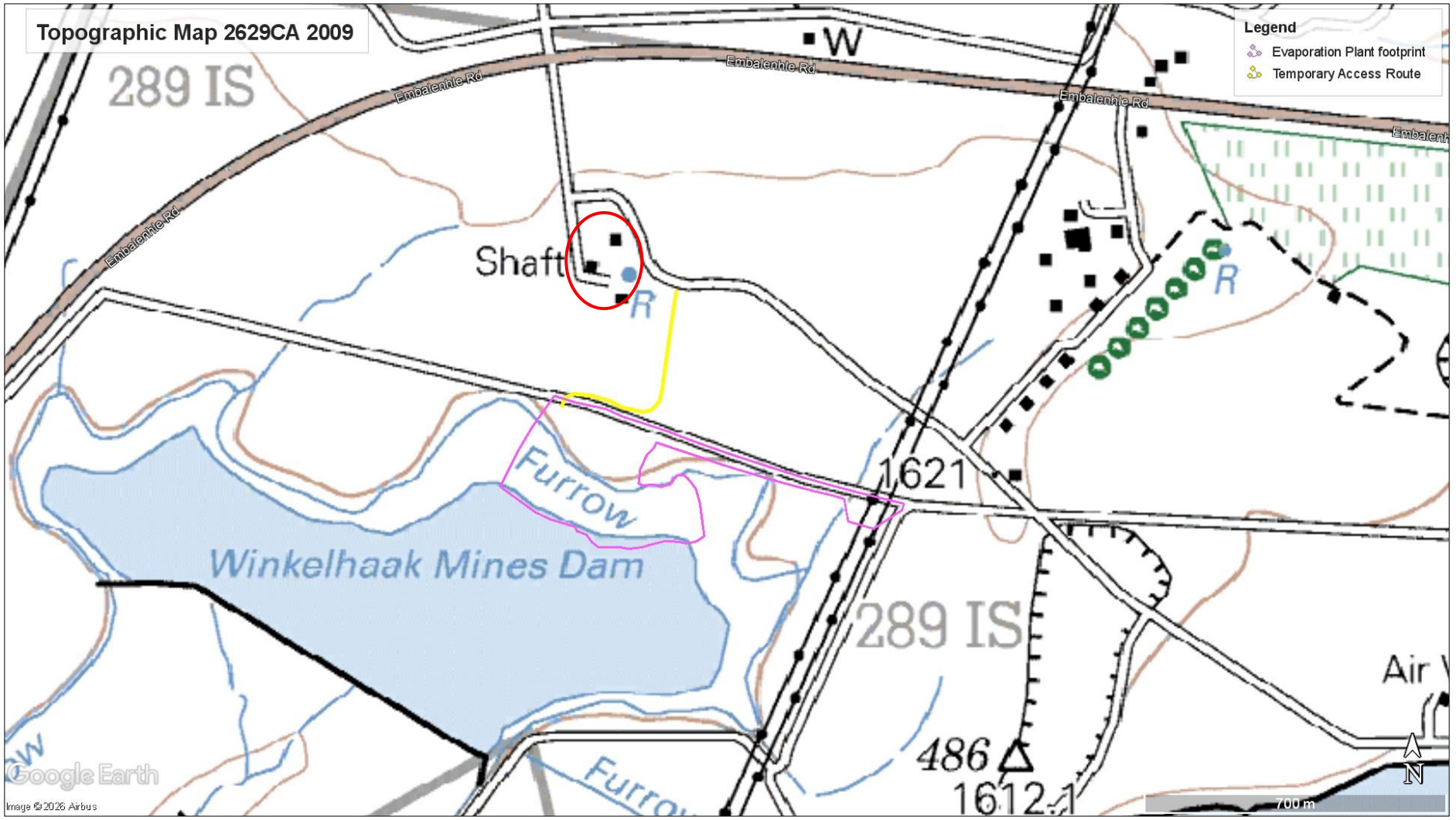


Figure 23: Enlarged view of topographic map 2629CA Ed 4 2009, depicting further changes to the few structures located outside the footprint (red circles). The dam immediately south of the footprint with a water furrow that crosses the footprint is still shown.

5.3 Previous HIA reports in the area

A search on the South African Heritage Resources Information System (SAHRIS) has identified several Heritage Impact Assessments conducted in and around the study area:

Van Schalkwyk J. 2003. Archaeological Survey of a Section of the Secunda-Mozambique Gas Pipeline, Bethal and Highveld Ridge Districts, Mpumalanga. The section of pipeline route examined runs east from Secunda across the Bethal and Highveld Ridge districts of Mpumalanga. Two Iron Age sites, an informal cemetery and a single grave were recorded.

Van Vollenhoven. 2010. A Report on a Heritage Impact Assessment for the Proposed Secunda X 52 Industrial Township, Mpumalanga Province. The study area is located immediately east of Secunda town. One graveyard was recorded.

Miller S. 2010. 1st Phase Cultural Heritage Resources Impact Assessment For Harmony Gold Mine, Evander

The study area was the property of the Harmony Gold Mine located to the north of the proposed Evaporation Plant project. The study recorded a large number of informal graveyards and a formal mine cemetery as well as the remains of several historical farm buildings and structures.

Coetzee FP. 2011. Cultural Heritage Survey of the Proposed Sasol Fine Ash Dams on the Farm Rietvley 320 IS, Secunda, Mpumalanga. The study area is located on the farm Rietvley 320 IS situated a few kilometres southwest of Secunda and a short distance south (roughly 9 km) of the proposed evaporation plant study area. Eleven cultural heritage sites were identified during this study, including a graveyard, a few individual graves, two historical farmhouse complexes and a few individual historical structures or remains.

Pistorius JCC. 2013. Phase I Heritage Impact Assessment for Sasol Mining's Proposed Borrow Pits on the Eastern Highveld, in the Mpumalanga Province. Two historical house remains, two informal graves and three family graveyards were recorded in the larger area. No archaeological remains were identified.

Karodia S. 2014. Heritage Statement for the Basic Assessment Undertaken for a Powerline Upgrade, Syferfontein Mine, Secunda, Mpumalanga Province. The study area is located approximately 15 km northeast of the proposed evaporation plant project area. No heritage resources were identified within the study area for the proposed powerline.

Pistorius JCC. 2020. Phase I Heritage Impact Assessment Study for the Shondoni and Middelbult Mining Areas near Secunda in the Mpumalanga Province. A large number of historical Farmsteads and associated buildings, family and farmworker informal graves, a large mining cemetery and two mining memorial beacons were recorded.

Orton J and vd Walt J. 2022. Heritage Impact Assessment: Basic Assessment For A Proposed 132 Kv Overhead Power Line And Associated Electrical Grid Infrastructure To Support The Proposed Vhuvhili Solar Energy Facility Near Secunda, Mpumalanga. The power line would start about 6 km southeast of Secunda and run to a point some 11 km south of Secunda. The study area examined four alternative corridors and

recorded an old farmstead located outside the corridors and two graveyards, one situated in each of two of the alternative corridors.

5.4 Palaeontological sensitivity

A separate desktop palaeontological study is being undertaken for the project by Banzai Consulting.

5.5 Findings of the Historical Desktop Study

The general overview from the historical desktop study has shown that various archaeological and historical resources can be expected to occur in the Project footprint area. The examination of the earliest edition (1964) of the 1:50 000 topographical maps produced by overlying the maps with satellite Imagery (Google Earth) has shown that no heritage features are depicted within the project footprint, with an old kraal and a few mine related structures situated just outside the footprint boundary.

The Site Survey fieldwork confirmed the findings of the desktop study, as it identified the demolished remains of the livestock enclosure just outside the footprint boundary.

6 Site Survey/Fieldwork Results

The field survey of the footprint took place over one day (28 January 2026) by the author (heritage specialist) together with the EAP Nemai) and a client team (MegChem). A vehicle was used to access the footprint area and the survey was conducted by both vehicle and on foot (at selected areas). The survey covered as much of the project footprint area as was feasibly accessible, given the long and dense grass and other vegetation covering most of the area. Note that the temporary access road was assessed only at the desktop level as this component was added after the site visit was conducted. However, this should not affect the results as the property crosses by the temporary road has been affected by mining related activities since the early 1950s.

The author used a Global Positioning System (GPS) application to record the tracklog of the survey and waypoints of the identified heritage resources. Photographic recording of identified heritage resources and general images of the project study area was undertaken by the MegChem team to comply with Sasol requirements.

The survey aimed to find and identify archaeological and other heritage resources such as burial grounds and graves (BGG), archaeological material or sites, historic built environment and landscape features of cultural heritage significance.

The inspection of the area that was surveyed identified no heritage resources within the project footprint and only one heritage resource adjacent to the footprint boundary. See table below and **Figure 24** to **Figure 27**.

Identified Heritage Sites

Site Name	EVAP-01
GPS Coordinates	-26.522359° , 29.132382°
Site Description	Structure ruin
Approximate Age	Probably modern/recent. Depicted on the 1984 map sheet, but not the 1964 sheet.
NHRA, No. 25	N/A
Field Grading and Ratings	
Site context and description	The site comprises the overgrown and sparse remains of a livestock enclosure. It is located approximately 12 m south of the access road/southeastern boundary.
Site Density	N/A
Uniqueness	Low
Heritage Significance	Low- GP.C/ NCW
Mitigation	No mitigation is required.



Figure 24: EVAP-01, View of the remains of the livestock enclosure, showing metal entrance as well as dense and long vegetation cover



Figure 25: View of the area adjacent to the enclosure remains with shorter grass

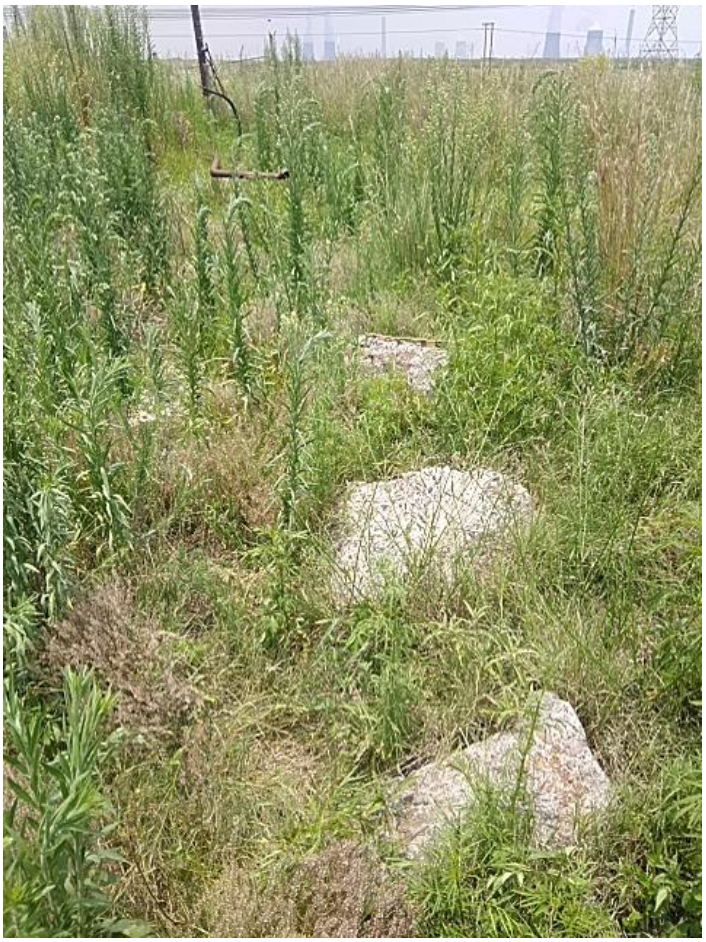


Figure 26: View showing concrete remains at the livestock enclosure



Figure 27: Identified Heritage Sites overlaid on satellite imagery showing the project Footprint. The survey identified one heritage resource located just outside the footprint (green icon)



Figure 28: Features identified from desktop study (topographic maps or satellite imagery) overlaid on project footprint

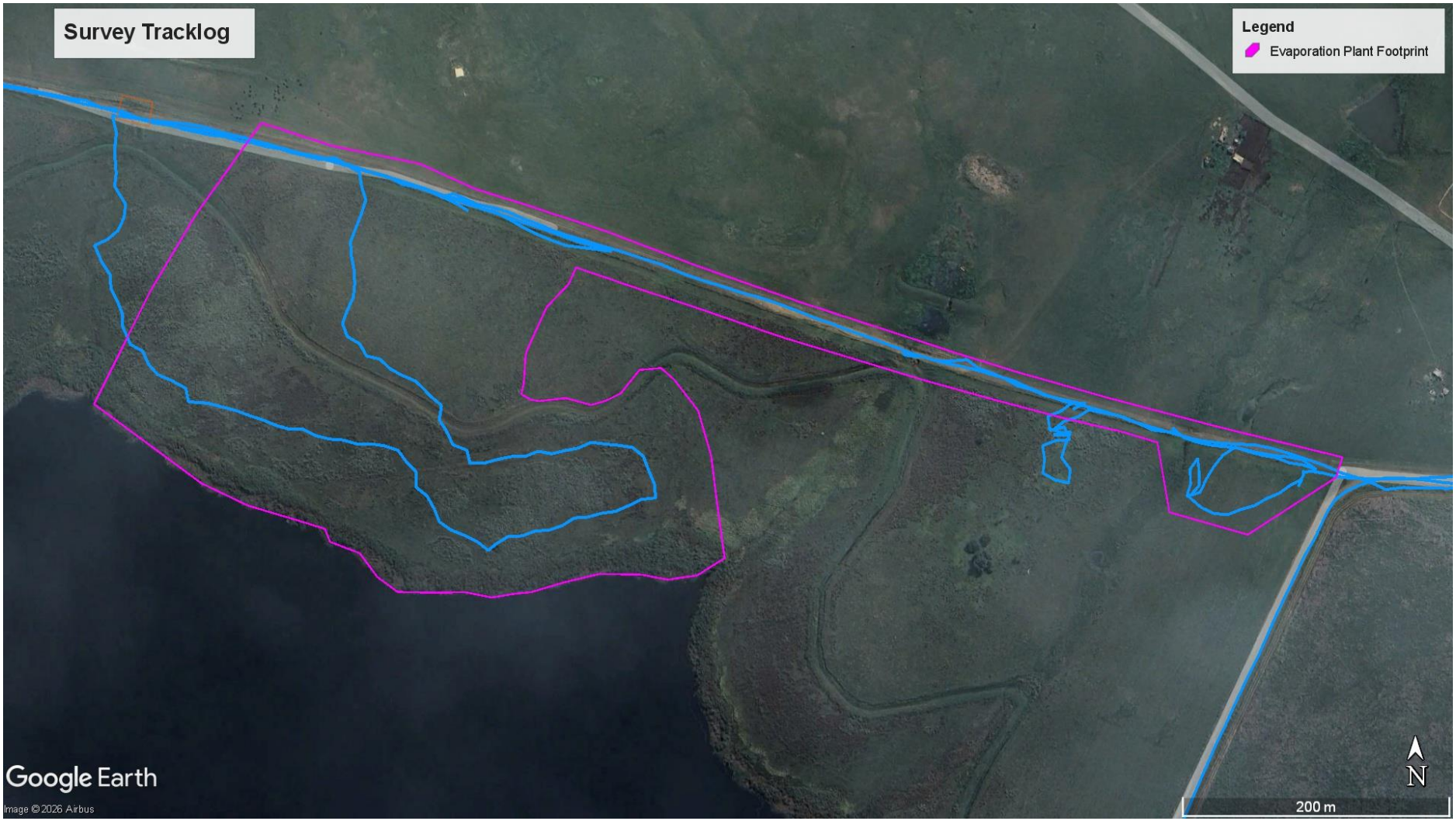


Figure 29: Site Survey Tracklog (blue lines) overlaid on the project footprint

7 SITE SENSITIVITY VERIFICATION

The DFFE National Environmental Screening Tool identified the Archaeological Cultural Sensitivity of the proposed enhanced evaporation project as being generally Low. The general overview from the historical desktop study has shown that the general region contains various archaeological and historical resources. However, several HIA studies undertaken in the general vicinity of the project footprint have recorded isolated or very low density occurrences of stone artefacts, historical structures or remains and graves. The examination of the various editions (1964 to 2009) of the 1:50 000 topographical map sheet 2629CA Charl Celliers depicted no heritage features within the project footprint, although a few structures are depicted just outside the footprint boundary.

The subsequent site survey identified no heritage resources within the project footprint and only one heritage resource adjacent to the footprint boundary. The disturbance of the area by the construction of a large ditch and berm feature that runs across the entire footprint was also confirmed.

Accordingly, the heritage sensitivity of the site footprint area is confirmed as being low for archaeological-cultural sensitivity.

Note that the temporary access road was assessed only at the desktop level as this component was added after the site visit was conducted. However, the sensitivity verification is not affected.

8 SIGNIFICANCE ASSESSMENT

Methodology for Assessing Heritage Site Significance

The applicable maps, tables and figures are included, as stipulated in NHRA and NEMA. The HIA process consists of three steps:

Literature Review

The desktop literature review provided information on the Heritage Background of the general region and project area. This included investigating published and unpublished sources as well as past HIA studies conducted for the project area and the surrounding region. An examination of historical 1:50 000 topographical maps and/or archival maps (if available) was also undertaken. The relevant early editions of the 2629CA Charl Celliers topographical map sheets were obtained from the Department of Land Reform & Rural Development (DLRRD), Pretoria. A number of internet sites were also accessed for information.

Literature resources accessed are listed in Table 1.

Table 1: Literature sources accessed

Source	Information
Environmental Screening Document - Nemai	Project location and description details
Literature Review of Published and Unpublished Sources and Past HIAs	Historical and archaeological background on Mpumalanga and the region around Secunda and Sasol
Directorate: National Geo-spatial Information of the Department of Agriculture, Land Reform & Rural Development, Cape Town	Historical topographic maps, 1:50 000 2629CA Charl Celliers Edition 1 1964, Edition 2 1984, Edition 3 1995 and Edition 4 2009

Field Survey

A physical Site Inspection or Field Survey was conducted of the project area, predominantly by vehicle, with selected areas traversed on foot, by an experienced heritage specialist, with the client as part of a specialist team. This focused on identifying and documenting heritage resources situated within and immediately adjacent to the proposed project area footprint, such as graves, historical structures or remains and archaeological sites or material.

HIA Report

The final step involved the recording and documentation of the identified heritage resources, the assessment of such resources in terms of heritage significance and impact assessment criteria, producing a heritage sensitivity map and compiling the heritage impact assessment report with constructive recommendations for mitigation, if required.

Impacts on these sites by the development will be evaluated as follows:

Site Significance

Site significance classification standards used are based on the heritage classification of section 3 in the NHRA and the grading system approved by SAHRA for archaeological impact assessments (**Table 4**). The expanded classification and rating system which includes built heritage as developed by Heritage Western Cape (initially in 2026 and updated in 2021) is also implemented in this report. See **Table 2** and **Table 3**.

Table 2: Rating system for archaeological resources

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
I	Heritage resources with qualities so exceptional that they are of special national significance. Current examples: Langebaanweg (West Coast Fossil Park), Cradle of Humankind	May be declared as a National Heritage Site managed by SAHRA. Specific mitigation and scientific investigation can be permitted in certain circumstances with sufficient motivation.	Highest Significance

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
II	Heritage resources with special qualities which make them significant, but do not fulfil the criteria for Grade I status. Current examples: Blombos, Paternoster Midden.	May be declared as a Provincial Heritage Site managed by Provincial Heritage Authority. Specific mitigation and scientific investigation can be permitted in certain circumstances with sufficient motivation.	Exceptionally High Significance
III	Heritage resources that contribute to the environmental quality or cultural significance of a larger area and fulfils one of the criteria set out in section 3(3) of the Act but that does not fulfil the criteria for Grade II status. Grade III sites may be formally protected by placement on the Heritage Register.		
IIIA	Such a resource must be an excellent example of its kind or must be sufficiently rare. Current examples: Varschedrift; Peers Cave; Brobartia Road Midden at Bettys Bay	Resource must be retained. Specific mitigation and scientific investigation can be permitted in certain circumstances with sufficient motivation.	High Significance
IIIB	Such a resource might have similar significances to those of a Grade III A resource, but to a lesser degree.	Resource must be retained where possible where not possible it must be fully investigated and/or mitigated.	Medium Significance
IIIC	Such a resource is of contributing significance.	Resource must be satisfactorily studied before impact. If the recording already done (such as in an HIA or permit application) is not sufficient, further recording or even mitigation may be required.	Low Significance
NCW	A resource that, after appropriate investigation, has been determined to not have enough heritage significance to be retained as part of the National Estate.	No further actions under the NHRA are required. This must be motivated by the applicant or the consultant and approved by the authority.	No research potential or other cultural significance

Table 3: Rating system for built environment resources

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
I	Heritage resources with qualities so exceptional that they are of special national significance. Current examples: Robben Island	May be declared as a National Heritage Site managed by SAHRA.	Highest Significance
II	Heritage resources with special qualities which make them significant in the context of a province or region, but do not fulfil the criteria for Grade I status.	May be declared as a Provincial Heritage Site managed by Provincial Heritage Authority.	Exceptionally High Significance

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
	Current examples: St George's Cathedral, Community House		
III	Such a resource contributes to the environmental quality or cultural significance of a larger area and fulfils one of the criteria set out in section 3(3) of the Act but that does not fulfil the criteria for Grade II status. Grade III sites may be formally protected by placement on the Heritage Register.		
IIIA	Such a resource must be an excellent example of its kind or must be sufficiently rare. These are heritage resources which are significant in the context of an area.	This grading is applied to buildings and sites that have sufficient intrinsic significance to be regarded as local heritage resources; and are significant enough to warrant that any alteration, both internal and external, is regulated. Such buildings and sites may be representative, being excellent examples of their kind, or may be rare. In either case, they should receive maximum protection at the local level.	High Significance
IIIB	Such a resource might have similar significances to those of a Grade III A resource, but to a lesser degree. These are heritage resources which are significant in the context of a townscape, neighbourhood, settlement or community.	Like Grade IIIA buildings and sites, such buildings and sites may be representative, being excellent examples of their kind, or may be rare, but less so than Grade IIIA examples. They would receive less stringent protection than Grade IIIA buildings and sites at the local level.	Medium Significance
IIIC	Such a resource is of contributing significance to the environs These are heritage resources which are significant in the context of a streetscape or direct neighbourhood.	This grading is applied to buildings and/or sites whose significance is contextual, i.e., in large part due to its contribution to the character or significance of the environs. These buildings and sites should, as a consequence, only be regulated if the significance of the environs is sufficient to warrant protective measures, regardless of whether the site falls within a Conservation or Heritage Area. Internal alterations should not necessarily be regulated.	Low Significance
NCW	A resource that, after appropriate investigation, has been determined to not have enough heritage significance to be retained as part of the National Estate.	No further actions under the NHRA are required. This must be motivated by the applicant and approved by the authority. Section 34 can even be lifted by the PHRA for structures in this category if they are older than 60 years.	Not Conservation worthy – no research potential or other cultural significance

Table 4: Site significance classification standards as prescribed by SAHRA.

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
National Significance (NS)	Grade 1	Very High - of National Significance	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	Very High – of Provincial Significance	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected A (GP.A)		High / Medium Significance	Mitigation before destruction
Generally Protected B (GP.B)		Medium Significance	Recording before destruction
Generally Protected C (GP.A)		Low Significance	Destruction

9 IDENTIFICATION OF IMPACTS

9.1 Impacts and Mitigation Framework

All impacts are analysed in the section to follow with regard to their nature, extent, magnitude, duration, probability and significance. ISO 14001-2004 defines impacts as “any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization’s environmental aspects”.

When considering an assessment of the impacts and their mitigation, the following definitions as per Table 5 apply.

Table 5: Impact and Mitigation Quantification Framework

Nature	The project could have a positive, negative or neutral impact on the environment.
Extent	**Local** – extend to the site and its immediate surroundings. **Regional** – impact on the region but within the province. **National** – impact on an interprovincial scale. **International** – impact outside of South Africa.
Magnitude	Degree to which impact may cause irreplaceable loss of resources: **Low** – natural and socio-economic functions and processes are not affected or minimally affected. **Medium** – affected environment is notably altered; natural and socio-economic functions and processes continue albeit in a modified way.

	High – natural or socio-economic functions or processes could be substantially affected or altered to the extent that they could temporarily or permanently cease.
Duration	**Short term** – 0-5 years. **Medium term** – 5-11 years. **Long term** – impact ceases after the operational life cycle of the activity either because of natural processes or by human intervention. **Permanent** – mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.
Probability	**Almost certain** – the event is expected to occur in most circumstances. **Likely** – the event will probably occur in most circumstances. **Moderate** – the event should occur at some time. **Unlikely** – the event could occur at some time. **Rare/Remote** – the event may occur only in exceptional circumstances.
Significance	Provides an overall impression of an impact's importance, and the degree to which it can be mitigated. The range for significance ratings is as follows- **0** – Impact will not affect the environment. No mitigation necessary. **1** – No impact after mitigation. **2** – Residual impact after mitigation. **3** – Impact cannot be mitigated.
Mitigation	Information on the impacts together with literature from socio-economic science journals, case studies and field work will be used to provide mitigation recommendations to ensure that any negative impacts are decreased and positive benefits are enhanced.
Monitoring	Monitoring usually involves developing and implementing a monitoring programme to identify deviations from the proposed action and to manage any negative impacts. The recommended mitigation measures will also include monitoring measures.

Table 6: Impact Methodology Table

Nature			
Negative	Neutral	Positive	
-1	0	+1	
Extent			
Local	Regional	National	International
1	2	3	4
Magnitude			
Low	Medium	High	
1	2	3	
Duration			
Short Term (0-5yrs)	Medium Term (5-11yrs)	Long Term	Permanent
1	2	3	4
Probability			
Rare/Remote	Unlikely	Moderate	Likely	Almost Certain
1	2	3	4	5
Significance			
No Impact/None	No Impact After Mitigation/Low	Residual Impact After Mitigation/Medium	Impact Cannot be Mitigated/High
0	1	2	3

9.2 Identification of Activities and Aspects

An "Activity" is defined as a distinct process or risks undertaken by an organisation for which a responsibility can be assigned. Activities also include facilities or pieces of infrastructure that are possessed by an organisation (International Organization for Standardization, 2011).

An aspect is defined as elements of an organisation's activities or products or services that can interact with the environment.

In order to capture the impacts associated with the proposed infrastructure, an activity – aspect – impact table was created (refer to Table 7 below).

Table 7: Activity, Aspects and Impacts of the Project

Activity	Aspect	Potential Impact – Positive	Potential Impact – Negative
Site clearance/ construction camp	Heritage	N/A	Damage to potential / unidentified grave/s or archaeological material
Construction	Heritage	N/A	Damage to potential / unidentified grave/s or archaeological material
Operation	Heritage	N/A	N/A

9.3 Impact and Mitigation Assessment

The impact of the proposed project on protected historical structures is low as the only heritage resource identified is the remains of an old livestock enclosure located just outside the boundary of the project footprint (EVAP-01).

As noted above, the impact significance of the project on graves and cemeteries is negligible to low as no graves were identified. However, there is a low possibility that unidentified burials could be uncovered during site clearance or construction.

The impact significance of the proposed project on archaeological resources is low as no archaeological sites or material were identified. However, there is a low possibility that sub-surface material could be uncovered during site clearance or construction.

The impact significance of the project on intangible and living heritage resources is negligible as no living heritage resources were identified.

Note that the temporary access road was assessed only at the desktop level as this component was added after the site visit was conducted. However, the impact significance is not affected as the

temporary access road crosses property which has been affected by mining-related activities since the early 1950s.

9.4 Impacts During the Planning, Construction and Operation Phase

As a result of the analysis above, the following impact/mitigation tables have been generated, below:

Table 8: Heritage Resources – Historical Structures Mitigation Table

Environmental Feature		Heritage resources – Historical structures				
Project life cycle		Planning and Construction				
Potential Impact		Proposed Management Objectives / Mitigation Measures				
Possible damage to or destruction of extant historical structures		N/A to the project footprint area				
Possible destruction of demolished remains of historical structures (EVAP-01)		If any negative impact is anticipated on any of these resources, a permit will be required for the destruction/clearance of these resources (from MPHRA or SAHRA)				
	Nature	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	Negative	Local	Low	Permanent	Unlikely	1
After Mitigation	Negative	Local	Low	Short-term	Low	1
Significance of Impact and Preferred Alternatives	N/A. The livestock enclosure survives only as remains and is located outside the project footprint.					

Table 9: Heritage Resources –Unidentified Graves Mitigation Table

Environmental Feature		Heritage resources – Graves and burial grounds				
Project life cycle		Planning and Construction				
Potential Impact		Proposed Management Objectives / Mitigation Measures				
Potential unidentified graves		• If an unidentified grave site is uncovered during site clearance or construction activities, a buffer of at least 30m must be placed around the site to ensure that during construction, the grave/s are not damaged • The Chance Finds Procedure set out in this report must be implemented				
	Nature	Extent	Magnitude	Duration	Probability	Significance
Before Mitigation	Negative	Local	High	Permanent	Unlikely	3

After Mitigation	Negative	Local	Medium	Long- term	Unlikely	1
Significance of Impact and Preferred Alternatives	If human remains are uncovered, then the chance finds procedure must be implemented, in compliance with the requirements of SAHRA					

9.5 Cumulative impacts

The project area and surrounding region has been affected by impacts of activities occurring in the past, current activities and proposed future developments. These will be discussed below.

Past impacts: several development and other activities in the past would have disturbed the heritage resources which occur in the area. This includes the initial establishment and development of the town of Secunda and related infrastructure as well as historical coal and gold mining activities. The past HIA reports recovered from the SAHRIS database also indicate that the project footprint and surrounding region has been affected by continuing mining and Sasol-related development activities.

Current impacts: the immediate area of the project footprint is affected by existing Sasol-related industrial development and activities as well as a large electrical powerline and the Winkelhaak/Evander goldmine immediately to the north.

The baseline impacts for the project area are considered to be low for Heritage resources, and additional project impacts (if no mitigation measures are implemented) will not increase the significance of the existing baseline impacts, where the cumulative unmitigated impact will probably be of a low significance. The impact is going to happen and will be long-term in nature, however the impact risk class for heritage is expected to remain be Low.

10 Analysis of Alternatives

Alternatives are the different ways in which the Project can be executed to ultimately achieve its objectives. Examples could include carrying out a different type of action, choosing an alternative location or adopting a different technology or design for a project.

As the proposed project is intended to implement another way of managing effluent dam levels at the Sasol Secunda Process Water Dams (PWD) site, no alternatives are proposed.

10.1 "No-Go" Option

Under the "no-go option", the project does not go ahead and the *status quo* remains. The option of not proceeding needs to be considered in light of the need and desirability of the Project.

The “no-go” option is not preferred, as the objectives of the enhanced evaporation project will not be met, and the associated benefits will not materialise. Although not proceeding with the activities associated with the project would avoid heritage impacts, these impacts are negligible.

11 Statement of Impact Significance

The Sasol SO is currently looking to install a forced evaporation system to enhance evaporation at the PWD as another way of managing effluent dam levels. The project footprint is located within a heavily industrialised site with evidence of past disturbance as well as historical and continuing mining on the adjacent property.

The impact of the proposed project on protected **historical structures is low** as the only heritage resource identified is the remains of an old livestock enclosure located just outside the boundary of the project footprint (EVAP-01).

As noted above, the impact significance of the project on **graves and cemeteries is negligible to low** as no graves were identified. However, there is a low possibility that unidentified burials could be uncovered during site clearance or construction.

The impact significance of the proposed project on **archaeological resources is low** as no archaeological sites or material were identified. However, there is a low possibility that sub-surface material could be uncovered during site clearance or construction.

The impact significance of the project on **intangible and living heritage resources is negligible** as no living heritage resources were identified.

Note: the addition of the temporary access road should not affect the above significance as the property affected has been used for mining activities since the early 1950s.

12 Chance Finds Procedure

The Chance Finds Procedure set out below, must be implemented during site clearance and construction activities, as well as during the use of the temporary access road:

1. It is advisable that an information section on cultural resources be included in the Safety, Health Environment and Quality (SHEQ) training given to contractors involved in surface earthmoving activities. These sections must include basic information on:
    a. Heritage;
    b. Graves;
    c. Archaeological finds; and
    d. Historical Structure remains and Homestead remains

2. This module must be tailor made to include all possible finds that could be expected in that area of construction. Possible finds include:
    a. Unidentified graves
    b. Historical /archaeological artefacts or material
    c. Remains of historical structures and homestead remains
    d. Palaeontological deposits
3. In the event that a possible historical or archaeological find is discovered during site clearance or construction, all activities must be halted in the area of the discovery and a qualified heritage specialist/archaeologist contacted.
4. The heritage specialist/archaeologist needs to evaluate the finds on site and make recommendations towards possible mitigation measures.
5. If mitigation is necessary, an application for a rescue permit must be lodged with SAHRA/MPHRA.
6. After mitigation, an application must be lodged with SAHRA/MPHRA for a destruction permit. This application must be supported by the mitigation report generated during the rescue excavation. Only after the permit is issued may such a site be destroyed.
7. In the event that human remains are uncovered, or previously unknown graves are discovered, a specialised archaeologist (forensic archaeology/ human remains) needs to be contacted to conduct an evaluation of the finds.
8. If the remains are to be exhumed and relocated, the relocation procedures required by SAHRA need to be followed. This includes an extensive social consultation process.

13 RECOMMENDATIONS AND CONCLUSION

The site inspection of the proposed Enhanced Evaporation System at the Dam 10A project footprint area identified no heritage resources within the footprint and only one heritage resource adjacent to the footprint boundary (EVAP-01). .

Note: the addition of the temporary access road should not affect the above significance as the property affected has been used for mining activities since at least the early 1950s). The recommendations below are provided to mitigate the potential impact of the proposed project on the single identified heritage resource:

Demolished Historical Structure

- The demolished remains of the livestock enclosure (EVAP-01) are situated outside the project footprint and not considered to be conservation worthy, and therefore, no mitigation is required.

Unidentified Graves and Cemeteries

- If a burial or human remains are uncovered during site clearance or construction activities, a buffer of at least 30m must be placed around the site to ensure that, the burial/human

remains are not damaged. In addition, all site clearance or construction activities in the immediate vicinity of the burial/human remains must be suspended.

- The Chance Finds Procedure set out in this report must be implemented

Palaeontological Heritage

- A separate desktop palaeontological assessment of the footprint is being undertaken and will provide any mitigation measures considered necessary.

Conclusion

Taking all of the above into account, the considered opinion of the heritage specialist is that no fatal flaws with respect to heritage resources have been identified during this HIA study. Therefore, there are no objections to the proposed project from a heritage perspective, provided that the recommendations and mitigation measures contained in this report and in the recommended palaeontological assessment are implemented where necessary.

14 REFERENCES

Bergh, IS. (ed.). 1999. *Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies*. Pretoria: J.L. van Schaik.

Bonner P. 1983. *Kings, commoners and concessionaires. The evolution and dissolution of the nineteenth century Swazi State*. African Study Series, Volume 31. Cambridge: Cambridge University Press

Coetzee FP. 2011. *Cultural Heritage Survey of the Proposed Sasol Fine Ash Dams on the Farm Rietvley 320 IS, Secunda, Mpumalanga*.

Deacon HJ and Deacon J. 1999. *Human beginnings in South Africa: uncovering the secrets of the Stone Age.* Rowman Altamira.

Delius P (ed), 2006. *Mpumalanga – Reclaiming the Past, Defining the Future*

Deluis P & May. 2007. (Ed) *Mpumalanga: History and Heritage*. University of KwaZulu Natal Pres

Esterhuysen A. 2008. *Ceramic alliances: pottery and the history of the Kekana Ndebele in the old Transvaal*

Esterhuysen A and Smith J. 2007. *The Archaeology of Mpumalanga*.

Huffman TN. 2007. *Handbook to the Iron Age: The archaeology of Pre-Colonial Farming Societies in Southern Africa*. University of KwaZulu-Natal Press, Scottsville

Karodia S. 2014. *Heritage Statement For The Basic Assessment Undertaken For A Powerline Upgrade, Syferfontein Mine, Secunda, Mpumalanga Province.*

Maseko M. 2020. *Sacred Spaces: Rock Paintings of the Komati-LiGwa Study Area, Mpumalanga.* Dissertation submitted to the Faculty of Science, University of the Witwatersrand, in fulfilment of the requirements for the Degree of Master of Science in Archaeology. Johannesburg, December 2020

Miller S. 2010. *1st Phase Cultural Heritage Resources Impact Assessment For Harmony Gold Mine, Evander*

Orton J and vd Walt J. 2022. *Heritage Impact Assessment: Basic Assessment For A Proposed 132 Kv Overhead Power Line And Associated Electrical Grid Infrastructure To Support The Proposed Vhuvhili Solar Energy Facility Near Secunda, Mpumalanga*

Pistorius JCC. 2013. *Phase I Heritage Impact Assessment for Sasol Mining's Proposed Borrow Pits on the Eastern Highveld, in the Mpumalanga Province*

Pistorius JCC. 2020. *A Phase I Heritage Impact Assessment Study for the Shondoni and Middelbult Mining Areas near Secunda in the Mpumalanga Province*

Skhosana, PB 2010, '(Ama)Ndebele of Africa and their name '(ama)Ndebele', Actas Dermo-Sifiliográficas, vol. 5, no. 2, pp. 133-146.

Smith WB. and Zubieta LF. 2007. "The power of ancient art". In: Delius, P. (ed.) *Mpumalanga: History and Heritage*: 69–90. Mpumalanga, South Africa: University of Kwazulu-Natal Press.

Union Corporation Limited. 1974. *The First 75 years: 1897-1872*. Designed and printed by Hortors Printers, Johannesburg. Retrieved from Historical Papers Research Archive, University of the Witwatersrand, Johannesburg, South Africa ©2016

Van Schalkwyk J. 2003. *Archaeological Survey of a Section of the Secunda-Mozambique Gas Pipeline, Bethal and Highveld Ridge Districts, Mpumalanga*.

Van Vollenhoven. 2010. *A Report on a Heritage Impact Assessment for the Proposed Secunda X 52 Industrial Township, Mpumalanga Province*.

Wadley L. 2013. Recognizing complex cognition through innovative technology in Stone Age and Palaeolithic sites. *Cambridge Archaeological Journal 23*: 163-183.

Websites:

https://www.sahistory.org.za/article/ndebele-history

https://sahistory.org.za/sites/default/files/archive-files/BSAug86.0036.4843.029.002.Aug1986.14.pdf

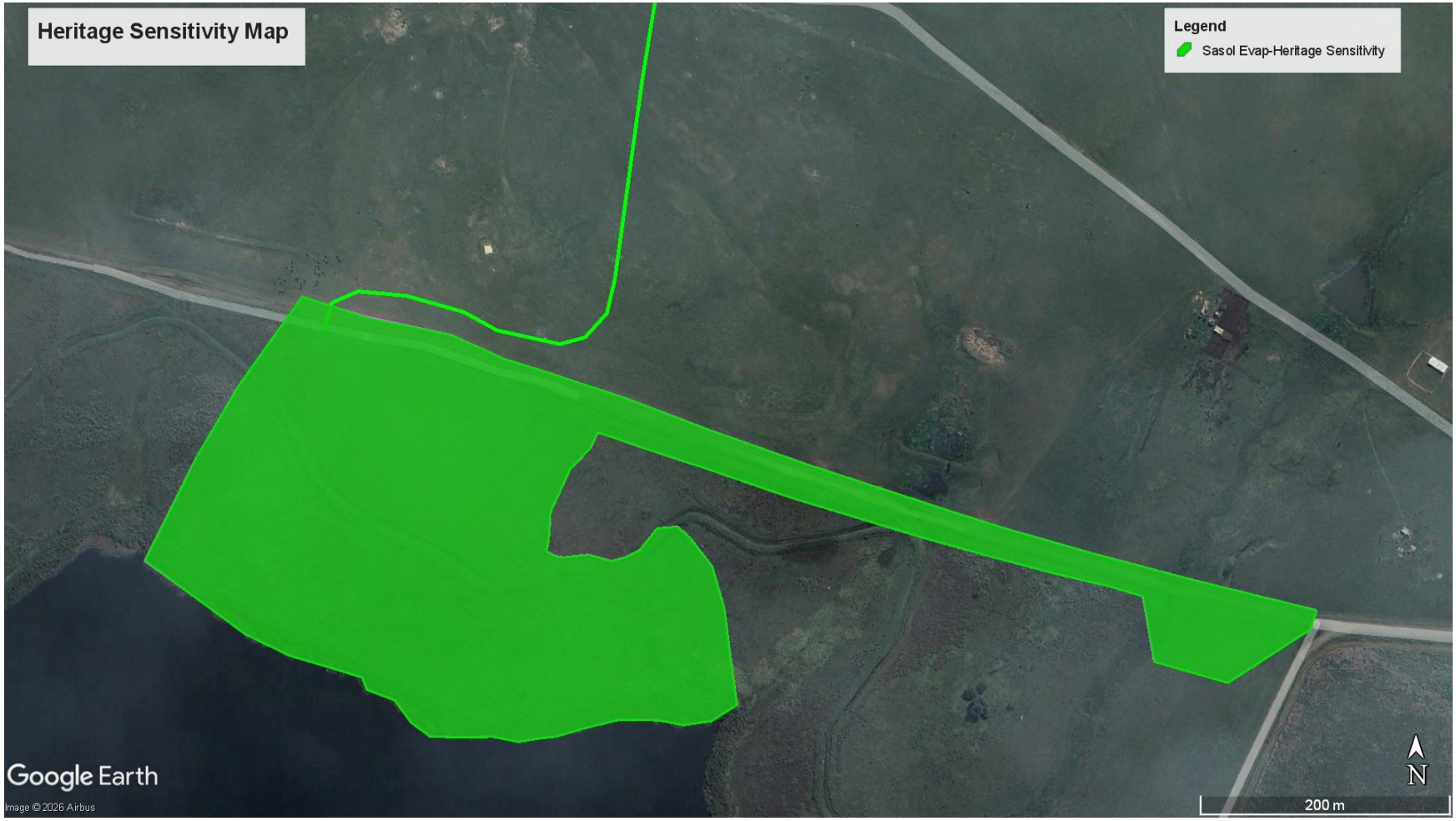
https://sahistory.org.za/dated-event/sasol-plant-under-attack;

https://www.mpumalanga.com/places-to-go/cosmos-country/secunda

Smith R. 2019. Bakenlaagte 30 October 1901 in Military History Journal Vol 18 No 4 - June 2019. The South African Military History Society. Retrieved online from https://samilitaryhistory.org/jnl2/vol184rs.html

APPENDIX 1: HERITAGE SENSITIVITY MAP/S

1. Heritage Sensitivity Map based on the Site Inspection / Field survey



APPENDIX 2: CURRICULUM VITAE OF HERITAGE SPECIALIST

1 Personal Particulars

Profession:	Heritage Specialist
Date of Birth:	11 September 1966
Name of Firm:	Nitai Consulting
Name of Staff:	Jennifer Kitto
Nationality:	RSA
Membership of Professional Societies	Association of Southern African Professional Archaeologists - ASAPA (444); Association of Professional Heritage Practitioners (APHP) - Professional Member No. PHP0156 International Association for Impact Assessment - IAIAsa (7151)

2 Education:

BA Hons Social Anthropology, WITS, South Africa, 1994

BA. Archaeology and Social Anthropology, WITS, South Africa, 1993

Higher National Diploma, Practical Archaeology, Dorset Institute for Higher Education (now Bournemouth University), UK, 1989

3 Employment Record:

2022 – Present *Heritage Specialist, Nitai Consulting*

Conduct Heritage Impact Assessments;

2012 – 2021 *Heritage Specialist, PGS Heritage (Pty) Ltd*

Conduct Heritage Impact Assessments

Compile Desktop Historical Research

Compile Heritage Audit and Management Plans

Compile and submit permit applications to National and Provincial Heritage Authorities for Section 34 building alterations and demolitions (under National Heritage Resources Act, 25 of 1999)

Compile and submit permit applications to Provincial and Municipal Health Authorities for Section 36 relocations of graves and burial grounds (under National Heritage Resources Act, 25 of 1999 and National Health Act, No 61 of 2003)

2008 – 2011 *Cultural Heritage Officer (National), Burial Grounds and Graves Unit: South African Heritage Resources Agency (SAHRA)*

Review and assessing permit applications for relocation of historical graves and burial grounds.

1998 – 2008 *Cultural Heritage Officer (Provincial), Provincial Office – Gauteng: SAHRA*

Review and comment on heritage and archaeological impact reports

Research for the nomination and grading process for related to the declaration of specific heritage resources as National Heritage Sites

Monitoring of certain archaeological and built environment National Heritage Sites (e.g., The Cradle of Humankind World Heritage Site)

4 Selected Consultancies

4.1 Karoo Geophysical Research Project: Seismic Surveys Within the Central Karoo District, Eastern Cape Province

2025, Undertake Heritage Impact Assessment of all heritage resources situated within or adjacent to the road reserves of the proposed survey routes

4.2 Karoo Geophysical Research Project: Seismic Surveys Within the Central Karoo District, Western Cape Province

2025, Undertake Heritage Impact Assessment of all heritage resources situated within or adjacent to the road reserves of the proposed survey routes

4.3 Rietspruit Pipeline Deviation, Emfuleni, Gauteng

2025, Undertake Heritage Impact Assessment of all heritage resources associated with the footprint of the proposed pipeline deviation

4.4 Postmasburg Hospital, Postmasburg, Northern Cape

2025, Undertake Heritage Impact Assessment of all heritage resources associated with the footprints for the proposed new hospital

4.5 Sulphonation Plant, Wadeville, Ekurhuleni, Gauteng

2025, Undertake Heritage Impact Assessment of all heritage resources associated with the footprints for the proposed new sulphonation plant

4.6 Varsputs and Brakputs Wind Energy Facility projects, Springbok, Northern Cape

2024, Undertake Heritage Impact Assessment of all heritage resources associated with the respective footprints for the two Wind Energy Facility projects and associated grid infrastructure

4.7 Lemenong and Boitekong BESS Projects, Rustenburg, North-West Province

2024, Undertake Heritage Impact Assessment of all heritage resources associated with the respective footprints for the two Battery Energy Storage System projects

4.8 Leratong Reservoirs, Johannesburg, Gauteng

2024, Undertake Heritage Impact Assessment of all heritage resources associated with the project footprints for the construction of two water reservoirs

4.9 Hartebeest Skeur WEF, Damara 1 & 2 SEFs, & associated infrastructure

2023/24 Undertake Heritage Impact Assessment of all heritage resources associated with the respective footprints for the two Wind Energy Facility projects and associated grid infrastructure

4.10 New Vessel Tracking System Tower, Port of Durban, KwaZulu Natal

2023/2024, Heritage Specialist, Undertake Heritage Impact Assessment of all heritage resources within or adjacent to the development footprint

4.11 Pensfontein Residential Development, Postmasburg, Northern Cape

2023/2024, Heritage Specialist, Undertake Heritage Impact Assessment of all heritage resources within or adjacent to the development footprint

4.12 Bhobhoyi Pipeline Upgrade, Port Shepstone, Kwa-Zulu Natal Province.

2023, Heritage Specialist, Pipeline Upgrade associated with proposed Umzimkhulu River Weir and Pumpstation Upgrade, Undertake Heritage Impact Assessment of all heritage resources along the proposed route and submit HIA Report to Amafa Institute.

4.13 Pilanesberg Platinum Mine Community Bulk Water Supply pipeline near Pilanesberg Nature Reserve, North West Province

2023, Heritage Specialist, Proposed development of Bulk Water Supply pipeline for local community; Undertake Heritage Impact Assessment of all heritage resources along the proposed route

4.14 400kV Transmission and 132kV distribution power lines for the Apollo-Lepini-Mesong Project, Gauteng Province, South Africa

2023, Heritage Specialist, Proposed development of a 400kV transmission and 132kV power lines; Undertake Heritage Impact Assessment of all heritage resources along the proposed routes for the two power lines.

4.15 Carbon Capture Utilisation & Storage (CCUS) Pilot Project - 3D Seismic Survey & Drilling, Leandra, Mpumalanga Province, South Africa

2023, Heritage Specialist. Proposed 3D Seismic Survey within the Leandra area, Undertake Heritage Impact Assessment of all heritage resources within the footprint of the survey area.

4.16 Carbon Capture Utilisation & Storage (CCUS) Pilot Project - Injection Site 2023, Leandra, Mpumalanga Province, South Africa

2023, Heritage Specialist. Proposed Injection Site 2023 for the CCUS pilot project within the Leandra area, Undertake Heritage Impact Assessment of all heritage resources within the footprint of the survey area.

4.17 Decommissioning of Komati Power Station, Middelburg, Mpumalanga, South Africa

2023, Heritage Specialist, in association with architectural historian; Proposed Decommissioning of the Komati Power Station, Undertake Heritage Impact Assessment of all heritage structures within the power station

4.18 Paulputs Strengthening Powerline Route, Postmasburg-Paulputs, Northern Cape

2023, Heritage Specialist, Proposed development of a 400kV transmission lines; Undertake Heritage Impact Assessment of all heritage resources along the proposed route

4.19 Mooivlei Solar PV Facilities, near Kroonstad, Free State Province, South Africa

2022/2023 Heritage Specialist, proposed development of three Solar PV facilities west of Kroonstad, Undertake Heritage Impact Assessment of all heritage resources associated with the three Solar PV facilities:

- Mooivlei Solar 1 PV facility, west of Kroonstad
- Mooivlei Solar 2 PV facility, west of Kroonstad
- Mooivlei Solar 2 PV facility, west of Kroonstad

4.20 Kroonstad South Solar PV Facilities near Kroonstad, Free State Province, South Africa

2022/2023 Heritage Specialist, Development of five Solar PV facilities south of Kroonstad, Undertake Heritage Impact Assessment of all heritage resources associated with the five solar PV facilities:

- Oslaagte Solar 1 PV project, south of Kroonstad
- Oslaagte Solar 2 PV project, south of Kroonstad
- Oslaagte Solar 3 480MW PV facility south of Kroonstad
- Leeuwspruit Solar 1 320MW PV facility south of Kroonstad
- Leeuwspruit Solar 2 PV facility south of Kroonstad

4.22 Rustenburg Solar PV Facilities, North West Province, South Africa

2022/2023 *H*eritage Specialist, Development of three Solar PV facilities near Rustenburg, , Undertake Heritage Impact Assessment of all heritage resources associated with the three solar PV facilities.

- Onderstepoort Solar 1 PV facility, near Rustenburg
- Onderstepoort Solar 2 PV facility, near Rustenburg
- Rhino Solar PV facility, near Rustenburg

4.23 Seelo Solar PV Facilities, near Carletonville, North West Province, South Africa,

2022/2023 Heritage Specialist, Development of three Solar PV facilities near Carletonville, Undertake Heritage Impact Assessment of all heritage resources associated with the three solar PV facilities.

- Seelo Alpha 240MW Solar PV & BESS facility, near Carletonville
- Seelo Beta 240MW Solar PV & BESS facility, near Carletonville
- Seelo Charlie Solar PV & BESS facility, near Carletonville

4.24 Ferrum-Upington Powerline Route, Upington-Kathu, Northern Cape

2022/2023 Heritage Specialist, Proposed Deviations to Authorised Route of a 400kV transmission power line between Upington and Kathu, Undertake Heritage Impact Assessment for of all heritage resources along the proposed route

4.25 GDID East Corridor, OHS Implementation, Tambo Memorial Regional Hospital, (as sub-contractor to PGS Heritage (Pty) Ltd

2022 Independent Heritage Specialist, in association with architectural historian. Compile Historical Archival Report of Tambo Hospital Boksburg, Gauteng for PGS Heritage (Pty) Ltd, Finalise HIA Report and submit HIA report to Gauteng Provincial Heritage Resources Authority

4.26 **GDID East Corridor, OHS Implementation, Tembisa Regional Hospital,**

2022 Independent Heritage Specialist, in association with architectural historian. Compile Historical Archival Report of Tembisa Hospital, Ekurhuleni, Gauteng for PGS Heritage (Pty) Ltd, Finalise HIA Report and submit HIA report to Gauteng Provincial Heritage Resources Authority.

5 Languages:

English - excellent speaking, reading, and writing

Afrikaans –fair speaking, reading and writing