# ARCHAEOLOGICAL IMPACT ASSESSMENT OF THE PROPOSED OUDRIFT DAM ON PTNS 3 & 13 OF FARM 143 KLIPHEUVEL, KLEIN BRAK RIVER.

**HWC CASE: 20031905SB0728E**

**Decision making authority:**

**Department of Environmental Affairs and Development Planning**
A 3rd Floor, Rentzburghof,
42 Courtenay Street, George

(Assessment conducted under Section 38 (8) of the
National Heritage Resources Act (No. 25 of 1999)
as part of a NEMA Basic Assessment process)

**DEA&DP REF: 16/3/3/6/7/1/D6/25/0115/20**

Prepared for

**KAPP Environmental Consultants**

On behalf of

**Mr John Robertson/Klipheuwel Trust**

June 2021

Prepared by

David Halkett

**ACO Associates cc**

Physical: Unit D17, Prime Park, 21 Mocke Rd, Diep River
Postal: 8 Jacobs Ladder St James, 7945
david.halkett@aco-associates.com
Tel: 021 7064104
Cell: 0731418606
Fax to e-mail: 086 603 7195

## EXECUTIVE SUMMARY

### Introduction

ACO Associates cc has been requested by KAPP on behalf of Mr John Robertson and the Klipheuwel Trust to compile an Integrated Heritage Impact Assessment (HIA) of the impacts on heritage resources of the proposed construction of a dam on Ptns RE/3 & RE/13 of Farm 143 Klipheuvel, Kleinbrak. off the N2 ~3.4 km north of Klein Brak Rivier in the Mossel Bay Municipality in the Western Cape Province.

KAPP submitted a NID application to Heritage Western Cape (HWC) on 29 July 2020 and it was discussed at the Heritage Officers Meeting on the 3rd of August 2020. A response to the NID was issued on 7 August 2020 with Case Number 20031905SB0728E in which HWC resolved that: "since there is reason to believe that the proposed dam on portion 13 and portion 3 of Farm 143 Farm Klipheuvel, Kleinbrak, Mossel Bay will impact on heritage resources, HWC requires that a Heritage Impact Assessment (HIA) that satisfies the provisions of section 38(3) of the NHRA be submitted. This HIA must have specific reference to the following: A palaeontological desktop study (PIA) and "archaeological foot survey" (AIA). The comments of relevant registered conservation bodies; all Interested and Affected parties; and the relevant Municipality must be requested and included in the HIA where provided. Proof of these requests must be supplied."

ACO Associates cc was appointed to compile an Integrated HIA and AIA, while Dr J Almond was appointed to undertake the required specialist Palaeontological desktop Assessment (Almond 2021).

### Project motivation and technical data

The applicant is in need of storage capacity due to changing precipitation patterns but also as protection from the increased use of water for irrigation in the upper reaches of the Moorkuil River. The applicant wishes to construct a dam on his property to manage his water allocations throughout the year as required. The dam area will comprise 72 960m² and the total development footprint will be 10.5Ha. The Full Supply Level (FSL) volume is 472 109m³ and have a wall total height of 19 metres and crest of approximately 121m in length, resulting in a maximum dam depth of 18 metres (Figure 2a).

It is proposed that the dam will be filled by pumping from the applicants existing lawful pumping installation on the eastern bank of the Moordkuil River (verified and lawful in terms of section 35(4) of the NWA, Act 36 of 1998). Relevant letters detailing the determination have been issued by the Breede/Gouritz Catchment Management Association. Apart from this verification, the abstraction was furthermore recorded as lawful in terms of Act 54/56 in section 9B(1C) by the then Department of Water Affairs.

The applicant has an existing irrigation water distribution network along the stretches of the Moordkuil Sint Road and the Gonnakraal gravel road. Two pipeline route alternatives are available to connect the Oudrift Dam to the existing irrigation network. The schematic layout of two pipeline alternatives are shown in Figure 3.

### Data gathering

The fieldwork component of the Archaeological Impact assessment was conducted by Mr D Halkett of ACO Associates cc on the 3rd June 2021. Visibility of the ground surface in the project site was considered to be good to excellent and there were almost no limitations in terms of access. There were many clearings in the dam basin which provided excellent visibility. The area was assessed on foot, except in one or two small areas where vegetation was thick, but this did not affect the conclusions.

Prior to embarking on the fieldwork, aerial photographs from a range of periods had been examined to determine if any heritage indicators that may need to be inspected could be identified on the images.

The area did not appear to contain much apart from a single structure perched on a hill to the north of the site of the dam wall visible on the 1939 (earliest available) and 1963 aerial photos. It is still visible on the recent Google Earth image (April 2021). The position of the structure was entered into the hand-held GPS in order to identify the site when in the field.

Search tracks were recorded by means of a Garmin GPS receiver to document the searched area (Figure 3), and any identified heritage resources were assigned Lat-Lon co-ordinates, described and photographed. The few identified heritage resources observed are plotted on Figure 3 and described in Section 5. Heritage resources have been provisionally graded for significance according to the system used by Heritage Western Cape as defined in the Table 2.

**Findings and Recommendations**

**Pre-colonial heritage**

Despite the expectation that ESA artefacts would be widespread across the site, a very small number of pre-colonial heritage resources were located at the dam site and the proposed activities are not expected to result in the loss of significant heritage resources. Proposed grade: NCW. No mitigation has been proposed.

**Built environment**

A single four-roomed structure in semi-ruinous state was found in the project site located atop a hill immediately north of the proposed dam wall. This apparently served as a farm workers cottage for many years and is likely to have been built early to mid-20$^{th}$ c. It has been provisionally graded NCW. No mitigation has been proposed.

**Impact Assessment**

The findings of the impact assessment evaluated in terms of the Impact Methodology suggests that impacts on archaeological heritage resources will be low to very low without mitigation. The low heritage significance of the resources does not warrant implementation of mitigation.

**Conclusion**

Overall we find that the proposed Oudrift Dam and associated pipeline infrastructure (either alternative) will result in little loss of any significant heritage resources and no mitigation is proposed. Although no mitigation is proposed for the ruin (024), the Preferred Alternative dam design does not see the inundation of the ruin at full supply, and is therefore marginally favoured. In our opinion the dam project may be authorised.

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## GLOSSARY

| | |
|---|---|
| Archaeological | Remains resulting from human activity which is in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures. |
| Baseline | Information gathered at the beginning of a study which describes the environment prior to development of a project and against which predicted changes (impacts) are measured. |
| Construction Phase | The stage of project development comprising site preparation as well as all construction activities associated with the development. |
| Cumulative Impacts | Direct and indirect impacts that act together with current or future potential impacts of other activities or proposed activities in the area/region that affect the same resources and/or receptors. |
| Environment | The external circumstances, conditions and objects that affect the existence of an individual, organism or group. These circumstances include biophysical, social, economic, historical and cultural aspects. |
| Environmental Authorisation | Permission granted by the competent authority for the applicant to undertake listed activities in terms of the NEMA EIA Regulations, 2014. |
| Environmental Impact Assessment | A process of evaluating the environmental and socio-economic consequences of a proposed course of action or project. |
| Environmental Impact Assessment Report | The report produced to relay the information gathered and assessments undertaken during the Environmental Impact Assessment. |
| Environmental Management Programme | A description of the means (the environmental specification) to achieve environmental objectives and targets during all stages of a specific proposed activity. |
| Fossil | Mineralised bones of animals, shellfish, plants and marine animals. A trace fossil is the track or footprint of a fossil animal that is preserved in stone or consolidated sediment |
| Heritage | That which is inherited and forms part of the National Estate (Historical places, objects, fossils as defined by the National Heritage Resources Act 25 of 1999 |
| Impact | A change to the existing environment, either adverse or beneficial, that is directly or indirectly due to the development of the project and its associated activities. |
| Mitigation measures | Design or management measures that are intended to minimise or enhance an impact, depending on the desired effect. These measures are ideally incorporated into a design at an early stage. |
| Operational Phase | The stage of the works following the Construction Phase, during which the development will function or be used as anticipated in the Environmental Authorisation. |
| Palaeontological | Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace. |
| Scoping | A procedure to consult with stakeholders to determine issues and concerns and for determining the extent of and approach to an EIA and EMP (one of the phases in an EIA and EMP). This process results in the development of a scope of work for the EIA, EMP and specialist studies. |
| Specialist study | A study into a particular aspect of the environment, undertaken by an expert in that discipline. |
| Stakeholders | All parties affected by and/or able to influence a project, often those in a position of authority and/or representing others. |
| Structure (historic) | Any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith. Generally protected structures are those which are over 60 years old. |

## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| BA | Basic Assessment Process |
| CRM | Cultural Resource Management |
| EA | Environmental Authorisation |
| EAP | Environmental Assessment Practitioner |
| EIA | Environmental Impact Assessment |
| ESA | Early Stone Age >~3000 0000 years –~ 1.1 Million years |
| GPS | Global Positioning System |
| HIA | Heritage Impact Assessment |
| HWC | Heritage Western Cape – Provincial Heritage Authority |
| kV | Kilo Volt |
| LSA | Later Stone Age <~20 000 years |
| MSA | Middle Stone Age – between ~300 000 and ~20 000 years |
| MVA | Megavolt amperes |
| NEMA | National Environmental Management Act 107 of 1998, as amended |
| NHRA | National Heritage Resources Act of 1999 |
| NID | Notice of intent to Develop – application to HWC at inception of the project |
| PHRA | Provincial Heritage Resources Authority |
| SAHRA | South African Heritage Resources Agency – the National Heritage Authority |
| SAHRIS | South African Heritage Resources Information System |
| S&EIR | Scoping and Environmental Impact Reporting |
| SRK | SRK Consulting (South Africa) (Pty) Ltd |
| ToR | Terms of Reference |
| VIA | Visual Impact Assessment |

# 1. INTRODUCTION

## 1.1 Background

ACO Associates cc has been requested by KAPP on behalf of Mr John Robertson and the Klipheuwel Trust to compile an Integrated Heritage Impact Assessment (HIA) of the impacts on heritage resources of the proposed construction of a dam on Ptns RE/3 & RE/13 of Farm 143 Klipheuvel, Kleinbrak. off the N2 ~3.4 km north of Klein Brak Rivier in the Mossel Bay Municipality in the Western Cape Province as indicated on Figure 1.

KAPP submitted a NID application to Heritage Western Cape (HWC) on 29 July 2020 and it was discussed at the Heritage Officers Meeting on the 3rd of August 2020. A response to the NID was issued on 7 August 2020 with Case Number 20031905SB0728E (Appendix C) in which HWC resolved that: "since there is reason to believe that the proposed dam on portion 13 and portion 3 of Farm 143 Farm Klipheuvel, Kleinbrak, Mossel Bay will impact on heritage resources, HWC requires that a Heritage Impact Assessment (HIA) that satisfies the provisions of section 38(3) of the NHRA be submitted. This HIA must have specific reference to the following: A palaeontological desktop study (PIA) and "archaeological foot survey" (AIA). The comments of relevant registered conservation bodies; all Interested and Affected parties; and the relevant Municipality must be requested and included in the HIA where provided. Proof of these requests must be supplied."

ACO Associates cc was appointed to compile an Integrated HIA and AIA, while Dr J Almond was appointed to undertake the required specialist Palaeontological desktop Assessment (Almond 2021).

## 1.2 Terms of Reference

The generic ToR and principal objectives for study is to:

- Describe the existing baseline characteristics of the study area and place this in a regional context;
- Identify and assess potential impacts of the project and the alternatives, including impacts associated with the construction and operation phases, using the impact rating methodology in Appendix D;
- Indicate the acceptability of alternatives and recommend a preferred alternative (where applicable);
- Identify and describe potential cumulative impacts of the proposed development in relation to proposed and existing developments in the surrounding area;
- Recommend mitigation measures to avoid and/or minimise impacts and/or optimise benefits associated with the proposed project if applicable; and
- Recommend and draft a monitoring campaign, if applicable.

The main deliverable from each specialist will be an impact assessment report with appropriate maps, drawings and figures. Reports will include the following components:

- Prepare an Integrated Heritage Impact Assessment which includes a specialist Palaeontological Impact Assessment (PIA) and Archaeological Impact Assessment (AIA);
- Baseline description: a description of the environment of the study area in its current state, relevant to the specialist's field of study; and
- Impact assessment: an assessment of how the proposed project will alter the *status quo* as described in the baseline description, and recommended measures to mitigate and monitor impacts.
- The comments of any registered conservation organisation for the area and the local Municipality should also be included.

The report must take cognizance of, and comply with, the substantive content requirements outlined within Appendix 6 of GN R982, which outlines the legal minimum requirements for specialist studies in terms of the 2014 NEMA EIA Regulations.

## 1.3 Content of the Report

The EIA Regulations, 2014 (R982 of 2014, as amended by R326 of 2017), prescribe the required content of a specialist report prepared in terms of the EIA Regulations, 2014. These requirements, and the sections of this HIA in which they are addressed, are summarised in Table 1.

**Table 1:** Required content of a specialist report

| App 6 | Item | Section |
|---|---|---|
| (a) (i) | Details of the specialist who prepared the report; | App A |
| (a) (ii) | Expertise of that specialist to compile a specialist report, including a curriculum vitae | App A |
| (b) | A declaration that the specialist is independent in a form as may be specified by the competent authority; | App B |
| (c) | An indication of the scope of, and the purpose for which the report was prepared; | 2 |
| (cA) | An indication of the quality and age of base data used for the specialist report; | 4 |
| (cB) | A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change; | 6.4 |
| (d) | The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment; | 4.3 |
| (e) | A description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used; | 4 |
| (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; | 6 |
| (g) | An identification of any areas to be avoided, including buffers; | 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; | Fig 3 |
| (i) | A description of any assumptions made and any uncertainties or gaps in knowledge; | 1.4 |
| (j) | A description of the findings and potential implications of such findings on the impact of the proposed activity or activities; | 4,5,6 |
| (k) | Any mitigation measures for inclusion in the EMPr; | n/a |
| (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 whether the proposed activity or portions thereof should be authorised; | 8 |
| (n) (iA) | A reasoned opinion regarding the acceptability of the proposed activity or activities; | 8 |
| (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; | n/a |
| (o) | A description of any consultation process that was undertaken during the course of preparing the specialist report; | 3.1.1 |
| (p) | A summary and copies of any comments received during any consultation process and where applicable all responses thereto; and | not yet available |
| (q) | Any other information requested by the competent authority. | n/a |

## 1.4 Assumptions and limitations

- We assume that the information provided by KAPP is accurate;
- We assume that the information provided in consulted reports and publications is accurate;
- There are limitations with accessing up to date impact assessments submitted to HWC as there is no online database of projects post-2009. Notification of reports in an area is by way of references in other reports, or personal knowledge.

There were however no perceived significant limitations in conducting this archaeological assessment.

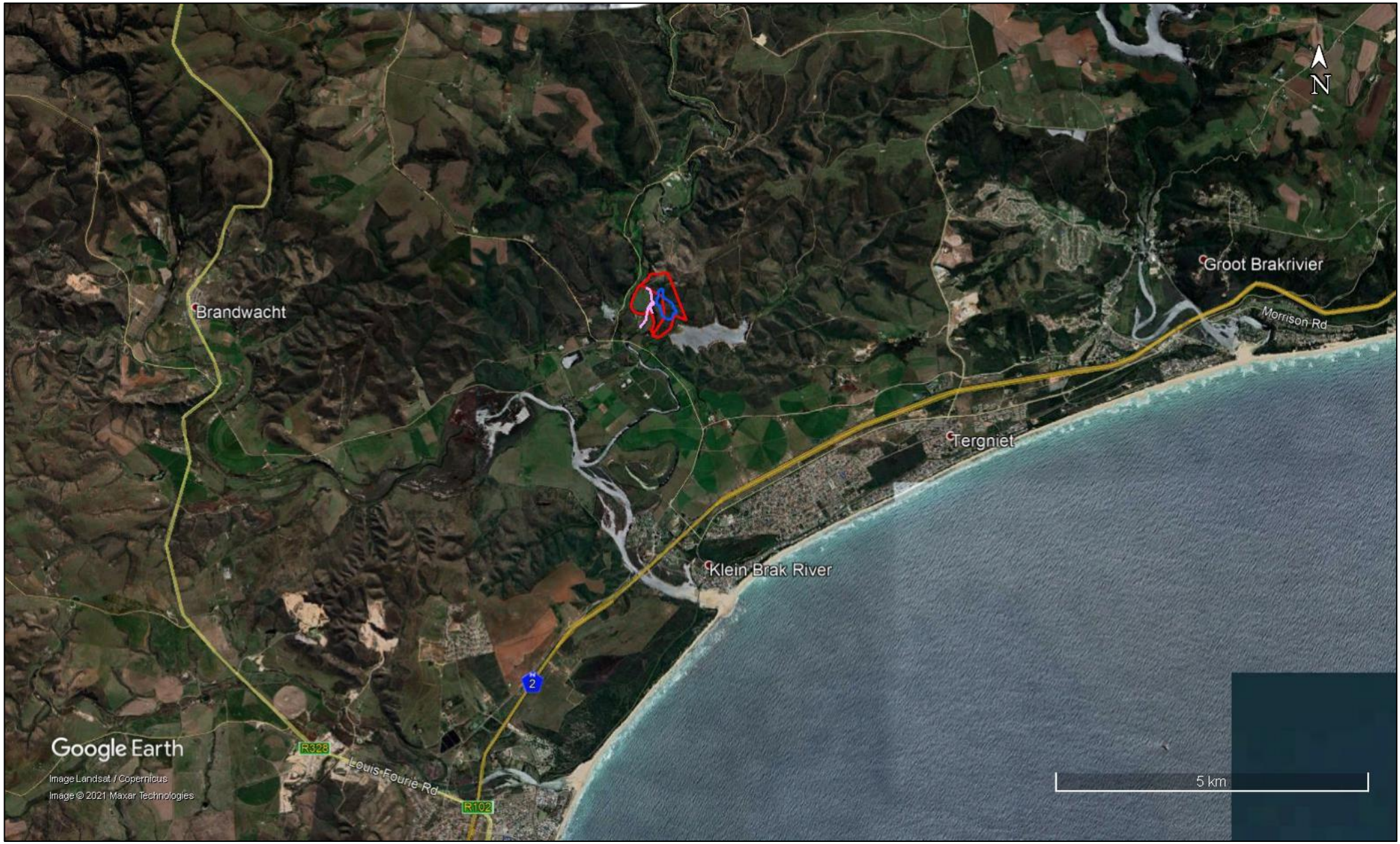


**Figure 1:** The project area in broad regional context. Affected farm portions (red)

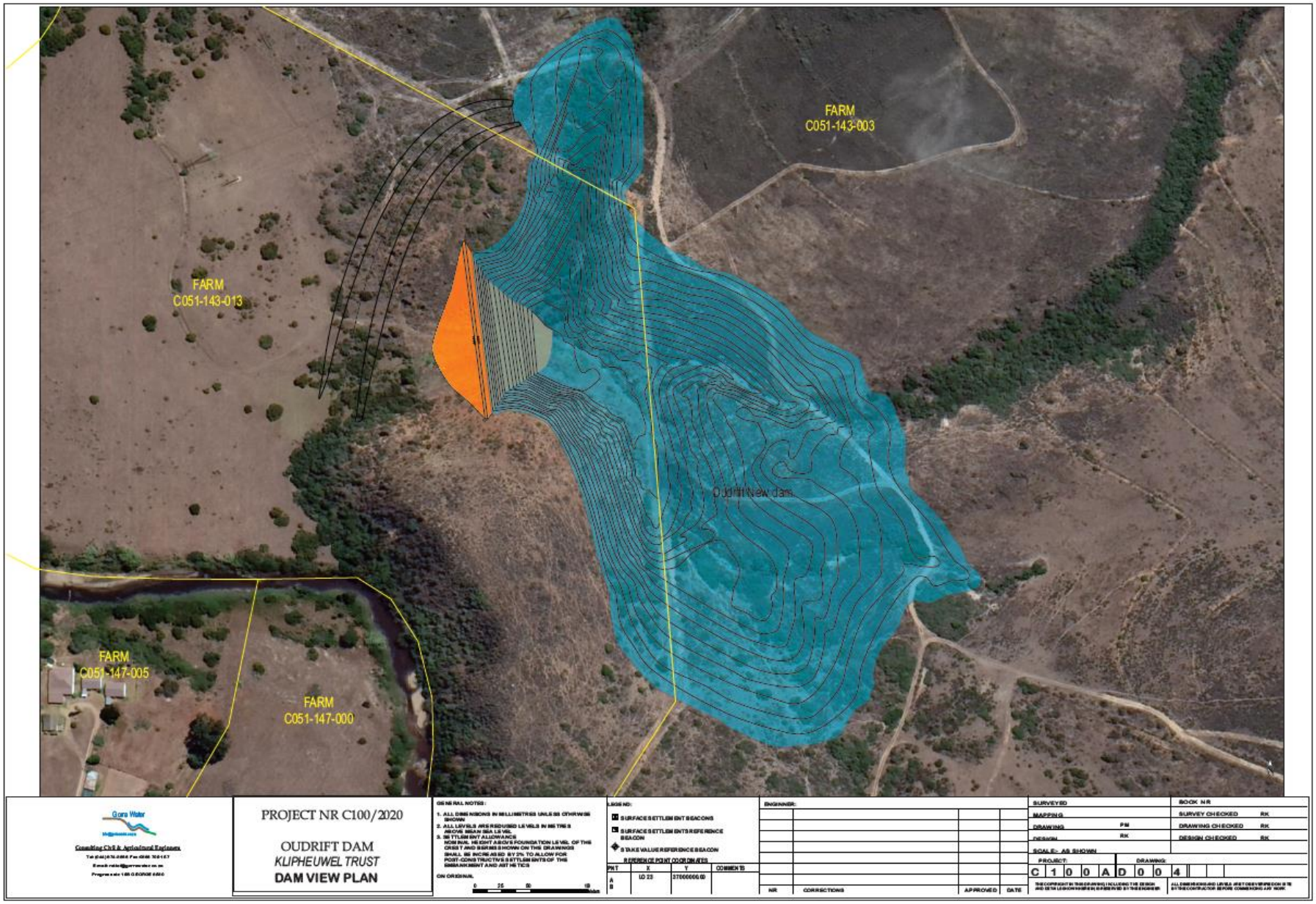


**Figure 2a:** The proposed location of the dam (orange) with full supply level (blue) (Preferred Alternative design).

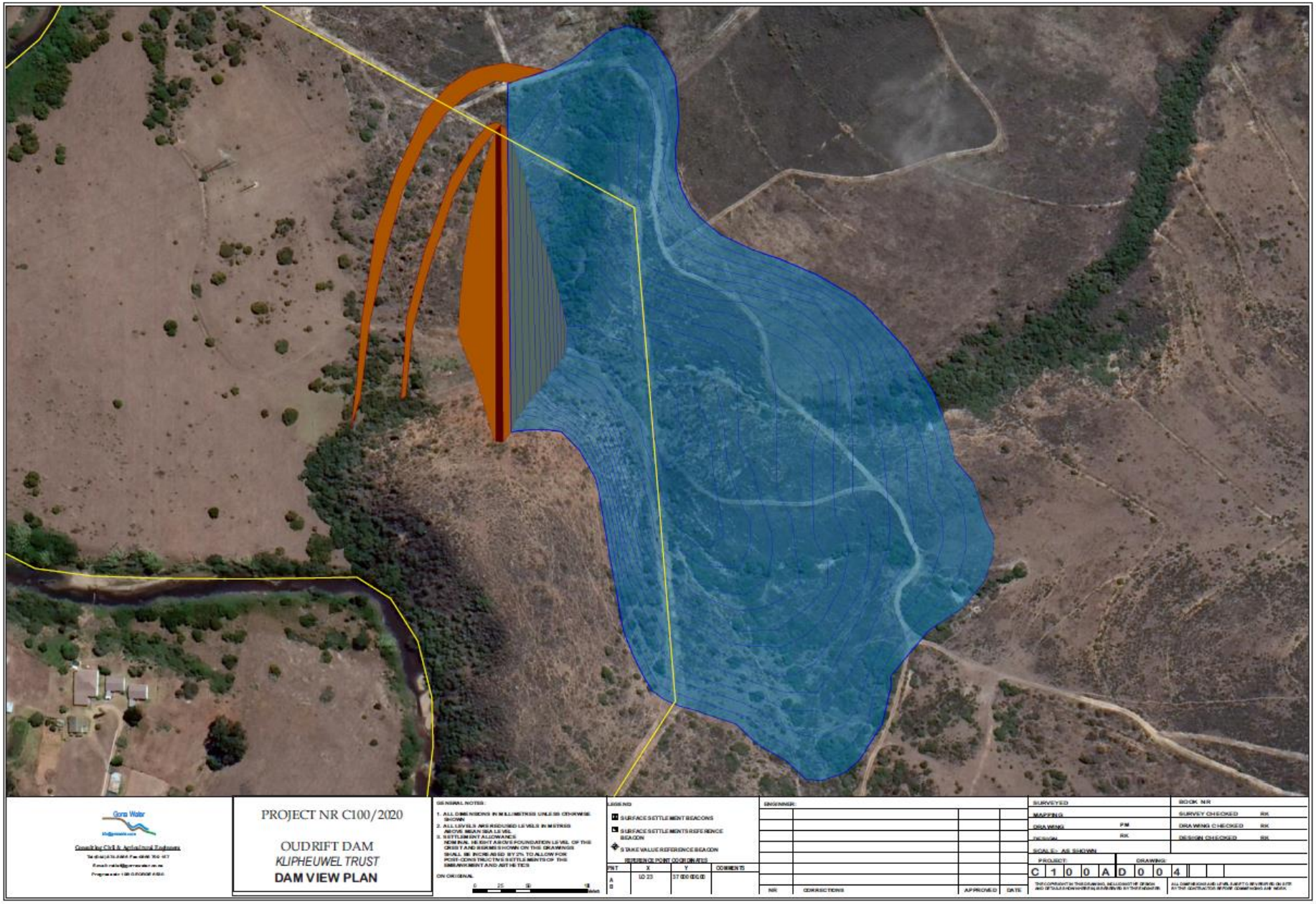


**Figure 2b:** The proposed location of the dam (orange) with full supply level (blue) (Alternative Design 1).

## 2. PROJECT DESCRIPTION

### 2.1 Project motivation and technical data

The applicant needs storage capacity as changing precipitation patterns not only dictate the need for an increase in assurance of yield, but also as protection from the increased use of water for irrigation in the upper reaches of the Moorkuil River (the K10E and K10F quaternary catchments). The applicant wishes to construct a dam on his property to manage water allocations throughout the year as required. It is proposed that the dam area will comprise 72 960m² with a total development footprint of 10.5Ha. The Full Supply Level (FSL) volume is 472 109m³ and a wall total height of 19 metres and crest of ~121m in length, resulting in a maximum depth of 18 metres. The Preferred design and Alternative design 1 are shown in Figures 2a and b, while alternative pipeline options are shown in Figure 2c.

It is proposed that the dam will be filled by pumping from the Moordkuil River from the applicant's existing lawful installation on the eastern (left) bank of the river (34° 3'11.31"S 22° 8'6.68"E), verified and lawful in terms of section 35(4) of the NWA, Act 36 of 1998 and in terms of Act 54/56 in section 9B(1C) by the then Department of Water Affairs. Relevant letters detailing the determination have been issued by the Breede/Gouritz Catchment Management Association.

The site contains 3 seasonal watercourses meandering west toward the Moordkuil River. The drainage lines have confluence at the proposed dam wall location and encompasses a small catchment. It is proposed that the minor runoff into the Oudrift Dam from this small upstream catchment will be determined and accordingly released with the proposed "Compensation Water Releases" back to the Moordkuil River in order to ensure that the impacts on the Ecological Water Requirements are neglible.

The applicant has an existing irrigation water distribution network along the stretches of the Moordkuil Sint Road and the Gonnakraal gravel road. Two pipeline route alternatives are available to connect the Oudrift Dam to the existing irrigation network. The schematic layout of two pipeline alternatives are shown in Figure 3. The existing irrigation network comprises 225mm⌀ uPVC pipelines and the proposed new pipelines to convey the Section 32 water entitlement will be of similar design.

The preferred connection point to the network will require an additional crossing of the Moordkuil River near the location of the existing drainage channel discharge. This connection point is the applicants preferred alternative due to operational considerations. Furthermore, two river crossing alternatives have been identified in line with the preferred connection point as described above. The first alternative would entail the open trench construction of the pipeline through the Moordkuil River and reinforcement of the submerged pipe below the riverbed. The alternative river crossing would entail a suspension bridge to be constructed across the river in order to fix the pipeline to. This stretch of the Moordkuil River is approximately 30m wide and dry bed installation is possible during summer months by utilizing the existing DWAFF pumps located downstream.

The open trench construction of the pipeline below the riverbed is the applicants preferred alternative since it will not cause any obstruction during flood events. Due to the narrow stretch of the river in this location, the suspension bridge could cause obstruction to debris and require regular replacement.

Access to the proposed Oudrift Dam will be taken via an existing gravel road off Moordkuil Sint Road which leads in an eastern direction past the adjacent Klipheuwel Dam and to the site.

A water use license application will be submitted in terms of, section 21(b) - storing water, section 21(c) - impeding or diverting the flow of water in a watercourse, and section 21(i) - altering the bed, banks, course or characteristics of a watercourse. The proposed dam has already been submitted to be registered and classified with the Department of Water and Sanitation Dam Safety Office. A probable risk category of "Category 2, Medium in Size and High Risk" will be awarded.

At this stage it is anticipated that the required material for the construction of the proposed embankment will be sourced from within the dam basin on site. Suitable graded sands intended for the curtain and blanket filters will be sourced from approved commercial suppliers and concrete will be sourced from approved commercial ready-mix suppliers.

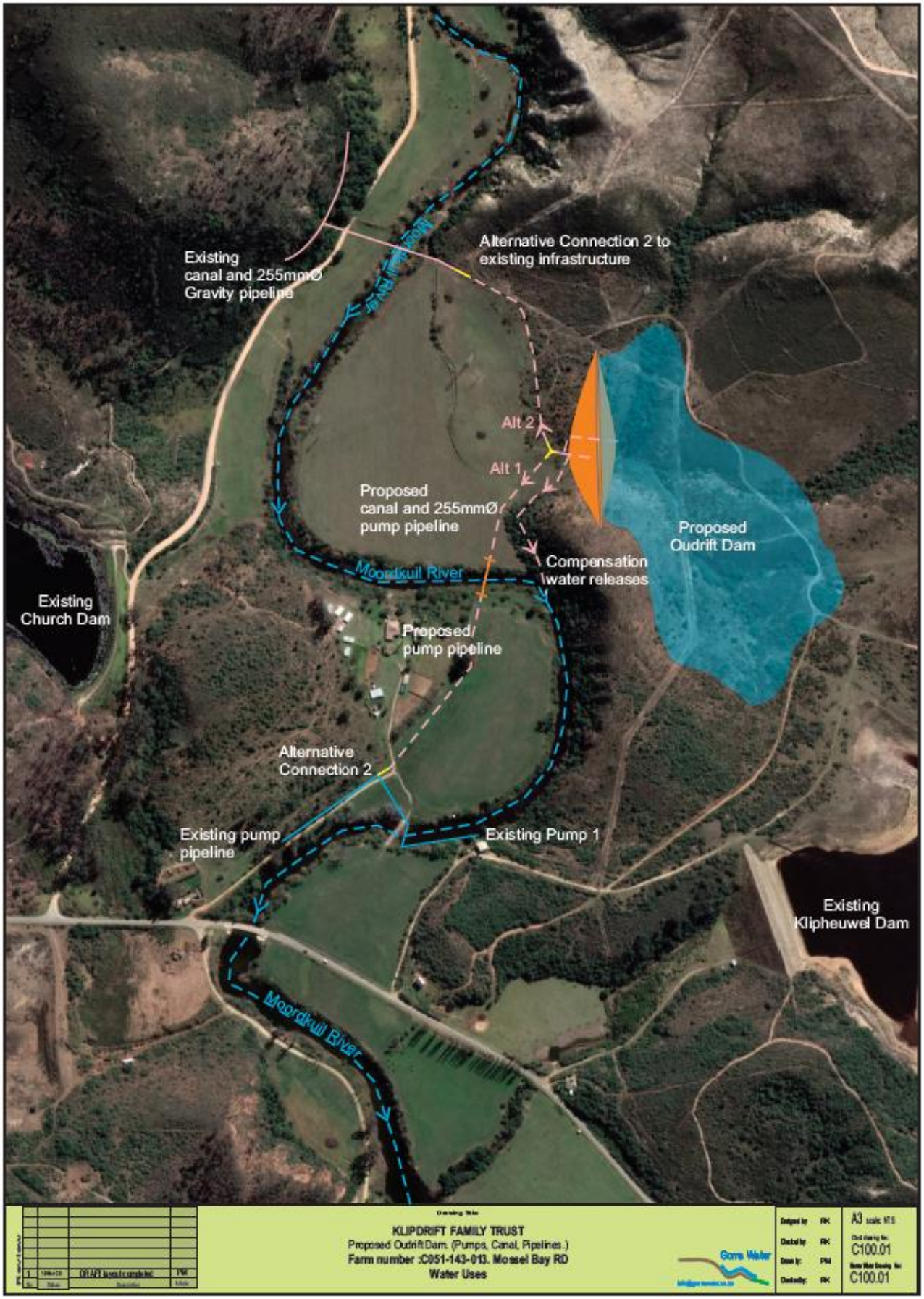


**Figure 2c:** Propsed pipelines and alternatives (pink dashed) and river crossing (orange).

## 2.2 Receiving Environment

Kapp (2020:2-3) provides the following description of the receiving environment in the pre-application scoping report.

The proposed Oudrift farm dam spans two cadastral entities, RE/13 and RE/3 of Klipheuvel 143. RE/3 is 28.15Ha in extent and registered to the applicant Klipheuwel Trust while RE/13 is 21.17Ha in extent and registered to Walter Robertson. The dam wall will be constructed and a section of this property and consent has been obtained from the landowner. Both these properties are currently zoned Agriculture I.

RE/3 is currently lying dormant and contains indigenous vegetation, fallow agricultural fields and 3 seasonal watercourses. The farm is fenced with game fencing and forms part of a larger camp which is utilized for grazing of several antelope species. The applicant undertook significant alien clearing on the farm to eradicate Blue Gum and Port Jackson infestations during 2011 and 2012. Ongoing alien management is undertaken which was evidenced during the site visit conducted in August 2020. RE/13 is covered mostly in grass species and utilized as grazing for dairy cattle.

The site is located adjacent and directly north of the existing Klipheuwel Dam which covers an area of approximately 37Ha. The proposed dam is located approximately 300 metres (at nearest point) east of the Moordkuil River.

Surrounding land uses comprise mostly dairy farming, as dairy farms have transformed much of the surrounding landscape north of the N2, with only the hilly areas and steeper slopes remaining untransformed. Botlierskop Private Game Reserve is located to the immediate north and east of the site. Dairy farms are located further east and south east of the site. Toward the west is the Moordkuil River and opposite the River are fallow agricultural land with varying levels of alien infestation. South west and opposite the Moordkuil River is one smallholding with several structures present. Further south and downstream are more irrigated grazing areas for dairy cattle as well as significant guava orchards.

The topography of the site can be described as a small, naturally vegetated valley forming a basin which slopes from the north, east and south towards the west. As per the 2012 South African Vegetation Map, the site is mapped as Groot Brak Dune Strandveld, while on the 2018 SA Vegetation Map it is mapped as Garden Route Granite Fynbos and a small portion as South Outeniqua Sandstone Fynbos. Both Groot Brak Dune Strandveld and Garden Route Granite Fynbos are listed as endangered. It also forms part of the local biodiversity network and has been mapped as a critical biodiversity area (CBA).

Three seasonal watercourses meander west toward the Moordkuil River. These converge at the location where the dam wall will be constructed and encompass a small catchment. It is proposed that the minor runoff into the Oudrift Dam from this small upstream catchment will be determined and accordingly released with the proposed "Compensation Water Releases" back to the Moordkuil River in order to ensure that the impacts on the Ecological Water Requirements are neglible. One wetland is mapped toward the south east of the dam extent.

The proposed Oudrift Dam site is located adjacent to the lower reaches of the Moordkuil River. According to the Cape Farm Mapper GIS mapping, this section forms part of the Estuarine functional zone. A Freshwater Impact Assessment and the Ecological Reserve Determination must be undertaken to inform the Ecological Reserve and the possible impacts the construction might have on achieving the Ecological Water Requirement for the Klein Brak River Estuary.

## 2.3 List of affected properties

The affected farm is listed in Table 2 while cadastral boundaries are shown in Figures 1.

**Table 2:** List of affected properties and associated information

| Farm | Ptn | Id | Owner | Components |
|---|---|---|---|---|
| Klipheuvel143 | RE/3 | C05100000000014300003 | Klipheuwel Trust | Section of spillway, full supply area |
| Klipheuvel143 | RE/13 | C05100000000014300013 | Walter Robertson | Dam wall and basin, pipelines, spillway, full supply area |

## 2.4 Alternatives

The following alternatives have been identified:

- Dam Design Preferred Alternative (Figure 2a);
- Dam Design Alternative 1 (Figure 2b);
- Water Supply Pipeline Route Preferred Alternative (Figure 2c);
- Water Supply Pipeline Route Alternative 1 (Figure 2c);
- River Crossing Preferred Alternative – in river bed (Figure 2c);
- River Crossing Alternative 1 – suspended over river (Figure 2c);
- The no-development alternative.

## 2.5 Date and season of the site investigation

The Archaeological Impact assessment was conducted on the 3rd June 2021 and was unaffected by seasonal vegetation or other factors. Visibility of the ground was considered to be generally good to excellent across the proposed dam site and basin, and along pipeline routes. Two small areas, one in a deep ravine, and the other along the river, was covered by dense bush and prevented access.

## 3. APPLICABLE LEGISLATION

The National Department of Environmental Affairs is the decision making authority acting in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) and the NEMA Regulations (2014). In terms of Section 38 (8) National Heritage Resources Act (Act 25 of 1999) (NHRA), DEA must ensure that the evaluation of the statutorily defined broad range of heritage resources fulfils the requirements of the relevant heritage resources authority in terms of Section 38 (3) of the NHRA, and that any comments and recommendations of the relevant heritage resources authority with regard to proposed development have been taken into account prior to the granting of the consent.

Section 38 of the NHRA applies to development where HWC is not the decision making authority. Triggers for the NHRA are as follows:

**38.** (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—
*(a)* the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
*(b)* the construction of a bridge or similar structure exceeding 50 m in length;
*(c)* any development or other activity which will change the character of a site—`
(i) exceeding 5 000 $m^2$ in extent; or
(ii) involving three or more existing erven or subdivisions thereof; or
(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
*(d)* the re-zoning of a site exceeding 10 000 $m^2$ in extent; or
*(e)* any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority…..

The person who intends to undertake the development must notify SAHRA/HWC at the very earliest stages of initiating such a project of the location, nature and extent of the development. Section 38 (2a) states that if there is reason to believe that heritage resources will be affected then an impact assessment report must be submitted that fulfils the requirements of S38 (3).

**38** (3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)*(a)*: Provided that the following must be included:
*(a)* The identification and mapping of all heritage resources in the area affected;
*(b)* an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;
*(c)* an assessment of the impact of the development on such heritage resources;
*(d)* an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;

*(e)* the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
*(f)* if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
*(g)* plans for mitigation of any adverse effects during and after the completion of the proposed development.

The NHRA provides protection for the following categories of heritage resources:

- Cultural landscapes (Section 3(3))
- Buildings and structures greater than 60 years of age (Section 34)
- Archaeological sites greater than 100 years of age (Section 35)
- Palaeontological sites and specimens (Section 35)
- Shipwrecks and aircraft wrecks (Section 35)
- Graves and grave yards (Section 36).

### 3.1 Heritage authorities

SAHRA is the National Heritage Resources Authority and is responsible for Grade 1 heritage sites and the management of heritage in provinces where no Provincial authority has been established. As there are no Grade 1 heritage sites identified for the Oudrift Dam project, SAHRA has no part to play in this application.

HWC is the relevant Provincial Heritage Resources Authority (PHRA) for the Western Cape and therefore for this application. They have a defined process in order to achieve a final comment with respect to heritage resources as follows:

In terms of Section 38 of the NHRA, the appointed Heritage Practitioner must submit a "Notice of Intent to Develop" (NID) form to the Provincial Heritage Resources Authority (PHRA) for initial adjudication of the project and for them to determine the need for, and scope of further specialist heritage studies. If it is clear from the NID that no significant heritage resources will be impacted, no further action in terms of heritage will be requested. The comment is submitted to the Environmental Assessment practitioner (EAP) for inclusion in the Environmental process. If the decision is that further studies are required, the PHRA will request that the additional specialist studies are done as part of an Integrated Heritage Impact Assessment (HIA). The integration is to ensure that there is a recommendation that takes into account the findings of the various requested specialist Heritage studies. The specialist studies may include studies undertaken routinely as part of the Environmental Impact Assessment (EIA) process e.g. a Visual Impact Assessment (VIA), but most often include Archaeological and/or Palaeontological Impact Assessments. If there is significant Built Environment heritage at the affected site, a study of the buildings and their significance could be requested.

#### 3.1.1 Consultation

HWC requires that consultation with the responsible Municipality (Mossel Bay) and conservation bodies registered with HWC where there is jurisdiction for the area in which the project falls. A list of registered conservation bodies and a spatial map of jurisdictions is found on HWC's website (https://www.hwc.org.za/conservation-bodies). Proof of consultation can be found in the HIA report.

### 3.2 HWC requirements for the Oudrift Dam project

A "Notice of Intent to Develop" (NID) application was compiled and submitted by the Environmental Assessment Practitioner (EAP) to Heritage Western Cape (HWC) on the 29 July 2020 and in their response of 7 August 2020 (Appendix C), HWC requested that an integrated HIA be compiled to satisfy the provisions of S38(3) of the NHRA of 1999 (with a set of integrated specialist recommendations) to include a desktop Palaeontological Impact Assessment (PIA), and an Archaeological "foot survey"(??) which we have presumed means an Archaeological Impact Assessment (AIA).

### 3.3 Grading of heritage resources

The significance of heritage resources is assessed according to the grading criteria established by the

NHRA. The grading system in Table 3 is currently applied by HWC.

**Table 3:** Grading of heritage resources (only categories I, II and III are defined in the NHRA), but HWC have introduced additional categories under III).

| Grade | Level of significance | Description |
|---|---|---|
| I | National | Of high intrinsic, associational and contextual heritage value within a national context, i.e. formally declared or potential Grade 1 heritage resources. |
| II | Provincial | Of high intrinsic, associational and contextual heritage value within a provincial context, i.e. formally declared or potential Grade 2 heritage resources. |
| IIIA | Local | Of high intrinsic, associational and contextual heritage value within a local context, i.e. formally declared or potential Grade 3a heritage resources. |
| IIIB | Local | Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3b heritage resources. |
| IIIC | Local | Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3c heritage resources. |
| NCW | | Not conservation-worthy - The Heritage Authority has applied its mind and the resource does not have enough heritage significance to be included in the National Estate. i.e. Insufficient Heritage Significance or "Ungradeable". This category is important as not all old places or structures are significant in terms of the NHRA. |
| Not yet graded | | The Heritage Authority has not yet applied its mind in order to determine a grading for the resource or there is not, yet, sufficient information to determine the grading. |

## 4. METHODOLOGY

### 4.1 Literature review

A survey of available literature was carried out to assess the general heritage context of the area and a background search of other Cultural Resource Management (CRM) projects in the area pre-2009 was made via the South African Heritage Resources Information Systems (SAHRIS) database. Only an incomplete record of post-2009 reports submitted to HWC is available as they maintain no online database of their information. Further information was derived from the in-house database and library maintained at ACO Associates. Reference to specific consulted reports and publications is made in the text where relevant.

### 4.2 Baseline information from previous work in the area

Hart (2005) has assessed the construction of the Open Cycle Gas Turbine Power Station at the PetroSA facility at Mossel Bay (some 18km to the south east of the Oudrift Dam site) as well as the proposed transmission lines to the Proteus substation in the same area. His walk-down of the powerlineline revealed isolated Early Stone Age (ESA) and Middle Stone Age (MSA) artefacts but no surface indications of significant archaeological material. Nilssen & Yates (nd) monitored earthmoving operations at the OCGT site and recovered a number of ESA artefacts. Nilssen (2009) examined a pipeline route at the Mossdustria plant and noted that ESA artefacts were common, but that no palaeontological or colonial material remains were observed.

Nilssen (2005a) surveyed the farm Vaalevalley 219 between the Hartenbos River and the Klein Brakrivier and recorded a range of archaeological sites including ESA, MSA and Later Stone Age (shell midden) material. Nilssen (2005b) surveyed the area known as the Hartenbos Heuwels and reported on only a few isolated MSA artefacts. During a survey for the subdivision of a portion of the remainder of Vyf-Brakkefontein 220, Kwanonqaba at Mossel Bay, Nilssen (2005c) also noted scatters of ESA and MSA material but did not recommend any further work. Kaplan (1996) identified at least six low density scatters of LSA material, including a severely disturbed shell midden at Great Brak River, close to the coast.

Nilssen (2012) surveyed a large area to the north of Mossel Bay, on high lying land to the east of the Gourikwa substation for the Mossel Bay Wind Farm, and recorded at least forty stone age archaeological occurrences which he considered to be of low archaeological significance because they consisted of very low density stone artefact scatters located mainly in previously disturbed lands. Although stone artefacts were predominantly of Early and Middle Stone Age origins, some Later Stone Age specimens were also recorded.

Kaplan (2007) surveyed land for the Outeniquabosch Safari Park ~5km to the south west of the dam site. Despite the modified and altered state of the receiving environment, small numbers of Early Stone Age and Middle Stone Age tools were documented during his baseline study. Most of the tools were found in previously disturbed areas on the property, such as open patches of gravel, in grazed and trampled areas, and in existing roads and tracks. Tools were also documented in the contoured fields, and among piles of rock cleared from surrounding fields. Several scatters of tools, however, appeared to occur in, or close to, primary context, but these are very thinly and unevenly dispersed over the surrounding landscape. He rated the archaeological remains overall, as having low local significance. He noted that was likely (and quite probable) that more Stone Age artefacts would be uncovered during earthmoving operations at the construction phase of the proposed project, but that given the already severely modified nature of the receiving environment, the importance of these finds, was also likely to be of low local significance. Kaplan (2008) assessed Erf 3933 in Great Brak River and found a very low density scatter of ESA and MSA stone tools. The archaeological remains were rated as having low local significance.

There is only one definitive report of rock paintings in the broader area, namely the article on an image of a possible three masted sailing ship on the farm Crane's Crest, in the Ruitersbos area to the west of the R328 (Leggatt & Rust 2004). Its location, in the foothills of the Attasquaskloof, suggests that more rock art may be found in the foothills of the mountains. Mr Robertson, on whose land the dam is located, reported that rock paintings can be found in the nearby Botlierskop rock outcrop on a neighbouring farm.

Webley (2016a, 2016b:16) shows most known archaeological sites to be on the southern side of the N2 and further summarised the archaeology of the area as follows. The distribution of archaeological sites (Figures 3 & 4) inland of the coast is a reflection of the archaeological impact assessments which have been conducted in the area during the last 20 years and the fact that no archaeological research programmes have specifically targeted this area.

Although excavations have been carried out at large coastal caves such as at Cape St Blaize (Goodwin & Malan 1935) and Pinnacle Point (Marean 2010) around Mossel Bay, the only other reported excavated site is the Groot Brak Rockshelter, excavated by Bill van Rijssen in 1986 (Halkett & Mutti 2000, van Rijssen 1986). Excavation of the site was connected to the construction of the Wolwedans Dam ~9km to the north east of Oudrift but the analysis of the material remains outstanding (Mary Leslie pers comm). The precise location of the shelter is unknown, but is believed to have been upstream of the dam wall on the eastern flank of the river.

In addition to this more accessible information, the proponent, Mr Robertson, reported to me that excavations had been undertaken in a large cave (locally known as the "Chamber of Seventeen Cave") situated on a neighbouring farm in the 1950/1960's but could provide no further details. This cave can be seen from the project site on the opposite bank of the Moordkuils river. This author has no knowledge of such excavations nor does it appear in the available scientific literature. We have however come across a reference to it in Lawrence Green's book "Harbours of Memory" (Green 1969:89-90), which perhaps explains the names of the cave and the nearby distinctive koppie: "*By the Klein Brak River is a little mountain called the Botteliersmutje (steward's cap) which name was very obviously given to it by seventeen sailors of the Huis Marquette that lay in Mossel Bay some time ago. With the wife of a certain burgher Jacobus they diverted themselves in a cave nearby that is now named the 'Chamber of Seventeen'. Possibly the bottelier (ship's victualler) had some part in the affair*".

A visit will be undertaken to the cave in future to determine the nature, depth and possible significance of any deposit that is contained therein.

### 4.3 Data gathering

The fieldwork component of the Archaeological Impact assessment was conducted by Mr D Halkett of ACO Associates cc on the 3rd June 2021. Visibility of the ground surface in the project site was considered to be good to excellent and there were almost no limitations in terms of access. There were many clearings in the dam basin which provided excellent visibility. The area was assessed on foot, except in one or two small areas where vegetation was thick, but this did not affect the conclusions.

Prior to embarking on the fieldwork, aerial photographs from a range of periods had been examined to determine if any heritage indicators that may need to be inspected could be identified on the images.

The area did not appear to contain much apart from a single structure perched on a hill to the north of the site of the dam wall visible on the 1939 (earliest available) (Figure 3) and 1963 aerial photos. It is still visible on the recent Google Earth image (April 2021). The position of the structure was entered into the hand-held GPS in order to identify the site when in the field.

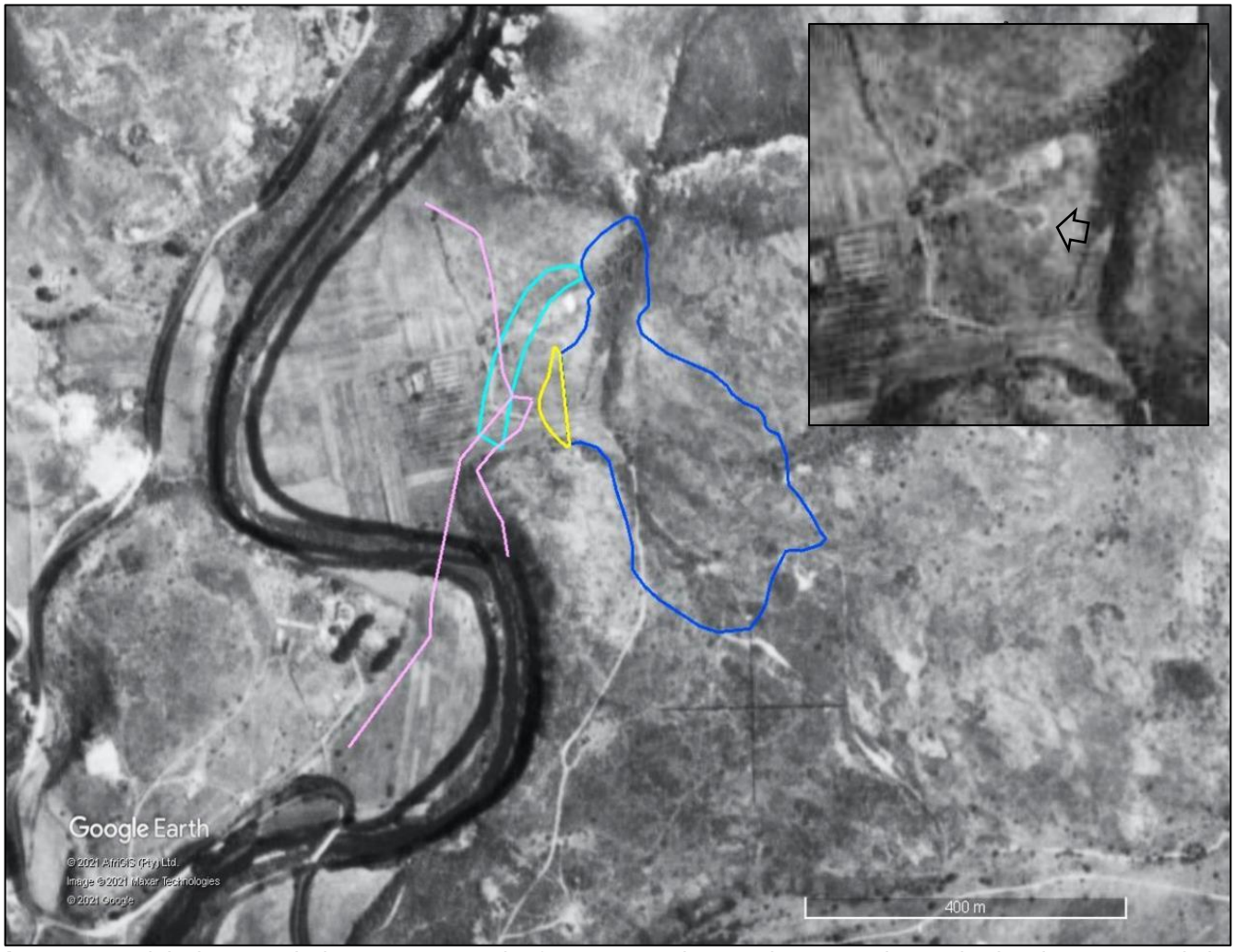


**Figure 3:** Aerial photograph (140_038_34193) of 1939 superimposed on Google Earth showing proposed dam site. Some structures are visible at the northern end of the proposed dam wall (see detail inset).

Search tracks were recorded by means of a Garmin GPS receiver to document the searched area and are presented in Figure 4, and identified heritage resources were assigned Lat-Lon co-ordinates, described and photographed. The few identified heritage resources observed are plotted on Figure 4 and described in Section 5. Heritage resources have been provisionally graded for significance according to the system used by Heritage Western Cape as defined in the Table 2.

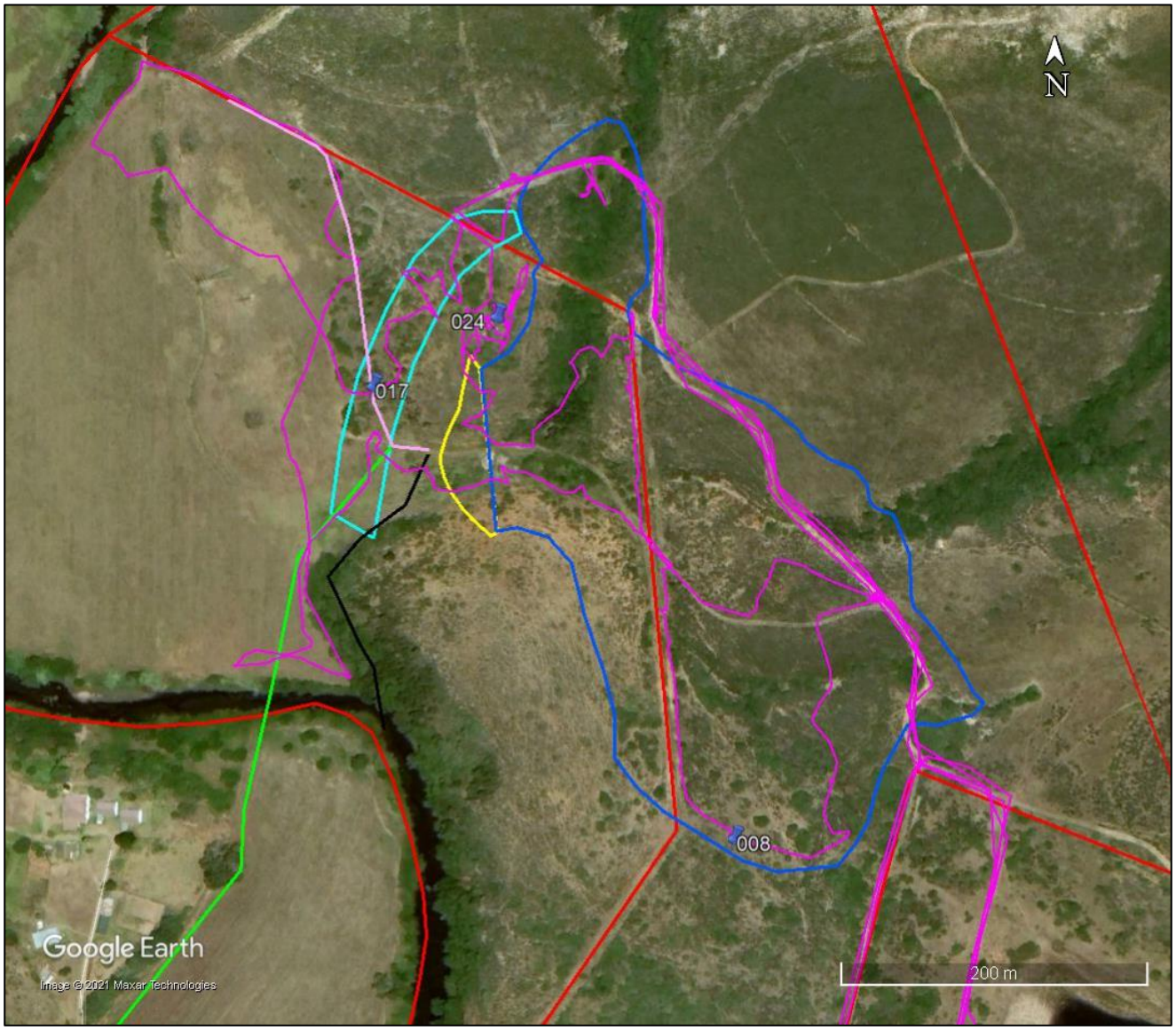


**Figure 4:** Sites and track paths map. Farm portions (red), FSL (blue), dam wall (yellow), pipelines (pink, black,green) (preferred alt), heritage sites (blue numbered pins), tracks (magenta lines).

## 5. FIELDWORK OBSERVATIONS

### 5.1 Pre-colonial sites

Despite the expectation that ESA artefacts would be widespread across the site, this was not the case. In fact only two isolated artefacts of likely ESA origin were observed, and while there are likely to be more which were not seen, these are likely to be few. Mr Robertson the proponent, who is familiar with archaeological material, indicated that he had never observed much on these portions of his land.

One of the items numbered 008 (Plate 1) was found at S34.050909° E22.138720° and is likely to be an ESA core made on local sandstone. The second item numbered 017 (Plate 2) was found at S34.048253° E22.136132° and appears to be a large flake also on local sandstone. These artefacts are likely to be in secondary, disturbed context with poor context, and are not considered to be significant resources **Proposed grade: NCW**

**Plate 1:** ESA core on local sandstone (dorsal/ventral).

**Plate 2:** Large ESA flake on local sandstone (dorsal/ventral).

### 5.2 Built environment

Only a single structure in semi-ruinous state (waypoint 024) was found in the project site at 34.047848° 22.137030°. This is located atop a hill immediately north of the proposed dam wall and according to Mr Robertson, served as a farm workers cottage for many years (see Plates 3 and 4 for location, and Plates 4-9 showing the structure).

Clearly a four room dwelling, it measures ~8 x 8 meters (schematic layout shown in Figure 5). Stone was retrieved on the hillside to use as building material, but the stones are roughly cut and laid in a rather haphazard fashion. Originally held in place with mud mortar, the outer wall surfaces and parts of the inner and joints have been skimmed with Portland cement for stability. Clearly this was not durable as chunks of the building have collapsed. While no woodwork remains in place, fragments of roofing timber (to support corrugated iron sheeting) is found scattered about along with the sheeting itself.

Based on the lack of any 19$^{th}$ century ceramics or glass, and rather the presence of modern glass and ceramics and other items (Plates 10-17), we suggest that the dwelling probably dates to the early to mid-twentieth century and has little historical significance. **Proposed grade: NCW.**

Winter and Oberholzer (2014) do not list any significant built environment at, or in in the immediate vicinity of the site.

**Plate 3:** Looking south west across a part of the dam basin to the proposed dam wall site between the two hills in the foreground. The ruined structure is located on top of the hill in the right foreground.

**Plate 4:** Looking to the south east across the proposed spillway with ruins perched on top of the hill in the foreground.

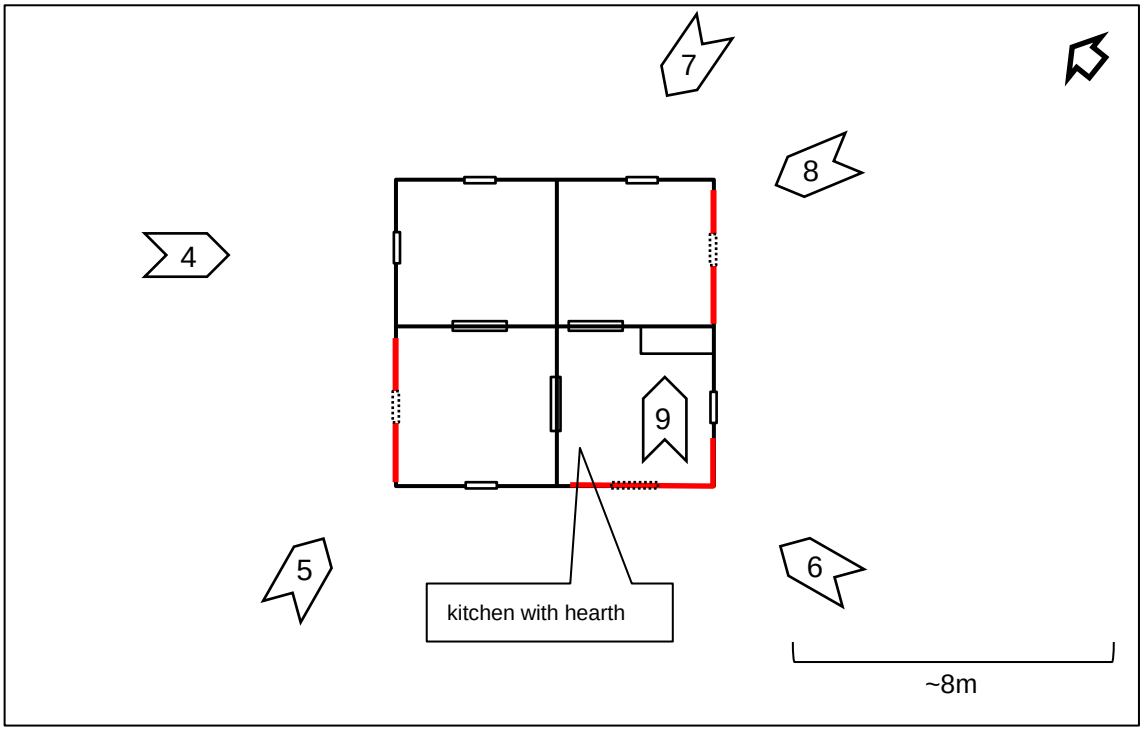


**Figure 5:** Schematic diagram of the structure (red areas indicate collapse). Access door presumed to be into the kitchen. Numbered arrows refer to positions and directions of plates 4-9 below.

**Plates 4 & 5:**

**Plates 6 & 7:**

**Plates 8 & 9:**

**Plates 10 & 11:** Modern glass and metal

**Plates 12 & 13:** Modern glass and ceramic

**Plates 14 & 15:** Modern glass, ceramic and shoe

**Plates 16 & 17:** Timber with iron modern bolt, and a small localised ashey area with a 1.5v battery and other refuse.

## 6. IMPACT ASSESSMENT

### 6.1 Methodology for assessing impact

Potential impacts of the proposed project were identified based on the baseline data, project description, review of other studies for similar projects and professional experience.

The significance of the impacts was assessed using the impact rating methodology in Appendix D. The significance of an impact is defined as a combination of the consequence of the impact occurring and the probability that the impact will occur.

Practical mitigation and optimisation measures that can be implemented effectively to reduce or enhance the significance of impacts were identified. The impact significance was re-rated assuming the effective implementation of mitigation measures.

Only one dam site has been presented for assessment with two alternate designs. We find no significant difference between the two designs in terms of heritage and have assessed the preferred alternative. Similarly, no pipeline alternative is favoured over another as each will not impact heritage resources.

### 6.2 Potential impacts: construction phase

- Impacts on pre-colonial archaeological resources during the construction phase – construction of the dam wall and associated infrastructure;
- Impacts on built environment archaeological resources during the construction phase – construction of the dam wall and associated infrastructure.

#### 6.2.1 Impacts on pre-colonial archaeological resources during construction

Few significant pre-colonial archaeological resources are present in the project area. These artefacts are likely to be in secondary, disturbed context with poor context, and are not considered to be significant resources. Proposed grade: NCW

The impact is assessed to be ***low negative*** without mitigation and ***very low positive*** with the implementation of mitigation. No mitigation is proposed however for pre-colonial material.

**Table 6.1:** Impacts on pre-colonial archaeological resources during construction

| | Extent | Intensity | Duration | Consequence | Probability | Significance | Status | Confidence |
|---|---|---|---|---|---|---|---|---|
| Without mitigation | Local<br>1 | Low<br>1 | Short-term<br>3 | **Low**<br>**5** | Possible | **LOW** | – ve | High |
| **Essential mitigation measures:**<br>• The artefacts are not considered significant and no mitigation is proposed. | | | | | | | | |
| With mitigation | Local<br>1 | Low<br>1 | Short-term<br>3 | **Low**<br>**5** | Improbable | **VERY LOW** | + ve | High |

### 6.2.2 Impacts on built environment during powerline construction

There is only one built environment resource in the project area consisting of a ruinous four-roomed dwelling (024). According to the layouts, it is not directly impacted by the construction of the dam wall or spillway, but will be surrounded by this activity, with risks of damage present. The structure and site however is not believed to be significant. Proposed grade: NCW. The impact without mitigation is assessed to be ***Very low negative*** without mitigation and ***Insignificant positive*** with mitigation. No mitigation is proposed however for the structure.

**Table 6.2:** Impacts on the built environment during powerline construction

| | Extent | Intensity | Duration | Consequence | Probability | Significance | Status | Confidence |
|---|---|---|---|---|---|---|---|---|
| Without mitigation | Local<br>1 | Low<br>1 | Long-term<br>3 | **Low**<br>**5** | Possible | **VERY LOW** | – ve | High |
| **Essential mitigation measures:**<br>• The structure is not considered significant and no mitigation is proposed. | | | | | | | | |
| With mitigation | Local<br>1 | Low<br>1 | Short-term<br>1 | **Very Low**<br>**3** | Improbable | **INSIGNIFICANT** | + ve | High |

## 6.3 Potential impacts: operational phase

- Impacts on archaeological/heritage resources resulting from filling and ongoing use of the dam;

Impacts would occur at the construction phase, and impacts at the operational phase are considered non-existent in the light of the findings of the assessment.

## 6.4 Cumulative impacts

Cumulative impacts on archaeological and built heritage resources appear to be limited overall. The nearby powerline does not appear to have impacted any physical heritage resources in the vicinity of the assessed site as far as we can determine. Farming will have had some impact, but based on our findings, are likely to have been very limited in the vicinity of the project site. The dam wall construction will result in minimal impacts to significant heritage resources (either design).

### 6.4.1 The "No Go" option

If the no-go option is invoked, the status quo would be maintained and natural and man-made processes would continue to act on the heritage resources. Based on the findings, we do not believe that the "no-go" option should be applied in this case.

## 7. FINDINGS AND RECOMMENDATIONS

### 7.1 Pre-colonial heritage

A very small number of pre-colonial heritage resources are located at the dam site and the proposed activities are not expected to result in the loss of significant heritage resources. No mitigation has been proposed.

### 7.2 Built environment

The built environment is largely limited to a single semi-ruinous structure (024), provisionally graded NCW. No mitigation has been proposed.

### 7.3 Impact Assessment

The findings of the impact assessment evaluated in terms of the Impact Methodology (Appendix D), suggests that impacts on archaeological heritage resources will be low to very low without mitigation. The low heritage significance of the resources does not warrant implementation of mitigation.

## 8. CONCLUSION

Overall we find that the proposed Oudrift Dam and associated pipeline infrastructure (either alternative) will result in little loss of any significant heritage resources and no mitigation is proposed. Although no mitigation is proposed for the ruin (024), the Preferred Alternative dam design does not see the inundation of the ruin at full supply, and is therefore marginally favoured. In our opinion the dam project may be authorised.

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## Appendix A: Specialist CV

### Details

Name: Mr David John Halkett
ID number: 5807235148080
Date of Birth: 23.07.1958
Company: ACO Associates cc (Registration 2008/234490/23)
Principal business: Archaeological/Heritage Impact Assessment
Position: Director (Principal investigator)
Profession: Archaeologist, Heritage Impact Assessor
Years with Firm: 8
Years' experience: 27
Previous employment: Archaeology Contracts Office, UCT, 24 years
Nationality: South African
HDI Status: White Male
Physical work address: 8 Jacobs Ladder, St James, 7945
Postal address: 8 Jacobs Ladder, St James, 7945
E-mail: david.halkett@aco-associates.com

### Education

1991: M.A. (Archaeology) University of Cape Town
1982: B.A. (Hons) (Archaeology) University of Cape Town
1980: B.A. University of Cape Town
1976: Pinelands High School (matric exemption)

### Professional Qualifications

MA (Archaeology) UCT
Registered member of the Association of Southern African Professional Archaeologists (ASAPA)

### Languages

First language – English
Second language – Afrikaans (speaking, reading and writing).

### Expertise

Having co-directed the Archaeology Contracts Office at the University of Cape Town for 24 years (one of the first heritage resource management companies in South Africa), David is now a director of ACO Associates cc, which has taken over from the UCT operation and retains most of its staff. ACO Associates provides Heritage and Archaeological Impact Assessment services to a range of clients in order for them to comply with Environmental and Heritage Legislation. He is a long standing member of the Association of Southern African Professional Archaeologists (ASAPA) and an accredited Principal Investigator of the Cultural Resource Management (CRM) section. With 28 years of working experience in heritage impact assessments, conservation and archaeological research, he has worked in a wide variety of contexts and participated in over a thousand heritage projects ranging from Heritage and archaeological impact assessments, to mitigation of archaeological sites in suburban, rural and industrial (mining) situations. He is an accredited with ASAPA to act as a Principal Investigator on Earlier Middle and Later Stone Age sites, especially coastal shell middens and rock painting sites, and Colonial period sites. David's broad experience in heritage management has led to his participation as an advisor to the National Monuments Council up until 2000, and more recently he served as a member of two Heritage Western Cape regulatory committees, the Impact Assessment Review Committee (IACOM) and the Archaeology, Palaeontology and Meteorites Committee (APM), and he has served on occasion as a forensic consultant to the Missing Persons Unit of the National Prosecuting Authority (NPA). He has led field projects on behalf of both local and overseas research organisations, and continues to participate in archaeological research on an ad hoc basis. Research interests include aspects of the Middle Stone

Age, Later Stone Age and Colonial era of southern Africa. He has co-authored a number of peer reviewed journal articles on these topics. ACO Associates cc has assisted on numerous renewable energy projects in the Northern, Eastern and Western Cape and David has been personally involved in a number of these projects.

**Summary of other experience**

2008-present: Director and Principal Investigator: ACO Associates cc. Projects undertaken in the Eastern, Northern and Western Cape Provinces.
1988-2012: Principal Investigator and director: Archaeology Contracts Office, University of Cape Town. Projects undertaken in the Eastern, Northern and Western Cape Provinces.
1997: Junior Research Officer: Palaeoanthropology Research Unit, University of the Witwatersrand, (part time apt for one year) Cape Town based.
1984: Part time research assistant: Spatial Archaeology Research Unit, University of Cape Town

**Relevant experience**

Employment since 1988 has required management of all aspects of heritage projects, and management of the day to day functions of the business (including Financial, HR).

**Selected recent commercial Heritage management projects:**

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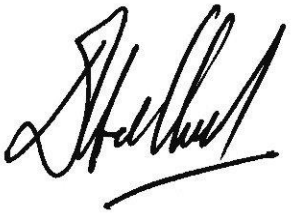
## Appendix B: Declaration of Independence

**Declaration of Independence**

I, David John Halkett, declare that I am an independent consultant and have no business, financial, personal or other interest in the proposed development project, application or appeal in respect of which I was appointed other than fair remuneration for work performed in connection with the activity, application, or appeal. There are no circumstances that compromise the objectivity of my performing such work.



**David John Halkett**
**Heritage Impact Assessor and Archaeologist**
**ACO Associates cc**

## Appendix C: HWC comment on the NID submission

ILifa leMveli leNtshona Koloni
Erfenis Wes-Kaap
Heritage Western Cape

**Our Ref:** HM/ EDEN/ MOSSEL BAY/ KLEINBRAK/ PTN 13 OF PTN 3 OF FARM 143
**Case No.:** 20031905SB0728E
**Enquiries:** Stephanie-Anne Barnardt
**E-mail:** stephanie.barnardt@westerncape.gov.za
**Tel:** 021 483 5959
**Cell:** 076 481 8392 (during the lock-down period)
**Date:** 7 August 2020

John Ernest Robertson
Klipheuwel Trust
P.O. Box 96
Klein Brak River
6503
robfarm@mweb.co.za

**RESPONSE TO NOTIFICATION OF INTENT TO DEVELOP: HIA REQUIRED**
**In terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999) and the Western Cape Provincial Gazette 6061, Notice 298 of 2003**

**NOTIFICATION OF INTENT TO DEVELOP: PROPOSED DAM ON PORTION 13 AND PORTION 3 OF FARM 143 FARM KLIPHEUVEL, KLEINBRAK, MOSSEL BAY, SUBMITTED IN TERMS OF SECTION 38(1) OF THE NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)**

**CASE NUMBER: 20031905SB0728E**

The matter above has reference.

Heritage Western Cape is in receipt of your application for the above matter received on 29 July 2020 This matter was discussed at the Heritage Officers meeting held on 3 August 2020.

You are hereby notified that, since there is reason to believe that the proposed dam on portion 13 and portion 3 of Farm 143 Farm Klipheuvel, Kleinbrak, Mossel Bay will impact on heritage resources, HWC requires that a Heritage Impact Assessment (HIA) that satisfies the provisions of section 38(3) of the NHRA be submitted. This HIA must have specific reference to the following:

- palaeontological desktop study and archaeological foot survey

The required HIA must have an integrated set of recommendations.
Please note, should you require the HIA to be submitted as a Phased HIA, a written request must be submitted to HWC prior to submission. HWC reserves the right to determine whether a phased HIA is acceptable on a case by case Basis.

The comments of relevant registered conservation bodies; all Interested and Affected parties; and the relevant Municipality must be requested and included in the HIA where provided. Proof of these requests must be supplied.

HWC reserves the right to request additional information as required.

Applicants are strongly advised to review and adhere to the time limits contained the Standard Operational Procedure (SOP) between DEADP and HWC. The SOP can be found using the following link http://www.hwc.org.za/node/293

Should you have any further queries, please contact the official above and quote the case number.

Yours faithfully

pp.
.....
Dr. Mxolisi Dlamuka
**Chief Executive Officer, Heritage Western Cape**

www.westerncape.gov.za/cas

**Street Address:** Protea Assurance Building, Green Market Square, Cape Town, 8000 • **Postal Address:** P.O. Box 1665, Cape Town, 8000 • **Tel:** +27 (0)21 483 5959 • **E-mail:** ceoheritage@westerncape.gov.za

**Straatadres:** Protea Assuransie-gebou, Groentemarkplein, Kaapstad, 8000 • **Posadres:** Posbus 1665, Kaapstad, 8000 • **Tel:** +27 (0)21 483 5959 • **E-pos:** ceoheritage@westerncape.gov.za

**Idilesi yendawo:** kumgangatho 3, kwisakhiwo iprotea Assurance, Greenmarket Square, ekapa, 8000 • **Idilesi yeposi:** inombolo yebhokisi yeposi 1665, eKapa, 8000 • **Iinombolo zomnxeba:** +27 (0)21 483 5959 • **Idilesi ye-imeyile:** ceoheritage@westerncape.gov.za

## Appendix D: Impact Assessment Methodology

### Impact Assessment Methodology for EIAs - Instructions to Specialists

The significance of all potential impacts that would result from the proposed Project is determined in order to assist decision-makers. The significance rating of impacts is considered by decision-makers, as shown below.

- **INSIGNIFICANT**: the potential impact is negligible and **will not** have an influence on the decision regarding the proposed activity.
- **VERY LOW**: the potential impact is very small and **should not** have any meaningful influence on the decision regarding the proposed activity.
- **LOW**: the potential impact **may not** have any meaningful influence on the decision regarding the proposed activity.
- **MEDIUM**: the potential impact **should** influence the decision regarding the proposed activity.
- **HIGH**: the potential impact **will** affect a decision regarding the proposed activity.
- **VERY HIGH**: The proposed activity should only be approved under special circumstances.

The **significance** of an impact is defined as a combination of the **consequence** of the impact occurring and the **probability** that the impact will occur. The significance of each identified impact[4] must be rated according to the methodology set out below:

Step 1 – Determine the **consequence** rating for the impact by determining the score for each of the three criteria (A-C) listed below and then **adding** them[5]. The rationale for assigning a specific rating, and comments on the degree to which the impact may cause irreplaceable loss of resources and be irreversible, must be included in the narrative accompanying the impact rating:

| Rating | Definition of Rating | Score |
|---|---|---|
| A. ***Extent***– *the area over which the impact will be experienced* | | |
| Local | Confined to project or study area or part thereof (e.g. site) | 1 |
| Regional | The region, which may be defined in various ways, e.g. cadastral, catchment, topographic | 2 |
| (Inter) national | Nationally or beyond | 3 |
| B. ***Intensity***– *the magnitude of the impact in relation to the sensitivity of the receiving environment, taking into account the degree to which the impact may cause irreplaceable loss of resources* | | |
| Low | Site-specific and wider natural and/or social functions and processes are negligibly altered | 1 |
| Medium | Site-specific and wider natural and/or social functions and processes continue albeit in a modified way | 2 |
| High | Site-specific and wider natural and/or social functions or processes are severely altered | 3 |
| C. ***Duration***– *the timeframe over which the impact will be experienced and its reversibility* | | |
| Short-term | Up to 2 years (i.e. reversible impact) | 1 |
| Medium-term | 2 to 15 years (i.e. reversible impact) | 2 |
| Long-term | More than 15 years (state whether impact is irreversible) | 3 |

[4] This does not apply to minor impacts which can be logically grouped into a single assessment.
[5] Please note that specialists are welcome to discuss the rating definitions as they apply to their study with the EIA team.

The combined score of these three criteria corresponds to a **Consequence Rating**, as follows:

| **Combined Score (A+B+C)** | 3 – 4 | 5 | 6 | 7 | 8 – 9 |
|---|---|---|---|---|---|
| **Consequence Rating** | Very low | Low | Medium | High | Very high |

**Example 1:**

| Extent | Intensity | Duration | **Consequence** |
|---|---|---|---|
| Regional<br>2 | Medium<br>2 | Long-term<br>3 | **High**<br>7 |

**Step 2** – Assess the **probability** of the impact occurring according to the following definitions:

| **Probability**– the likelihood of the impact occurring | |
|---|---|
| Improbable | < 40% chance of occurring |
| Possible | 40% - 70% chance of occurring |
| Probable | > 70% - 90% chance of occurring |
| Definite | > 90% chance of occurring |

**Example 2:**

| Extent | Intensity | Duration | **Consequence** | **Probability** |
|---|---|---|---|---|
| Regional<br>2 | Medium<br>2 | Long-term<br>3 | **High**<br>7 | Probable |

**Step 3** – Determine the overall **significance** of the impact as a combination of the **consequence** and **probability** ratings, as set out below:

| | | **Probability** | | | |
|---|---|---|---|---|---|
| | | Improbable | Possible | Probable | Definite |
| **Consequence** | Very Low | **INSIGNIFICANT** | **INSIGNIFICANT** | **VERY LOW** | **VERY LOW** |
| | Low | **VERY LOW** | **VERY LOW** | **LOW** | **LOW** |
| | Medium | **LOW** | **LOW** | **MEDIUM** | **MEDIUM** |
| | High | **MEDIUM** | **MEDIUM** | **HIGH** | **HIGH** |
| | Very High | **HIGH** | **HIGH** | **VERY HIGH** | **VERY HIGH** |

**Example 3:**

| *Extent* | *Intensity* | *Duration* | ***Consequence*** | ***Probability*** | ***Significance*** |
|---|---|---|---|---|---|
| Regional<br>2 | Medium<br>2 | Long-term<br>3 | **High**<br>7 | Probable | **HIGH** |

**Step 4** – Note the **status** of the impact (i.e. will the effect of the impact be negative or positive?)

**Example 4:**

| *Extent* | *Intensity* | *Duration* | ***Consequence*** | ***Probability*** | ***Significance*** | ***Status*** |
|---|---|---|---|---|---|---|
| Regional<br>2 | Medium<br>2 | Long-term<br>3 | **High**<br>7 | Probable | **HIGH** | **– ve** |

**Step 5** – State your level of **confidence** in the assessment of the impact (high, medium or low).

Depending on the data available, you may feel more confident in the assessment of some impact than others. For example, if you are basing your assessment on extrapolated data, you may reduce the confidence level to low, noting that further groundtruthing is required to improve this.

**Example 5:**

| *Extent* | *Intensity* | *Duration* | *Consequence* | *Probability* | *Significance* | *Status* | *Confidence* |
|---|---|---|---|---|---|---|---|
| Regional<br>2 | Medium<br>2 | Long-term<br>3 | **High**<br>7 | Probable | **HIGH** | – ve | High |

**Step 6** – Identify and describe practical **mitigation** and **optimisation** measures that can be implemented effectively to reduce or enhance the significance of the impact. Mitigation and optimisation measures must be described as either:

- **Essential**: best practice measures which must be implemented and are non-negotiable; and.
- **Best Practice**: recommended to comply with best practice, with adoption dependent on the proponent's risk profile and commitment to adhere to best practice, and which must be shown to have been considered and sound reasons provided by the proponent if not implemented.

*Essential* mitigation and optimisation measures must be inserted into the completed impact assessment table. The impact should be re-assessed with mitigation, by following Steps 1-5 again to demonstrate how the extent, intensity, duration and/or probability change after implementation of the proposed mitigation measures. *Best practice* measures must also be inserted into the impact assessment table, but not considered in the "with mitigation" impact significance rating.

**Example 6: A completed impact assessment table**

| | *Extent* | *Intensity* | *Duration* | *Consequence* | *Probability* | *Significance* | *Status* | *Confidence* |
|---|---|---|---|---|---|---|---|---|
| Without mitigation | Regional<br>2 | Medium<br>2 | Long-term<br>3 | **High**<br>7 | Probable | **HIGH** | – ve | High |
| **Essential mitigation measures:**<br>• Xxx1<br>• Xxx2<br>• Xxx3<br>**Best practice mitigation measures:**<br>• Yyy1<br>• Yyy2 | | | | | | | | |
| With mitigation | Local<br>1 | Low<br>1 | Long-term<br>3 | **Low**<br>**5** | Improbable | **VERY LOW** | – ve | High |

**Step 7** – Summarise all impact significance ratings as follows in your executive summary:

| Impact | *Consequence* | *Probability* | *Significance* | *Status* | *Confidence* |
|---|---|---|---|---|---|
| Impact 1: XXXX | Medium | Improbable | **LOW** | –ve | High |
| With Mitigation | Low | Improbable | **VERY LOW** | | High |
| Impact 2: XXXX | Very Low | Definite | **VERY LOW** | –ve | Medium |
| With Mitigation: | *Not applicable* | | | | |