

**HERITAGE SURVEY OF THE PROPOSED OFFTAKE  
7 AND 7A (NEW GUILDERLAND) & THE  
PROPOSED BLYTHDALE RESERVOIR**

**FOR AFZELIA ENVIRONMENTAL CONSULTANTS**

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## Abbreviations

HP	Historical Period
IIA	Indeterminate Iron Age
LIA	Late Iron Age
EIA	Early Iron Age
ISA	Indeterminate Stone Age
ESA	Early Stone Age
MSA	Middle Stone Age
LSA	Late Stone Age
HIA	Heritage Impact Assessment
PIA	Palaeontological Impact Assessment

DRAFT

## **INTRODUCTION**

The project was introduced in response to the water crisis experienced by areas within Ilembe District Municipality (IDM) and the project is meant to provide a stable and assured supply of bulk potable water to approximately 750 000 inhabitants from Mandeni to Ballito, and all major settlements in-between which include KwaDukuza and Groutville within the district on the north coast of KwaZulu-Natal. The project “Provision of Engineering Services to Lower Thukela Bulk Water Supply Scheme Offtakes 7 & 8” is part of “Lower Thukela Bulk Water Supply Scheme” which abstracts water from the Thukela river.

Umlando was appointed by Afzelia Environmental Consultants to undertake an HIA for two water structures relating to this project: Umvoti pump station and Groutville Reservoir.

Fig.'s 1 – 4 show the location of the development.

FIG. 1 GENERAL LOCATION OF THE STUDY AREA

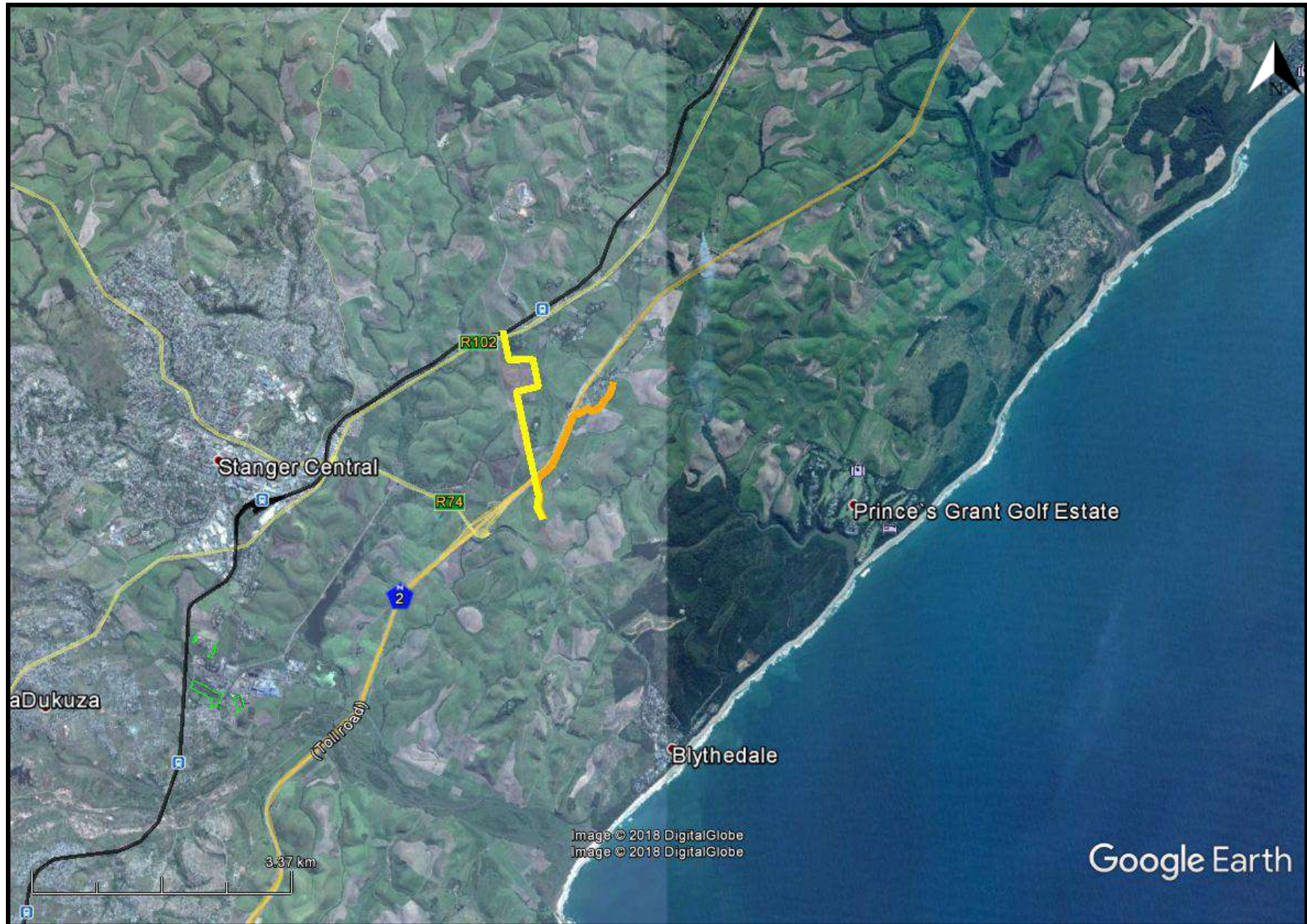


FIG. 2: AERIAL OVERVIEW OF THE STUDY AREA

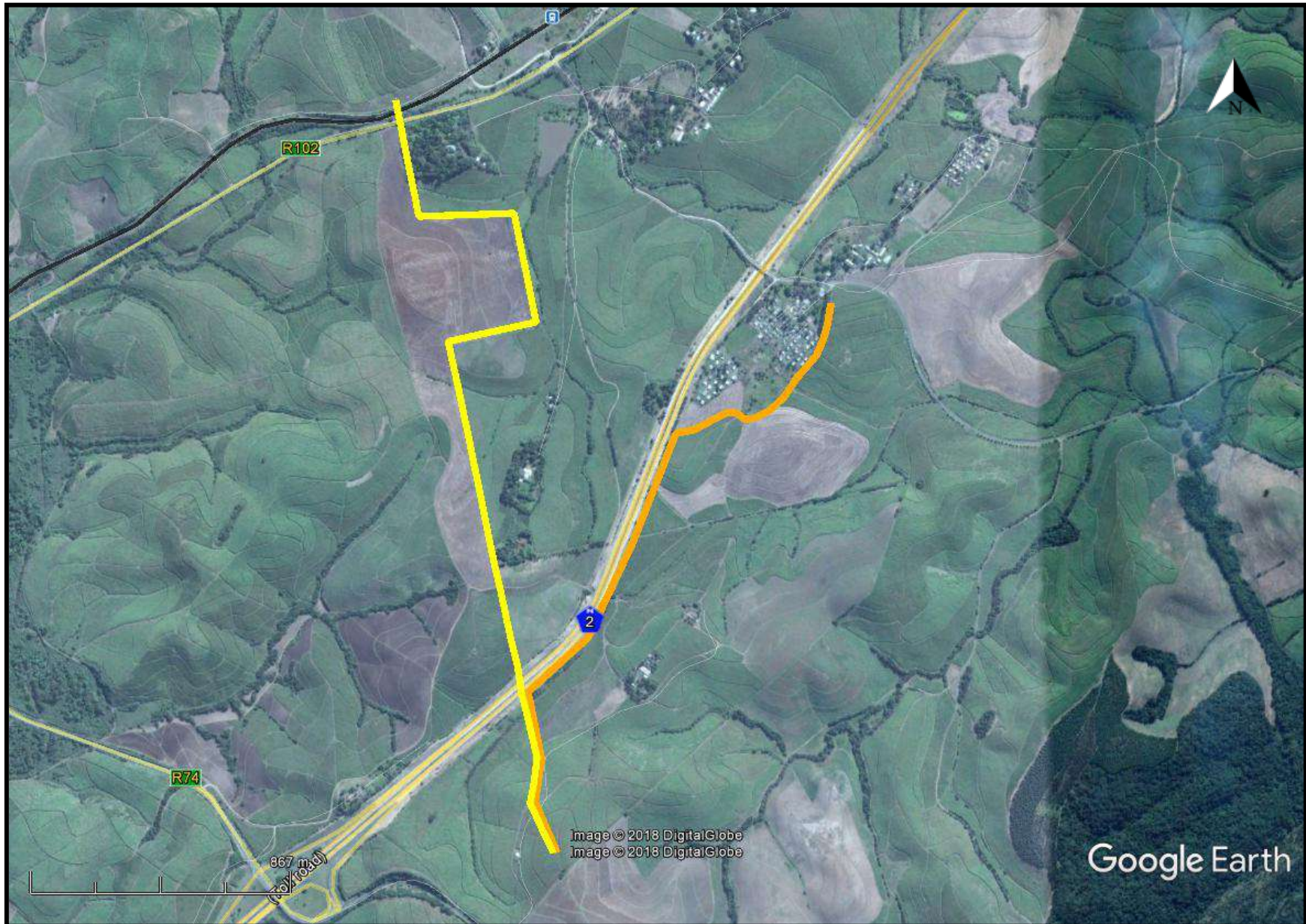


FIG. 3: TOPOGRAPHICAL OVERVIEW OF THE STUDY AREA

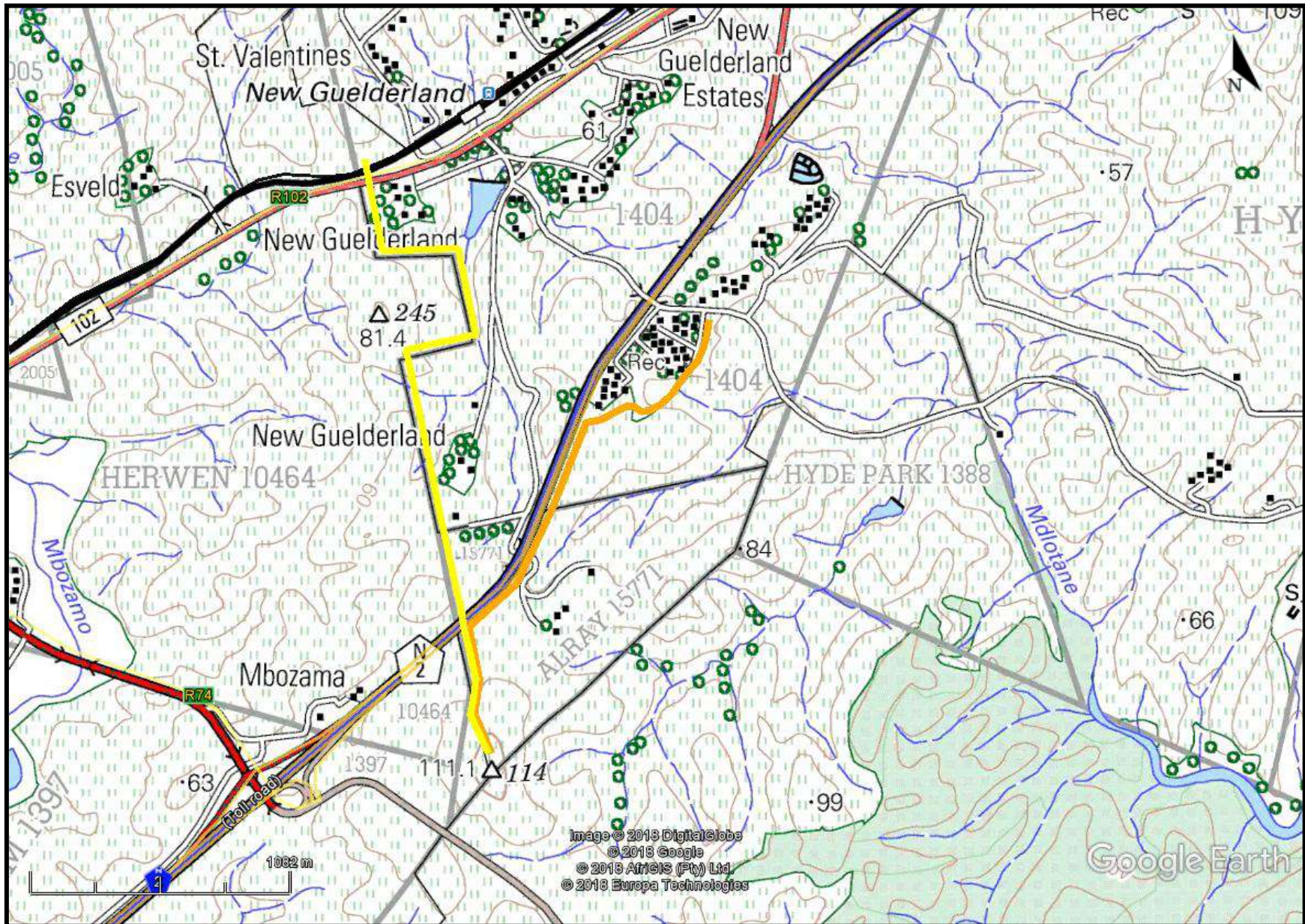


FIG. 4: SCENIC VIEWS OF THE PIPELINE ROUTE





## KWAZULU-NATAL HERITAGE ACT NO. 4 OF 2008

### “General protection: Structures.—

- No structure which is, or which may reasonably be expected to be older than 60 years, may be demolished, altered or added to without the prior written approval of the Council having been obtained on written application to the Council.
- Where the Council does not grant approval, the Council must consider special protection in terms of sections 38, 39, 40, 41 and 43 of Chapter 9.
- The Council may, by notice in the *Gazette*, exempt—
  - A defined geographical area; or
  - defined categories of sites within a defined geographical area, from the provisions of subsection where the Council is satisfied that heritage resources falling in the defined geographical area or category have been identified and are adequately protected in terms of sections 38, 39, 40, 41 and 43 of Chapter 9.
- A notice referred to in subsection (2) may, by notice in the *Gazette*, be amended or withdrawn by the Council.

### General protection: Graves of victims of conflict.—No person may damage, alter, exhume, or remove from its original position—

- the grave of a victim of conflict;
  - a cemetery made up of such graves; or
  - any part of a cemetery containing such graves, without the prior written approval of the Council having been obtained on written application to the Council.
- ### General protection: Traditional burial places.—
- No grave—
    - not otherwise protected by this Act; and
    - not located in a formal cemetery managed or administered by a local authority, may be damaged, altered, exhumed, removed from its original position, or otherwise disturbed without the prior written approval of the Council having been obtained on written application to the Council.

The Council may only issue written approval once the Council is satisfied that—

- the applicant has made a concerted effort to consult with communities and individuals who by tradition may have an interest in the grave; and
- the applicant and the relevant communities or individuals have reached agreement regarding the grave.

General protection: Battlefield sites, archaeological sites, rock art sites, palaeontological sites, historic fortifications, meteorite or meteorite impact sites.—

- No person may destroy, damage, excavate, alter, write or draw upon, or otherwise disturb any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Council having been obtained on written application to the Council.
- Upon discovery of archaeological or palaeontological material or a meteorite by any person, all activity or operations in the general vicinity of such material or meteorite must cease forthwith and a person who made the discovery must submit a written report to the Council without delay.
- The Council may, after consultation with an owner or controlling authority, by way of written notice served on the owner or controlling authority, prohibit any activity considered by the Council to be inappropriate within 50 metres of a rock art site.
- No person may exhume, remove from its original position or otherwise disturb, damage, destroy, own or collect any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Council having been obtained on written application to the Council.
- No person may bring any equipment which assists in the detection of metals and archaeological and palaeontological objects and material, or excavation equipment onto any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, or meteorite impact site, or

- use similar detection or excavation equipment for the recovery of meteorites, without the prior written approval of the Council having been obtained on written application to the Council.
- The ownership of any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site, on discovery, vest in the Provincial Government and the Council is regarded as the custodian on behalf of the Provincial Government.” (KZN Heritage Act of 2008)

## METHOD

The method for Heritage assessment consists of several steps.

The first step forms part of the desktop assessment. Here we would consult the database that has been collated by Umlando. These databases contains archaeological site locations and basic information from several provinces (information from Umlando surveys and some colleagues), most of the national and provincial monuments and battlefields in Southern Africa (<http://www.vuvuzela.com/googleearth/monuments.html>) and cemeteries in southern Africa (information supplied by the Genealogical Society of Southern Africa). We use 1<sup>st</sup> and 2<sup>nd</sup> edition 1:50 000 topographical and 1937 aerial photographs where available, to assist in general location and dating of buildings and/or graves. The database is in Google Earth format and thus used as a quick reference when undertaking desktop studies. Where required we would consult with a local data recording centre, however these tend to be fragmented between different institutions and areas and thus difficult to access at times. We also consult with an historical architect, palaeontologist, and an historian where necessary.

The survey results will define the significance of each recorded site, as well as a management plan.

All sites are grouped according to low, medium, and high significance for the purpose of this report. Sites of low significance have no diagnostic artefacts or features. Sites of medium significance have diagnostic artefacts or features and these sites tend to be sampled. Sampling includes the collection of artefacts for future analysis. All diagnostic pottery, such as rims, lips, and decorated sherds are sampled, while bone, stone, and shell are mostly noted. Sampling usually occurs on most sites. Sites of high significance are excavated and/or extensively sampled. Those sites that are extensively sampled have high research potential, yet poor preservation of features.

### **Defining significance**

Heritage sites vary according to significance and several different criteria relate to each type of site. However, there are several criteria that allow for a general significance rating of archaeological sites.

These criteria are:

#### **1. State of preservation of:**

- 1.1. Organic remains:
  - 1.1.1. Faunal
  - 1.1.2. Botanical
- 1.2. Rock art
- 1.3. Walling
- 1.4. Presence of a cultural deposit
- 1.5. Features:
  - 1.5.1. Ash Features
  - 1.5.2. Graves
  - 1.5.3. Middens
  - 1.5.4. Cattle byres
  - 1.5.5. Bedding and ash complexes

#### **2. Spatial arrangements:**

2.1. Internal housing arrangements

2.2. Intra-site settlement patterns

2.3. Inter-site settlement patterns

**3. Features of the site:**

3.1. Are there any unusual, unique or rare artefacts or images at the site?

3.2. Is it a type site?

3.3. Does the site have a very good example of a specific time period, feature, or artefact?

**4. Research:**

4.1. Providing information on current research projects

4.2. Salvaging information for potential future research projects

**5. Inter- and intra-site variability**

5.1. Can this particular site yield information regarding intra-site variability, i.e. spatial relationships between various features and artefacts?

5.2. Can this particular site yield information about a community's social relationships within itself, or between other communities?

**6. Archaeological Experience:**

6.1. The personal experience and expertise of the CRM practitioner should not be ignored. Experience can indicate sites that have potentially significant aspects, but need to be tested prior to any conclusions.

**7. Educational:**

7.1. Does the site have the potential to be used as an educational instrument?

7.2. Does the site have the potential to become a tourist attraction?

7.3. The educational value of a site can only be fully determined after initial test-pit excavations and/or full excavations.

**8. Other Heritage Significance:**

8.1. Palaeontological sites

8.2. Historical buildings

8.3. Battlefields and general Anglo-Zulu and Anglo-Boer sites

- 8.4. Graves and/or community cemeteries
- 8.5. Living Heritage Sites
- 8.6. Cultural Landscapes, that includes old trees, hills, mountains, rivers, etc related to cultural or historical experiences.

The more a site can fulfill the above criteria, the more significant it becomes. Test-pit excavations are used to test the full potential of an archaeological deposit. This occurs in Phase 2. These test-pit excavations may require further excavations if the site is of significance (Phase 3). Sites may also be mapped and/or have artefacts sampled as a form of mitigation. Sampling normally occurs when the artefacts may be good examples of their type, but are not in a primary archaeological context. Mapping records the spatial relationship between features and artefacts.

The above significance ratings allow one to grade the site according to SAHRA's grading scale. This is summarised in Table 1.

**TABLE 1: SAHRA GRADINGS FOR HERITAGE SITES**

<b>SITE SIGNIFICANCE</b>	<b>FIELD RATING</b>	<b>GRADE</b>	<b>RECOMMENDED MITIGATION</b>
<b>High Significance</b>	National Significance	Grade 1	Site conservation / Site development
<b>High Significance</b>	Provincial Significance	Grade 2	Site conservation / Site development
<b>High Significance</b>	Local Significance	Grade 3A / 3B	
<b>High / Medium Significance</b>	Generally Protected A		Site conservation or mitigation prior to development / destruction
<b>Medium Significance</b>	Generally Protected B		Site conservation or mitigation / test excavation / systematic sampling / monitoring prior to or during development / destruction
<b>Low Significance</b>	Generally Protected C		On-site sampling monitoring or no archaeological mitigation required prior to or during development / destruction

## RESULTS

### DESKTOP STUDY

The desktop study consisted of analysing various maps for evidence of prior habitation in the study area, as well as for previous archaeological surveys. The archaeological database indicates that there are archaeological sites in the general area (fig. 5). These sites include all types of Stone Age, Iron Age and Historical Period sites. No known sites occur in the study area.

No national monuments, battlefields, or historical cemeteries are known to occur in the study area, although historical cemeteries occur on neighbouring farms.

New Guilderland was first surveyed in 1859 (fig. 6). It was later subdivided into various other farms such as Herwen 10464 (fig. 7).

The 1937 aerial photographs show several buildings near the pipeline and reservoir, but none are directly affected (fig. 8). Some of these buildings appear as 'Ruins' on the 1968 map (fig. 9).

FIG. 5: LOCATION OF KNOWN HERITAGE SITES NEAR THE STUDY AREA

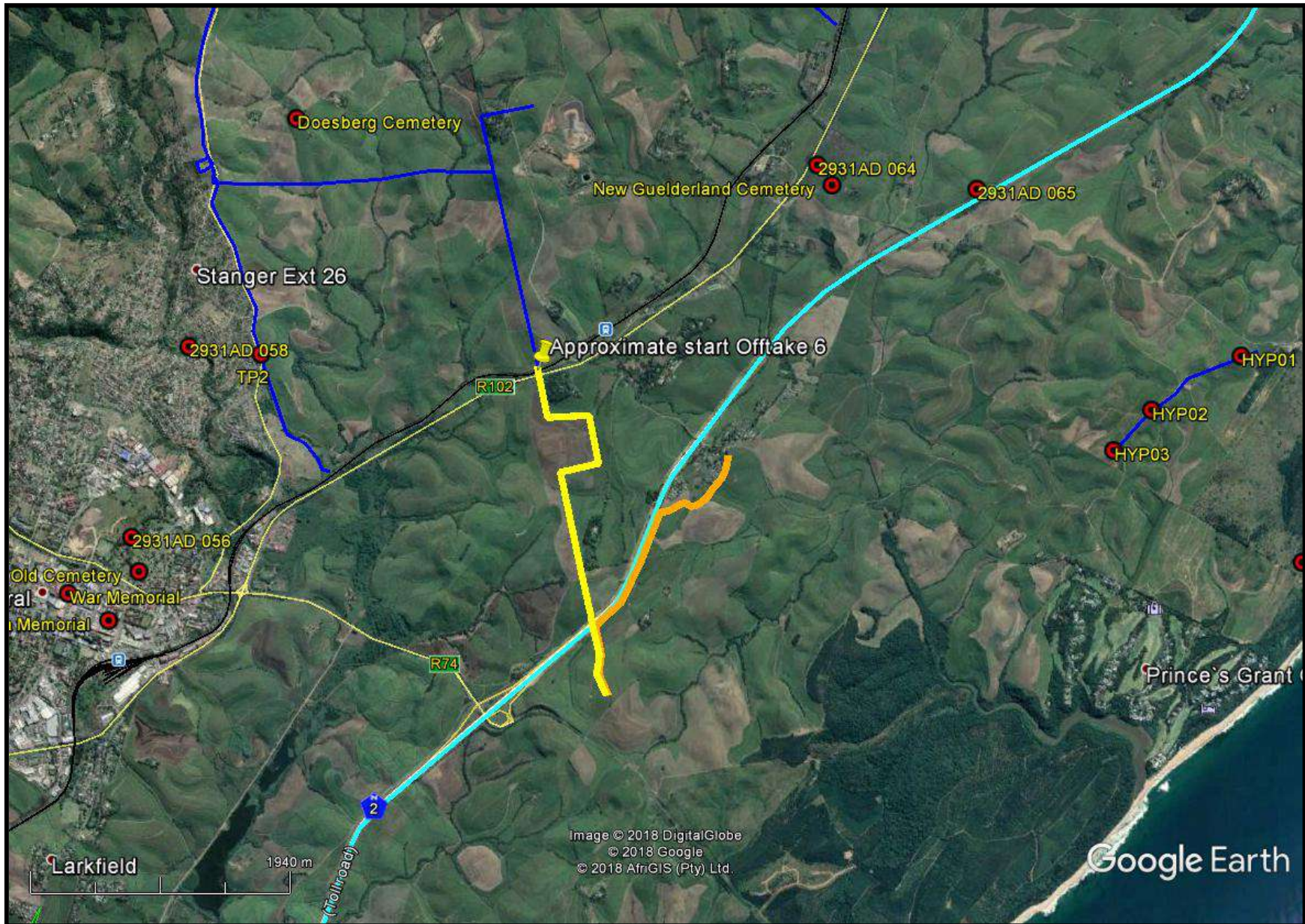




FIG. 6: ORIGINAL SURVEYOR GENERAL MAP OF NEW GEULKDERLAND (1859)

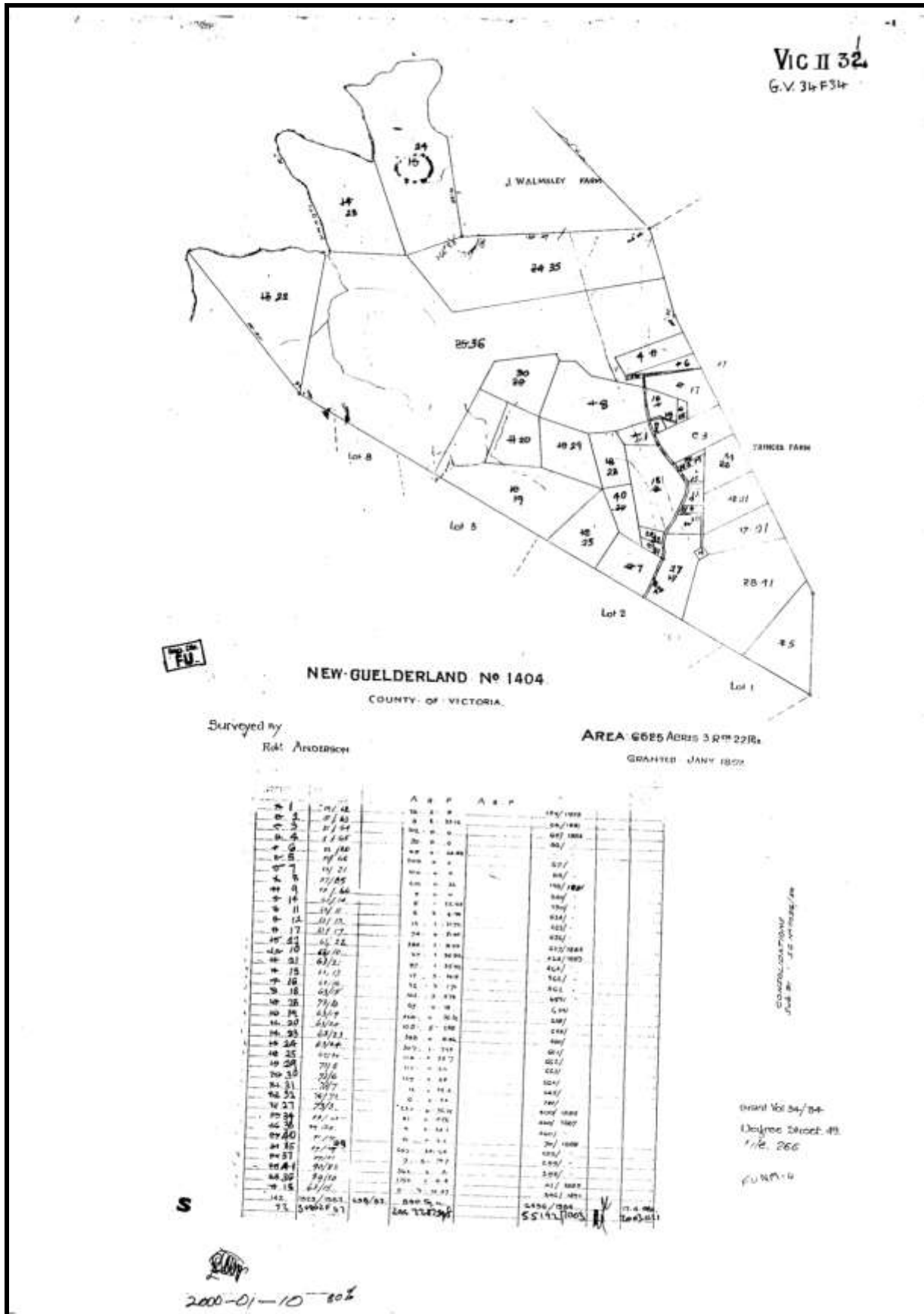


FIG. 7: ORIGINAL SURVEYOR GENERAL MAP OF HERWEN 10464 (1921)

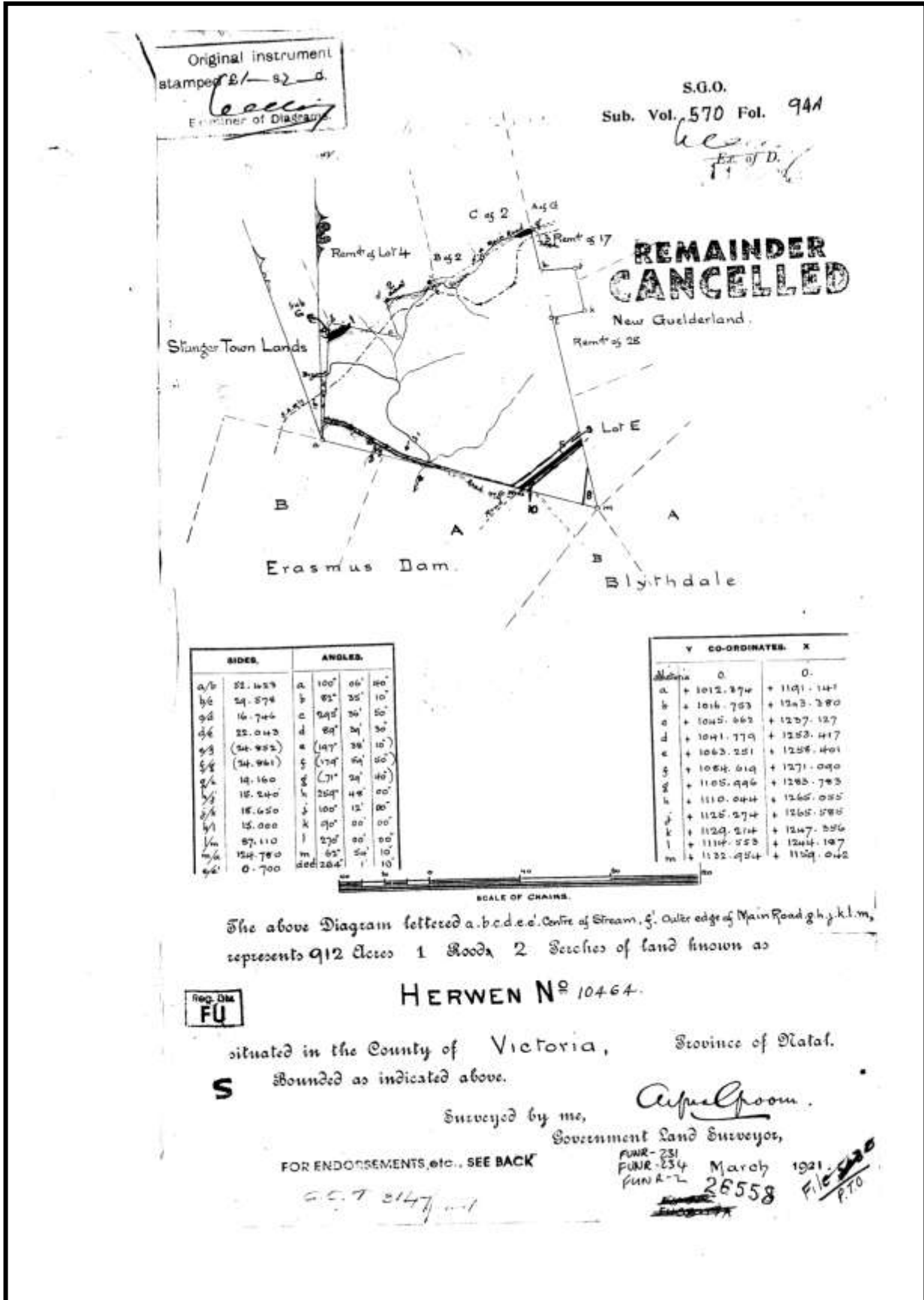


FIG. 8: STUDY AREA IN 1937

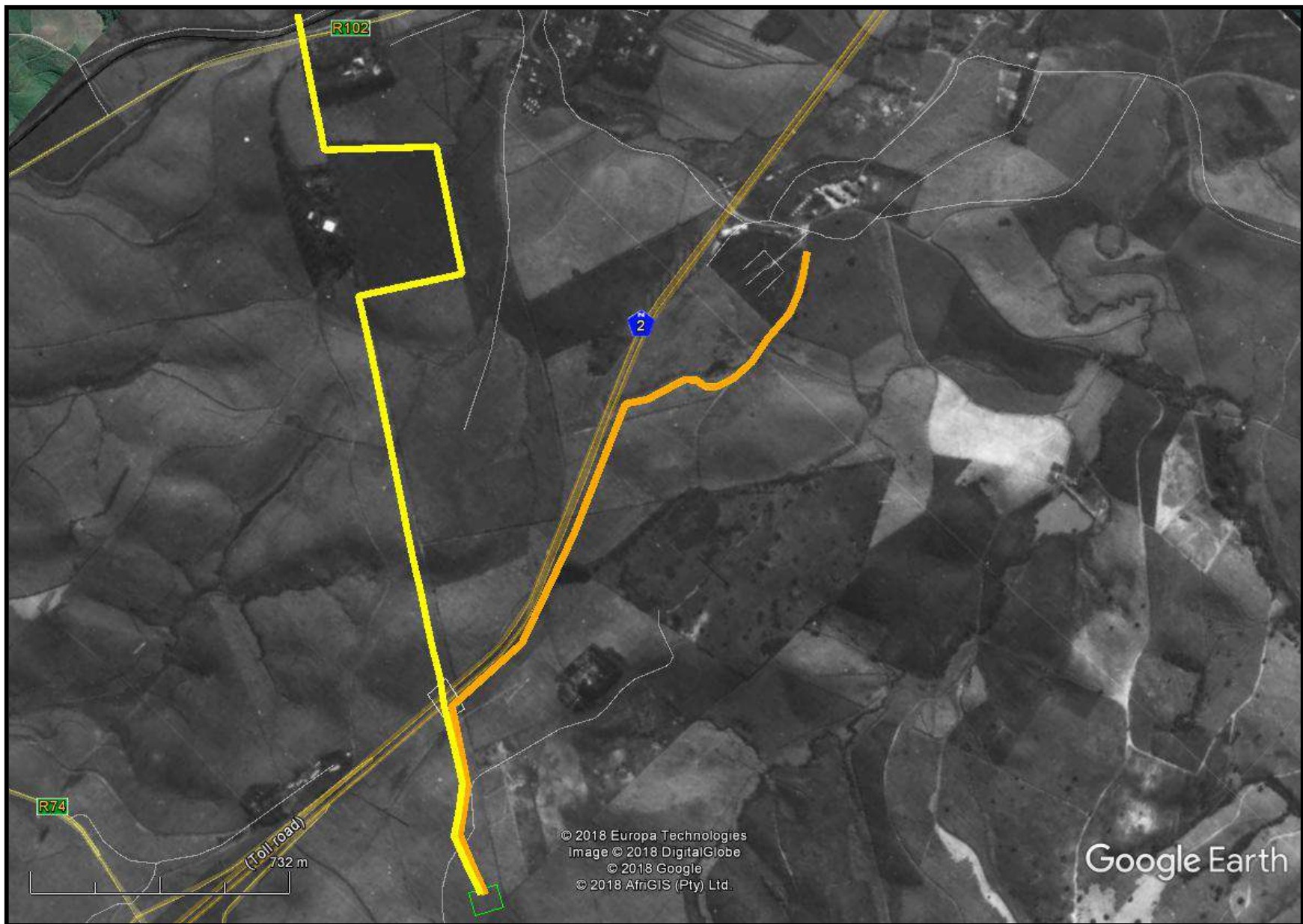
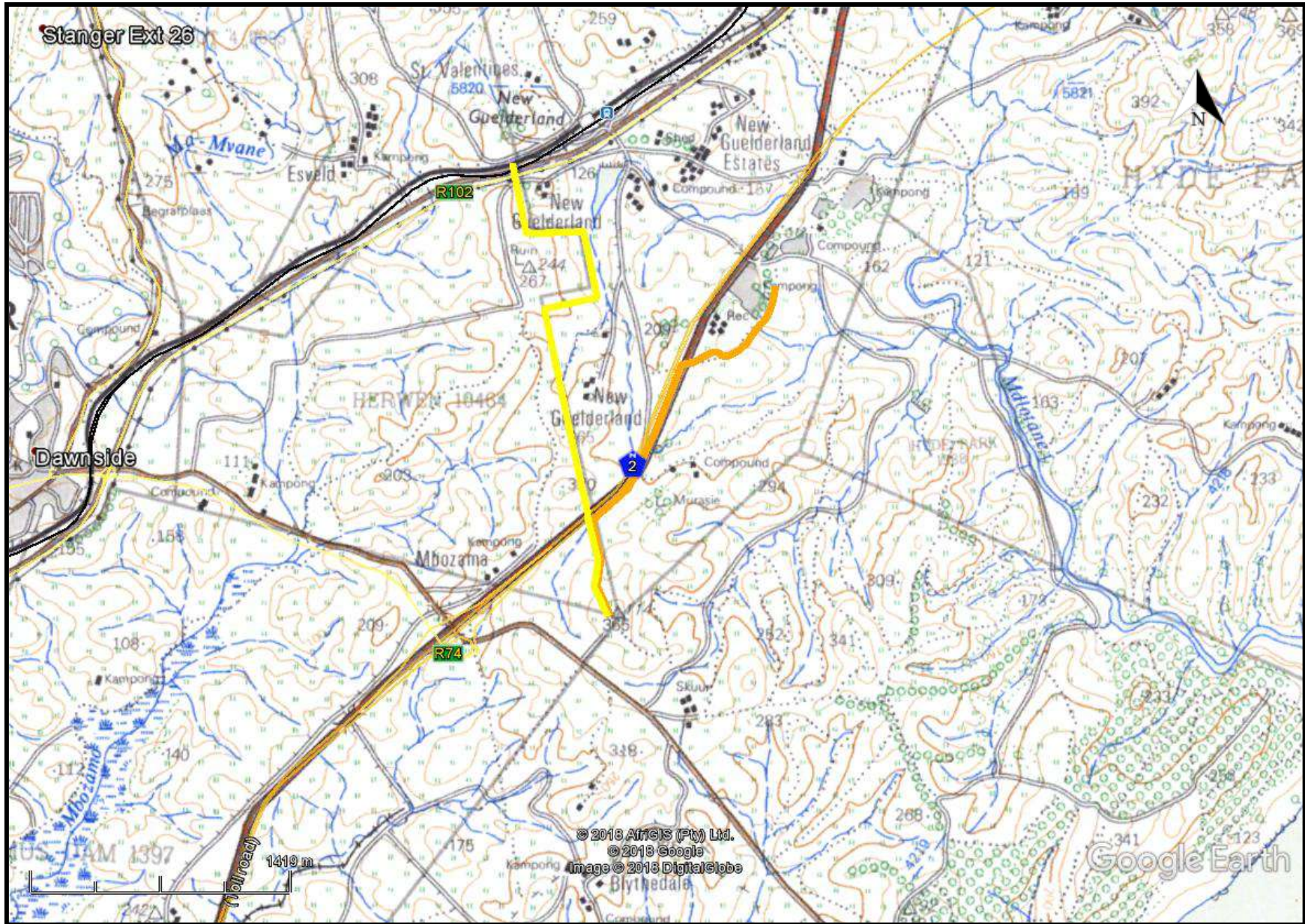


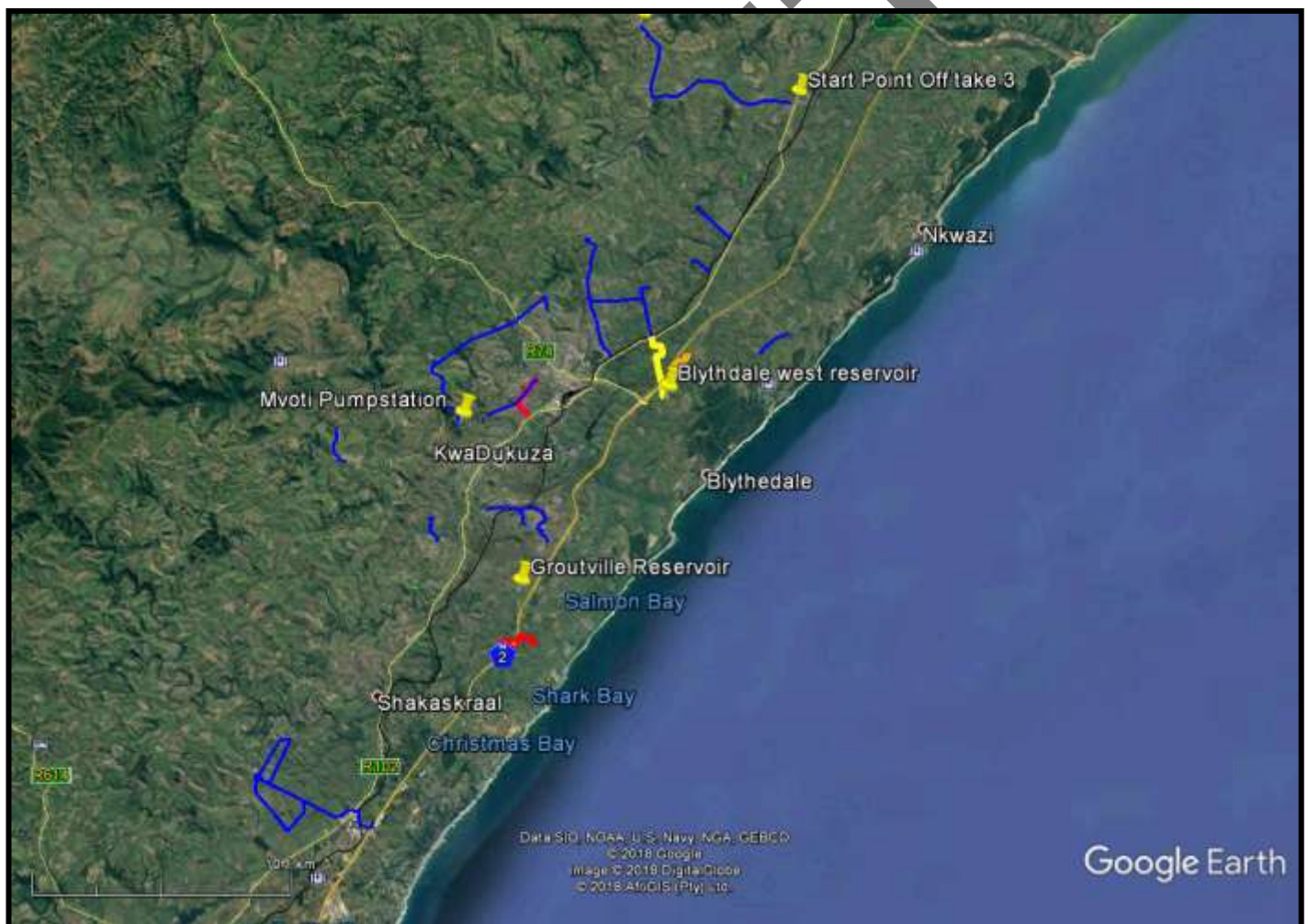
FIG. 9: STUDY AREA IN 1968



## PALAEONTOLOGICAL IMPACT ASSESSMENT

The PIA studies for the various Off takes in the general area have been undertaken by Dr Gideon Groenewald (Anderson 2014a – d, 2015 a – o, 2017). These are shown as the blue lines in fig. 10. The results from these studies indicate that all areas coded green, orange and/or red require further mitigation during the construction phase.

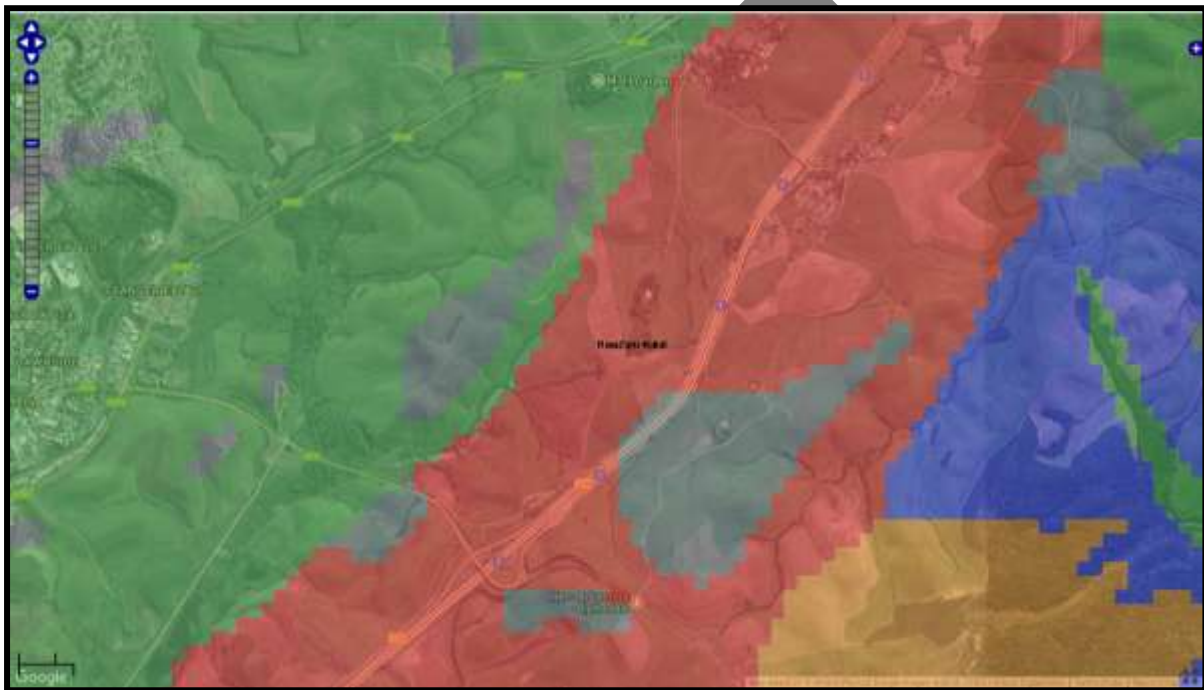
**FIG. 10: LOCATION OF PREVIOUS OFF TAKE HIA AND PIA STUDIES<sup>1</sup>**



<sup>1</sup> Blue lines = previous studies

All of these studies have indicated that excavations for the pipelines, reservoirs, pump stations might uncover palaeontological sensitive layers if they exceed 1.5m in depth. The proposed Offtake 7 goes through areas of moderate and very high palaeontologically sensitive areas (fig. 11). These are to the north of the N2.

**FIG. 11: PALAEOLOGICAL SENSITIVITY OF THE PROPOSED LINE AND RESERVOIR**



COLOUR	SENSITIVITY	REQUIRED ACTION
RED	VERY HIGH	field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	desktop study is required
BLUE	LOW	no palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	no palaeontological studies are required
WHITE/CLEAR	UNKNOWN	these areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

A suitable qualified palaeontologist will need to monitor all excavations below 1.5m in depth for the Offtake 7 north of the N2. Permits will be required to damage palaeontological sites. The permits are a legal requirement.

## FIELD SURVEY

The field survey was undertaken on 12 March 2018. The line continues southeast of Offtake 6a and passes through sugar cane fields, goes underneath the N2, and to the proposed Blythdale West Reservoir. All of these areas have been under sugar cane cultivation since the 19<sup>th</sup> century. Despite over a century of sugar cane cultivation two Late Iron Age or Historical Period archaeological sites were recorded: NGU01 and NGU02 (fig. 12).

### NGU01

NGU01 is located at the on a large hill near the N2. The artefacts are dispersed for at least 250m along the track, suggesting that this is a densely occupied area. The slopes and the crest of the hill are dominated by pottery shards and grinding stones. The crest of the hill also has several Late Stone Age stone tools. The top of the hill is located at S29.336696, E31.330286. The artefacts are as follow (fig. 13):

- Late Stone Age
  - Dolerite miscellaneous retouched piece (possible borer)
  - Quartz flakes
  - Quartz irregular cores
- Late Iron Age/ Historical Period
  - Thin walled pottery (undecorated)
  - Brown and/or orange in colour
  - Upper grinding stones

- 20<sup>th</sup> century
  - Ceramic cup fragment

The density of artefacts on this hill, in comparison to other hills in the general area that have been recently surveyed, suggest that more artefacts and features will occur at the site. This is despite the water tower and related building near the top of the hill. In addition to the artefacts, human burials are a likely to occur at the archaeological site. Sugar cane farming has only exposed the upper layers of the site.

**Significance:** The site is of medium significance as it has a high density of artefacts over a large area and may have subsurface features.

**Mitigation:** The site will need to be monitored by a suitably qualified archaeologist at both the surface clearance and construction phase. Both the construction company, or the main client, as well as the archaeologist will require a permit for damaging and sampling the site, respectively. This is a legal requirement. The archaeologist will monitor both phases of construction and undertake the necessary mitigation where needed. The client will be required to give adequate notification of intent to begin construction so that permits can be acquired and an archaeologist be made available.

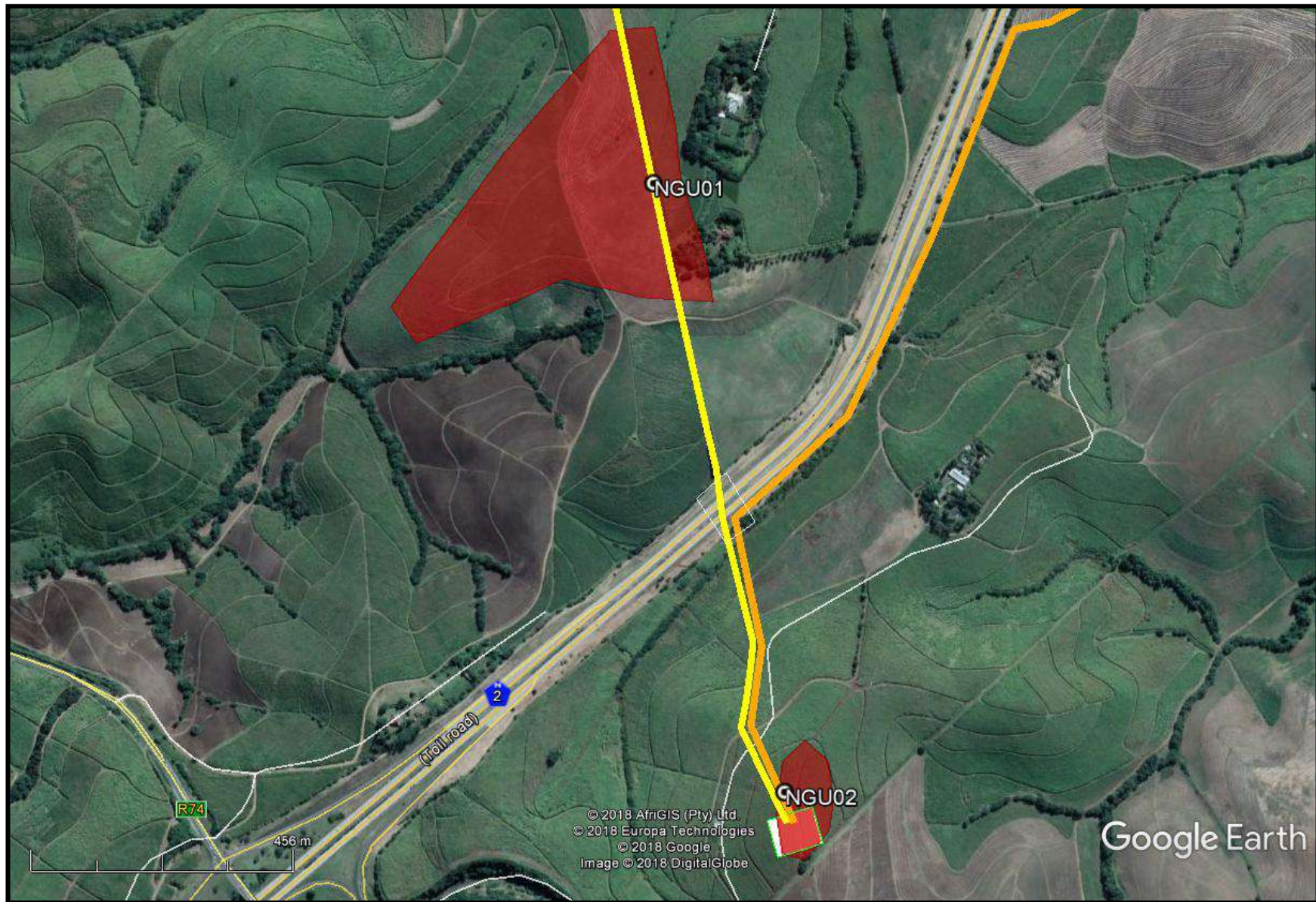
If any significant features are located by construction activity, then the area will need to have a 20m buffer placed around it while it is excavated. Construction activity may continue outside of this buffer, if it will not damage other features.

This must be made part of the EMP of the site. All permits must be shown to the ECO before construction occurs.

**SAHRA Rating: 3B**

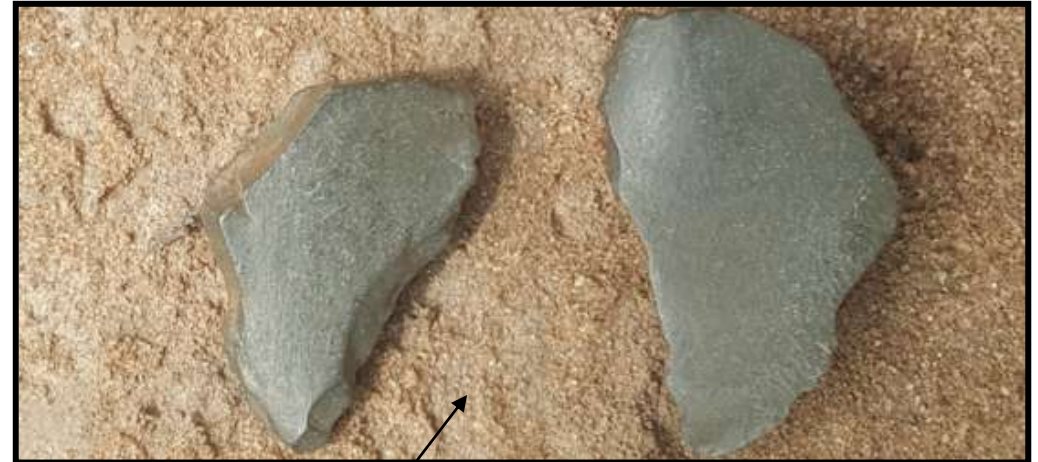


FIG. 12: LOCATION AND EXTENT OF RECORDED SITES<sup>2</sup>



<sup>2</sup> Shaded red = extent of the site

FIG. 13: ARTEFACTS FROM NGU01



## NGU02

NGU02 is located at the eastern end of Offtake 7, at the proposed Blythedale Reservoir. The crest of the hill has had some earthworks, in addition to the trig. beacon; however, no evidence for an old built structure was observed. The artefacts occur from halfway up the hill its top, or over a 100m diameter (fig. 12). The top of the hill, and thus site, is located at S29.345225, E31.332832.

All of the artefacts date to the Late Iron. The artefacts are not as dense as at NGU01, however the sugar cane was thicker in this area making visibility poor. The artefacts consisted of undecorated LIA, or HP, sherds and upper grinding stones (fig. 14.). Subsurface features may occur at the site.

A few Middle Stone Age and Late Stone Age flakes were observed on the surface.

**Significance:** The site is of low-medium significance due to the possibility of more artefacts/features occurring underneath the sugar cane.

**Mitigation:** The site should be monitored during site clearance in order to assess the full significance of the site. Thereafter a decision regarding whether the site requires monitoring during excavation will be made.

**SAHRA Rating:** 3B (for now)

**FIG. 14: ARTEFACTS AT NGU02**



**MANAGEMENT PLAN**

Both of the archaeological sites recorded during the survey require mitigation. NGU01 requires on site monitoring during top soil clearance as well as construction excavations. This may result in sampling and/or archaeological excavations.

NGU02 needs to be monitored during top soil clearance. Depending on the results of this phase, further monitoring might be required during construction activity.

The entire length of Offtake 7 north of the N2 will need to be monitored for palaeontological remains if the excavations are deeper than 1.5m.

The aim of monitoring, sampling and/or excavations will be to work in conjunction with the construction team to minimize any delays. The construction team must, however be made aware that there might be a few days of delay if important features are uncovered.

Permits are required from Amafa KZN for both the archaeological and palaeontological aspects of these areas. Permits are required for both the developer and the archaeologist and palaeontologist. These permits are legal requirements. Permits need to be obtained timeously before construction begins and are not transferable. The engineers for the project thus need to plan accordingly and probably have a site meeting with the specialists.

### **CONCLUSION**

A heritage survey was undertaken for the proposed Offtake 7, 7a and Blythedale West Reservoir. The pipeline occurs in sugar cane fields or runs alongside the tracks.

The desktop study noted that while several buildings occur in the area, none are effected by the pipeline and reservoir. Two archaeological sites were noted along this route of which both require some form of mitigation: monitoring and/or excavation. Both sites require permits from Amafa KZN if they are to be damaged in any manner.

The area north of the N2 is in an area of moderate to very high palaeontological sensitivity. This area will need to be monitored by a suitably qualified palaeontologist. Separate permits are also required for the palaeontology. Timeous notification is required to obtain the permits.

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Natal Museum Site Record Database

SAHRIS database

Umlando database

2931AD Stanger 1968, 2000

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## EXPERIENCE OF THE HERITAGE CONSULTANT

Gavin Anderson has a M. Phil (in archaeology and social psychology) degree from the University of Cape Town. Gavin has been working as a professional archaeologist and heritage impact assessor since 1995. He joined the Association of Professional Archaeologists of Southern Africa in 1998 when it was formed. Gavin is rated as a Principle Investigator with expertise status in Rock Art, Stone Age and Iron Age studies. In addition to this, he was worked on both West and East Coast shell middens, Anglo-Boer War sites, and Historical Period sites.

## DECLARATION OF INDEPENDENCE

I, Gavin Anderson, declare that I am an independent specialist consultant and have no financial, personal or other interest in the proposed development, nor the developers or any of their subsidiaries, apart from fair remuneration for work performed in the delivery of heritage assessment services. There are no circumstances that compromise the objectivity of my performing such work.



Gavin Anderson  
Archaeologist/Heritage Impact Assessor

DRAFT