

**HERITAGE SURVEY OF THE PROPOSED WATER
RETICULATION SCHEME ESTCOURT, KZN**

FOR TERRATEST

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By Gavin Anderson

Umlando: Archaeological Surveys and Heritage

Resources Management

PO Box 102532, Meerensee, 3901

Phone: 035-7531785

Cell: 0836585362



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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

INTRODUCTION

The project is located in the Inkosi Langalibalele Local Municipality, within the uThukela District Municipality's area of jurisdiction. The project involves the construction of a water reticulation scheme including the following components:

- 3 000 m of 600 mm diameter HDPE pipe with a flow rate of 145 litres per second;
- 14 180 m of uPVC pipe ranging from 75 mm to 355 mm at a maximum of 75 litres per second;
- Road crossings;
- ERF connections;
- Air, scour and isolating valves;
- Pressure reducing valve chamber;
- Pipe jacking under road P29;
- Pipe route markers and thrust blocks; and
- Railway Bridge crossing.

The proposed development is to replace the existing Estcourt Industrial pipe network in order to reduce the current water losses experienced, and to ensure the Estcourt Industrial area receives an uninterrupted supply of water. The existing network consists of AC pipelines which have numerous leaks, and bursts frequently due to aging infrastructure.

By replacing the existing pipe network, it will encourage economic growth and job creation in the Estcourt and surrounding areas such as Wembezi Township. Companies such as Clover SA are wanting to expand their plants but are unable to do so until they receive an uninterrupted supply of water.

Taking into consideration the need for the community to benefit directly from the project, the maximum use of local labour will be made. A combination of

accredited and non-accredited training in specific work will be undertaken to ensure skills development in practical work, while all possible labour-intensive activities will be undertaken by manual means. The only exception to this will be the use of machinery for excavation as the ground conditions are expected to be of a nature such that it is not feasible to use manual excavation. The project will be implemented under the guidelines of the Expanded Public Works Programme (EPWP). An estimated 300 man months of local labour will be generated during the construction of the project.

General construction activities will include:

- Trenches will be dug manually with the use of picks and shovels;
- Subsoil and topsoil will be wind-rowed separately on either side of the trench;
- Bedding material will be imported;
- HDPE pipe will be lowered into the trench via the use of a TLB or excavator
 - Pipe sections will either be welded out of trench and then lowered, or in-trench, depending on site conditions;
 - Original material excavated will be backfilled into the trench via the use of a TLB or excavator, starting with the subsoil and capping with topsoil.

The estimated total area that is going to be affected by the Estcourt Industrial pipeline replacement is 84 000 m² (estimated pipe length 14 000 x 6 meter working spacing).

Umlando was appointed by Terratest to undertake the Heritage Impact assessment. The Palaeontological Impact Assessment was undertaken by Dr Gideon Groenewald. Due to the high sensitivity of the area, the PIA was moved from a desktop to a Chance Find Protocol with mitigation. The PIA is covered in a separate report.

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

VEGETATION TYPE

Gs 6 KwaZulu-Natal Highland Thornveld (Refer to Mucina and Rutherford (2006) pg 420).

Distribution

KwaZulu-Natal Province: A series of several patches in the central-northern regions of KwaZulu-Natal, where it occurs on both dry valleys and moist upland. The most extensive area is found in the region from Ladysmith, Winterton, Estcourt and Colenso, between Mooi River and Greytown, between Pomeroy and Babanago, and further north in a triangle between Vryheid, Paulpietersburg and Louwsburg as well as a large patch around Newcastle. Altitude 920–1 440m.

Vegetation and Landscape features:

Hilly, undulating landscapes and broad valleys supporting tall tussock grassland usually dominated by *Hyparrhenia hirta*, with occasional savannoid woodlands with scattered *Acacia sieberiana var woodii* and in small pockets with *A. karroo* and *A. nilotica*.

FIG. 1 GENERAL LOCATION OF THE STUDY AREA

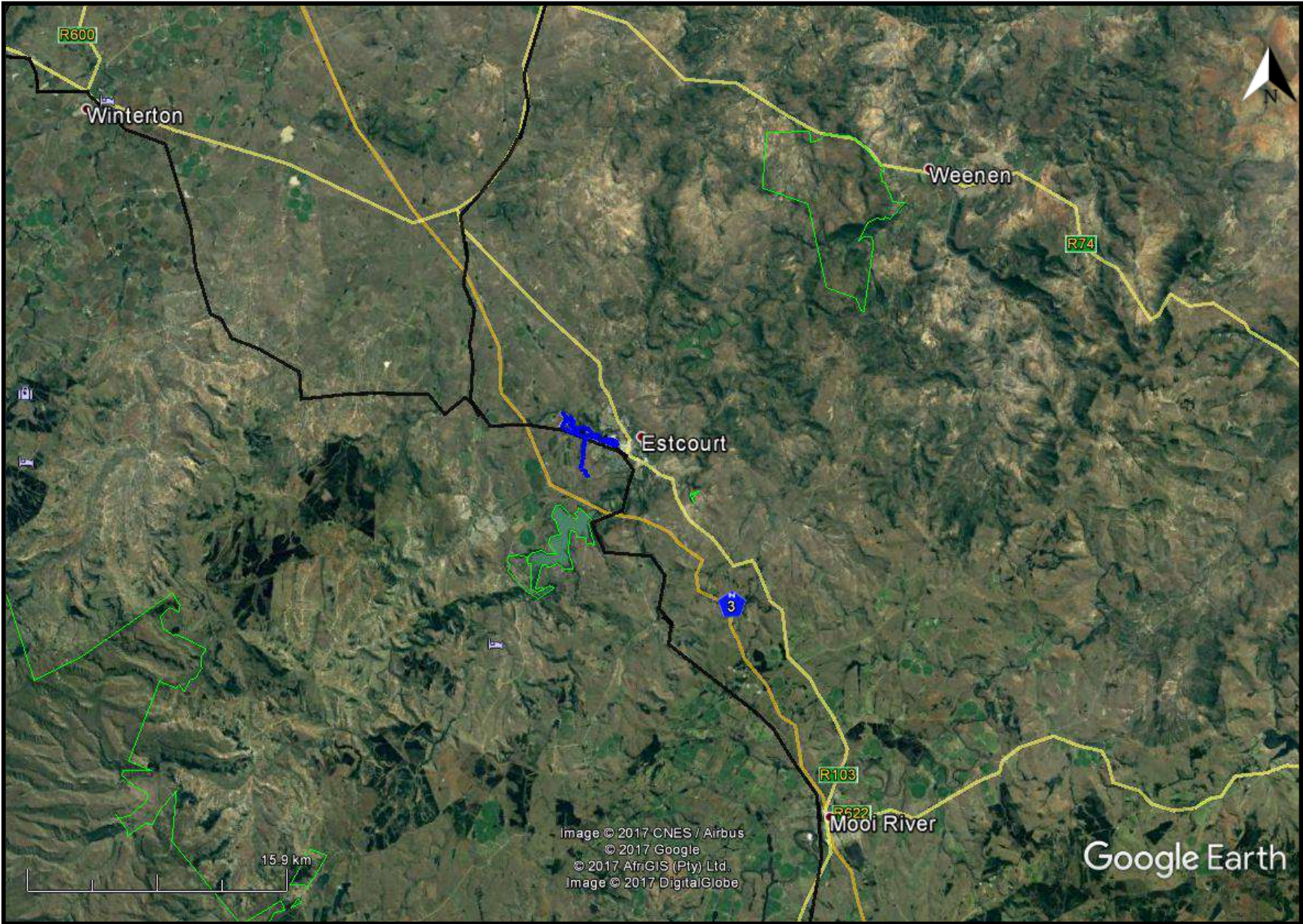


FIG. 2: AERIAL OVERVIEW OF THE STUDY AREA

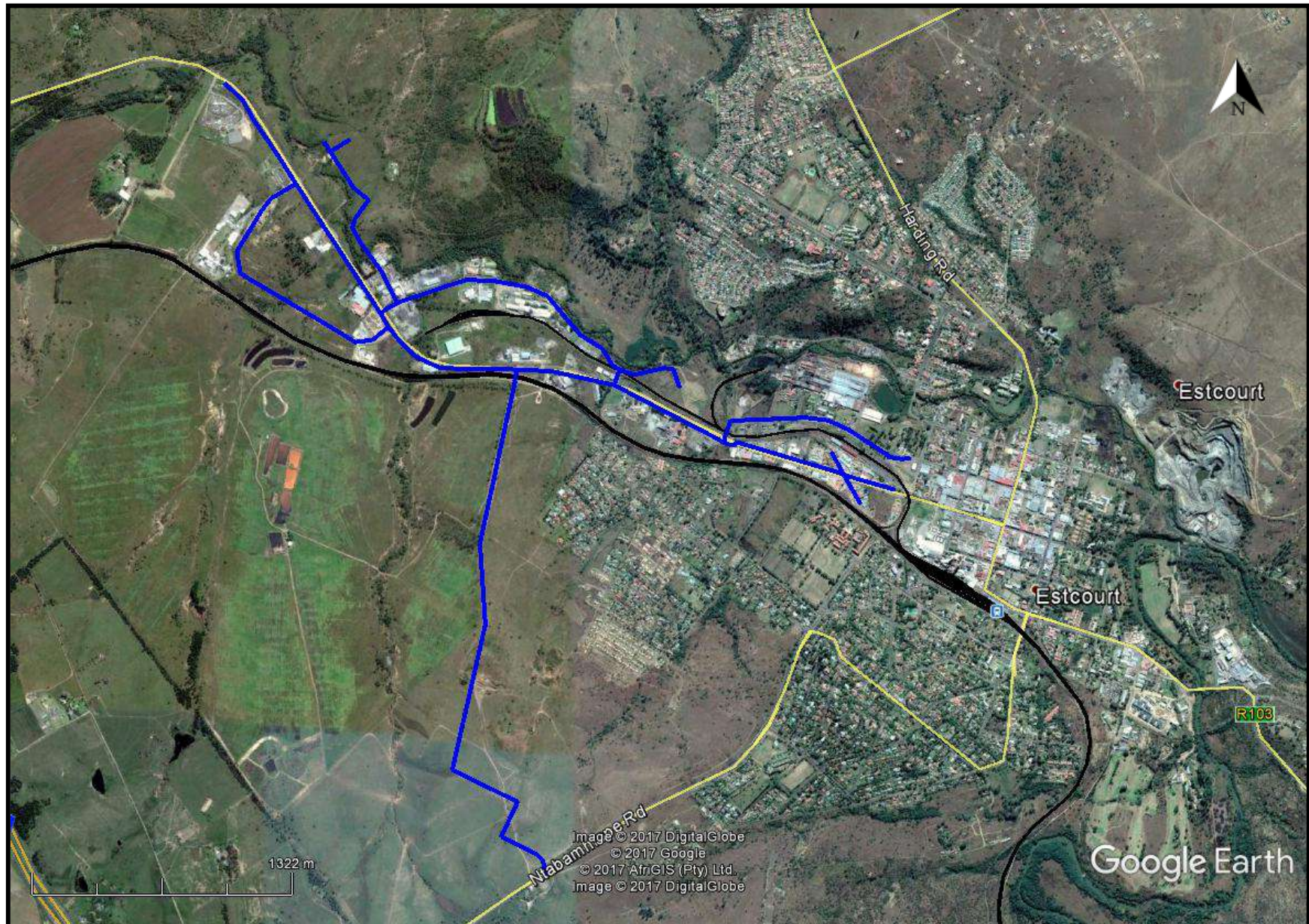
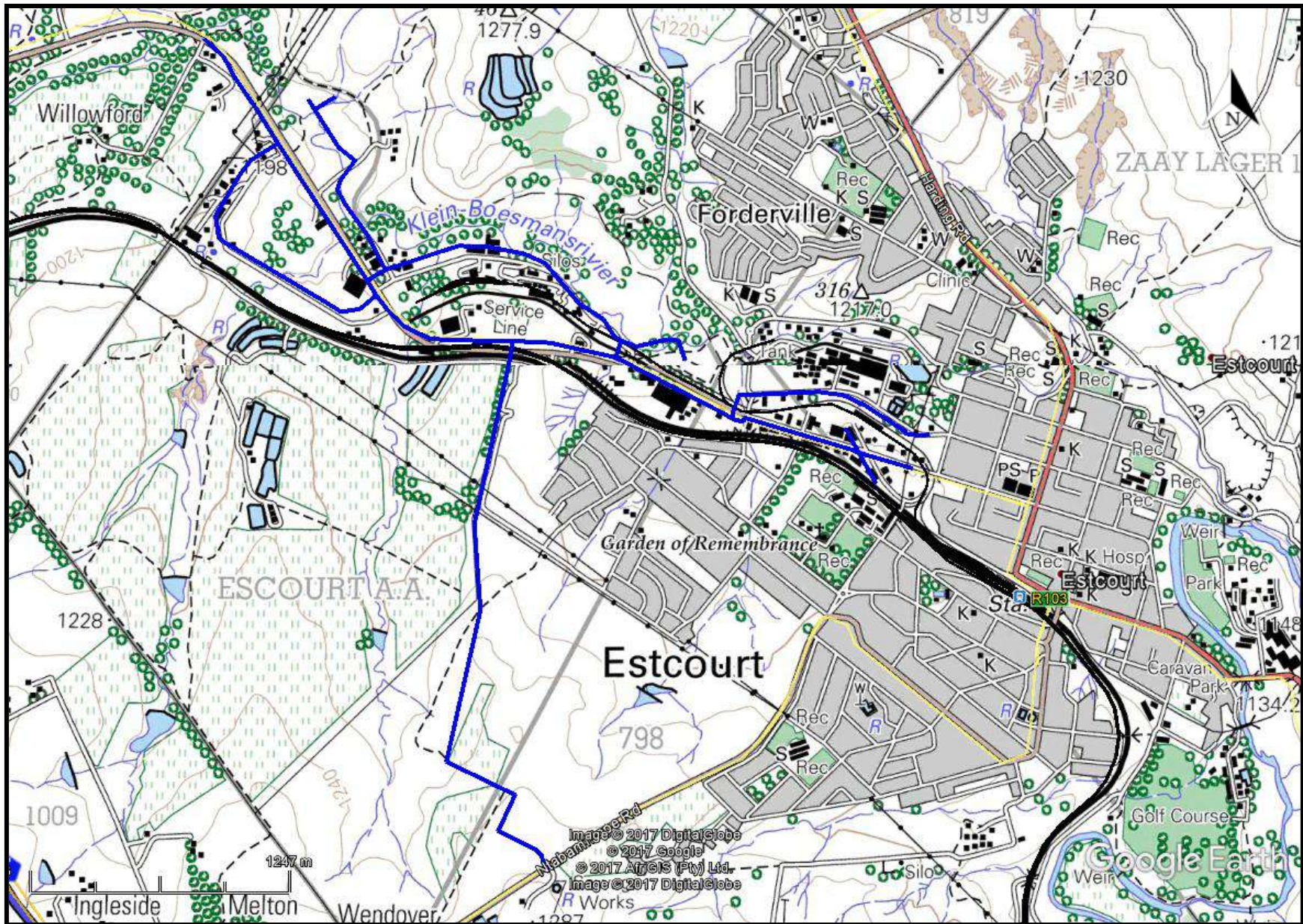


FIG. 3: TOPOGRAPHICAL OVERVIEW OF THE STUDY AREA¹



¹ 2829DD Frere 2000, 2929BB Estcourt 2000

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 1st and 2nd 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

SITE SIGNIFICANCE	FIELD RATING	GRADE	RECOMMENDED MITIGATION
High Significance	National Significance	Grade 1	Site conservation / Site development
High Significance	Provincial Significance	Grade 2	Site conservation / Site development
High Significance	Local Significance	Grade 3A / 3B	
High / Medium Significance	Generally Protected A		Site conservation or mitigation prior to development / destruction
Medium Significance	Generally Protected B		Site conservation or mitigation / test excavation / systematic sampling / monitoring prior to or during development / destruction
Low Significance	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 and Iron Age sites, as well as Colonial 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. There are several cemeteries outside of the study area.

The 1937 aerial photographs indicate that there are farm labourers' settlements, farm buildings and/or other buildings in the general area (fig. 6:

Table 2). Most of these have been demolished and/or cleared by development with the exception of 'a2', 'a3', 'a4' and 'aa2'. Table 2 lists the location of these sites.

The 1942 and 1947 1:50 000 topographical map only indicates that 'a2', 'a3', and 'a4' still occur.

TABLE 2: LOCATION OF RECORDED HERITAGE SITE

NAME	LATITUDE	LONGITUDE	DESCRIPTION
a1	-28.990825263	29.836150634	Settlement
a2	-29.006819653	29.843899983	Settlement
a3	-29.006940903	29.842938163	Settlement
a4	-29.006323679	29.842314472	Settlement
aa1	-28.999322502	29.844014058	Building
aa2	-29.003213169	29.846498988	Building
aa3	-28.996582237	29.848990749	Building
aa4	-29.002428425	29.866088864	Building
EST01	-29.017562000	29.844729000	Grave?
EST02	-29.010682000	29.845957000	Cattle byre
EST03	-29.010846000	29.846501000	Stone walling

PALAEONTOLOGICAL IMPACT ASSESSMENT

The area is considered to be of very high sensitivity and a field survey will be required. Dr Gideon Groenewald is undertaking a Chance Find Protocol for this project and a separate report will be submitted with the results.

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

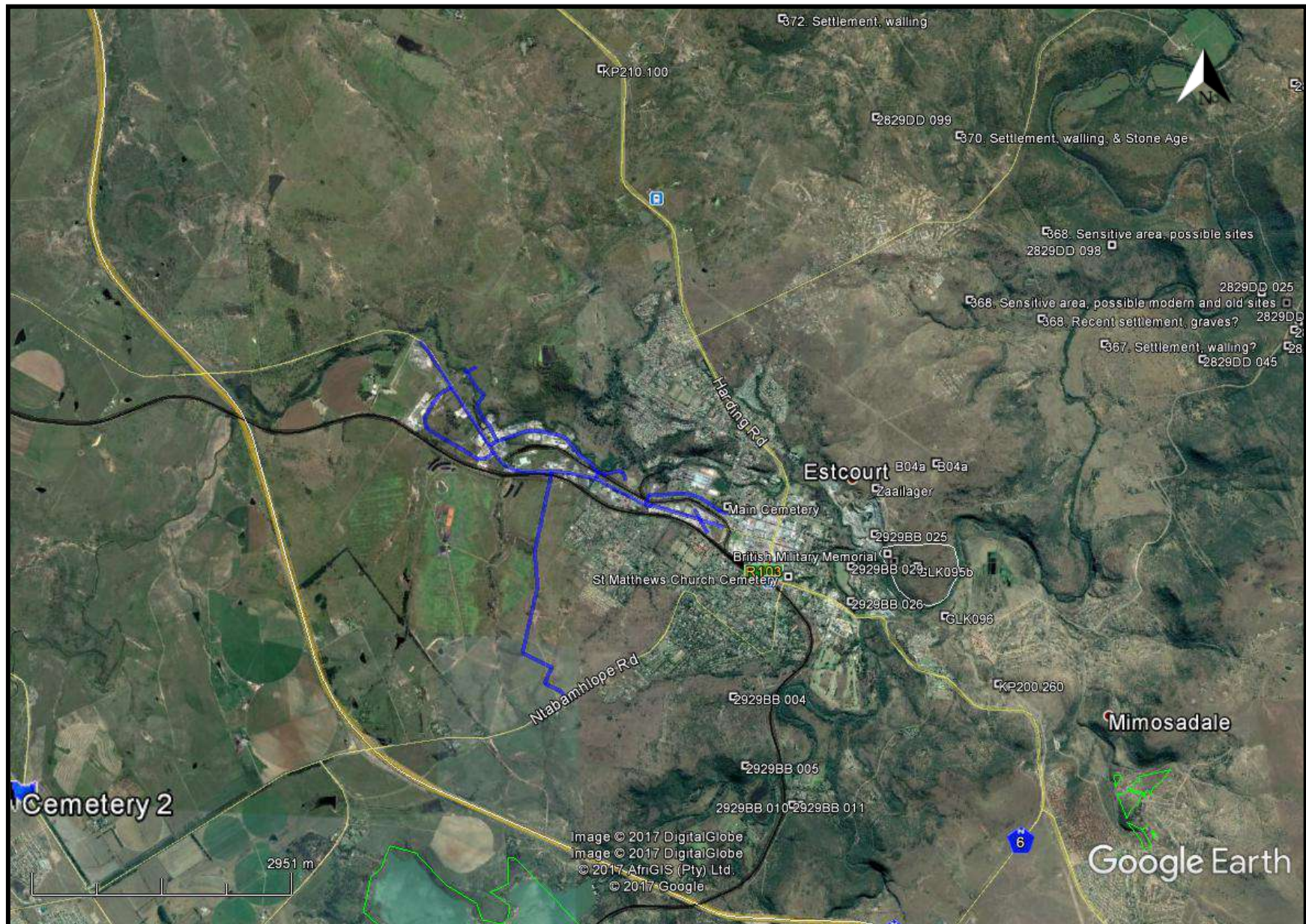
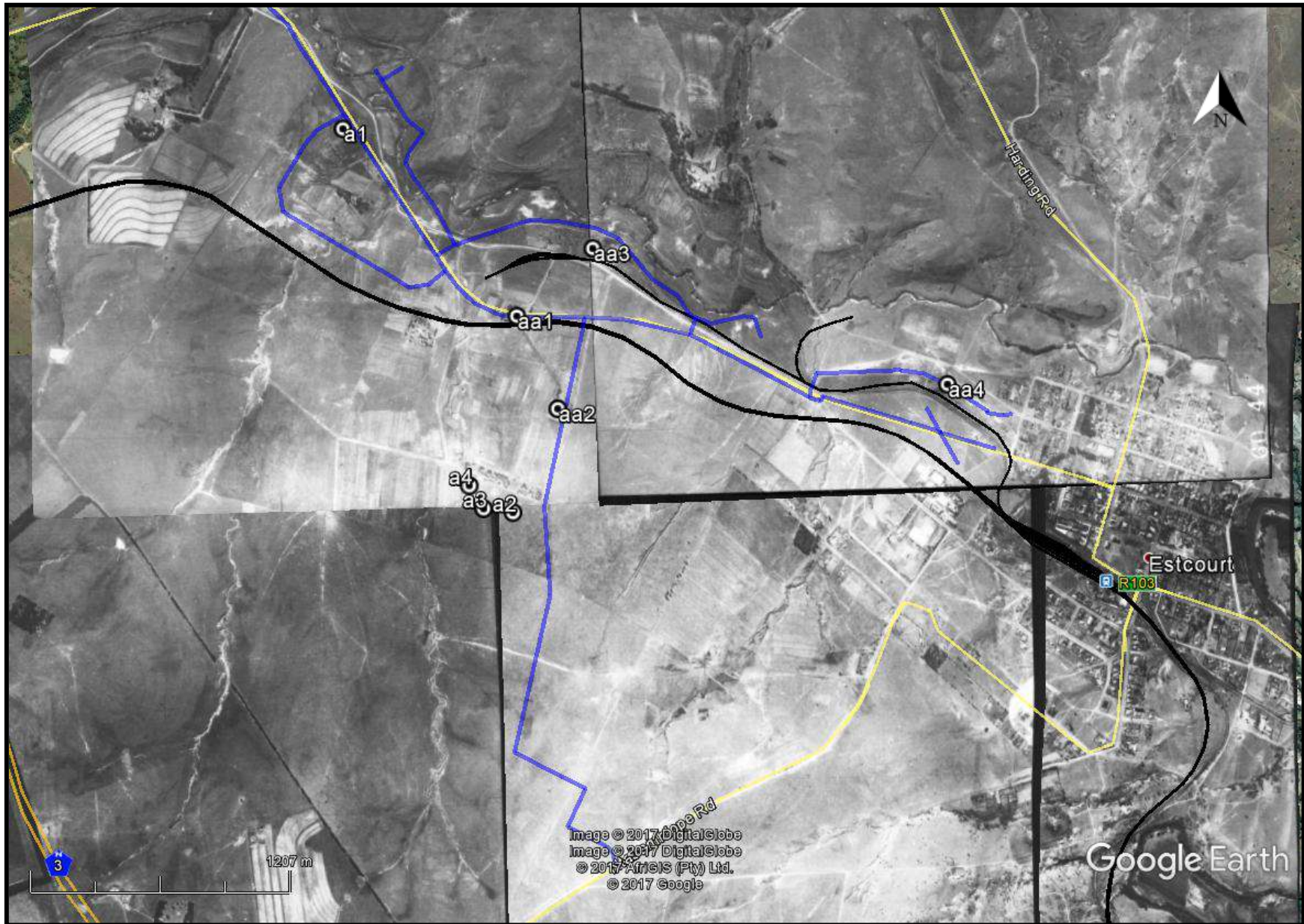
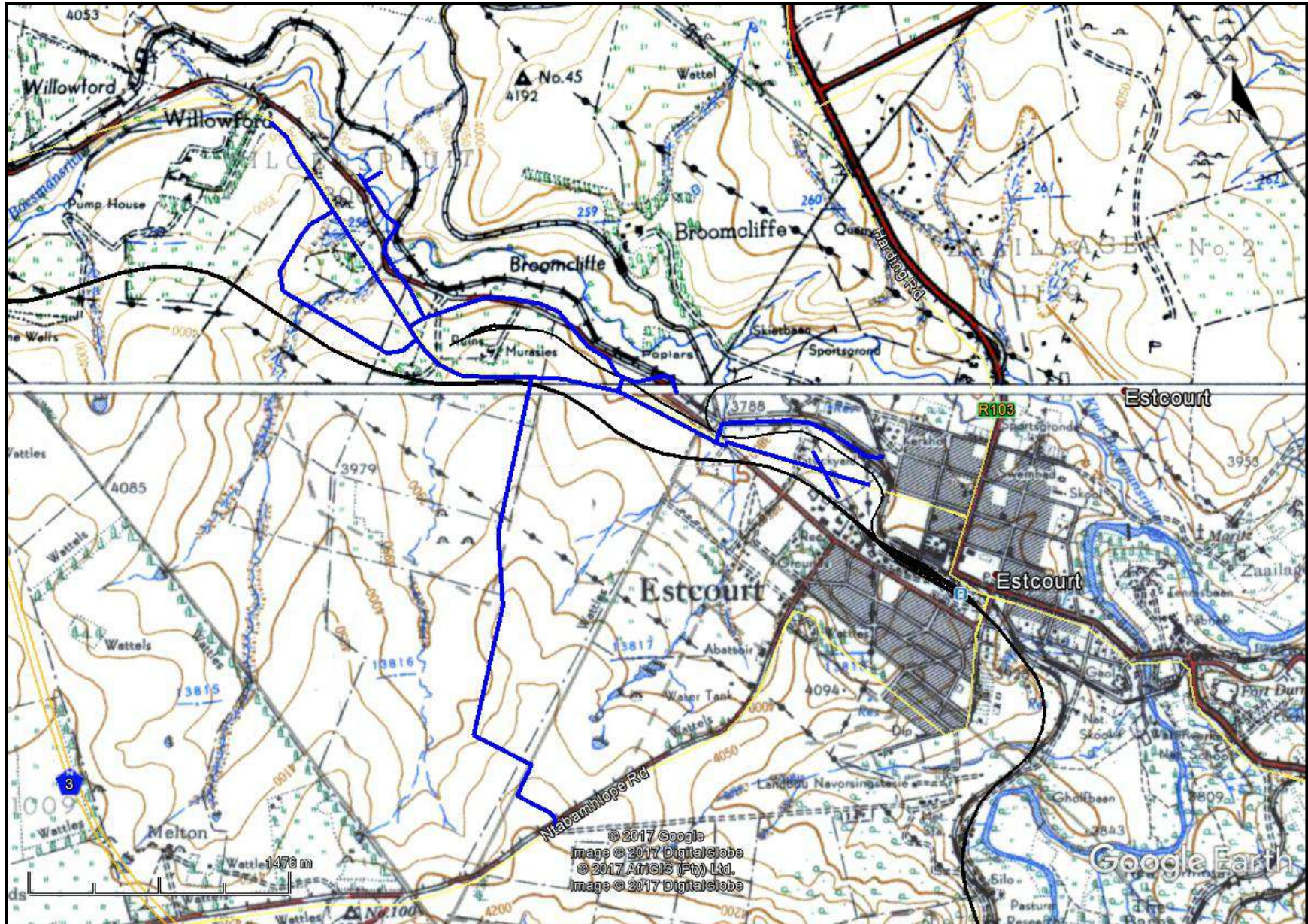


FIG. 6: STUDY AREA IN 1937²



² 60_44 Flight path 12, photo 13750 , 60_44 Flight path 13, photo 13815

FIG. 7: STUDY AREA IN 1945/1948³



³ 2829DD Frere 1945, 2929BB Estcourt 1947

FIELD SURVEY

The field survey was undertaken on 20 November 2017. Three archaeological sites were recorded during the survey. The pipeline also passes near a cemetery. The sites are shown in figure 8

EST01

EST01 consists of a single stone circle that appears to be a sunken cairn (fig. 9). The cairn is in on the slope of a hill area that appears to have been slightly levelled at some stage. No house floor remains, etc were noted. The cairn could be a sunken grave, and should be treated as such until proven otherwise.

The current pipeline will pass through this feature.

Significance: If the cairn is a grave, then it is of high significance.

Mitigation: The cairn should be avoided and a 20m buffer placed between the pipeline servitude and the grave. Furthermore, the cairn should be fenced off before construction with a 5m buffer between the cairn and the fence. If it is not possible to move the pipeline, then test-pit excavations will need to be undertaken to determine if the cairn is a grave or another type of feature. A permit from Amafa KZN will be required.

FIG. 8: LOCATION OF RECORDED SITES

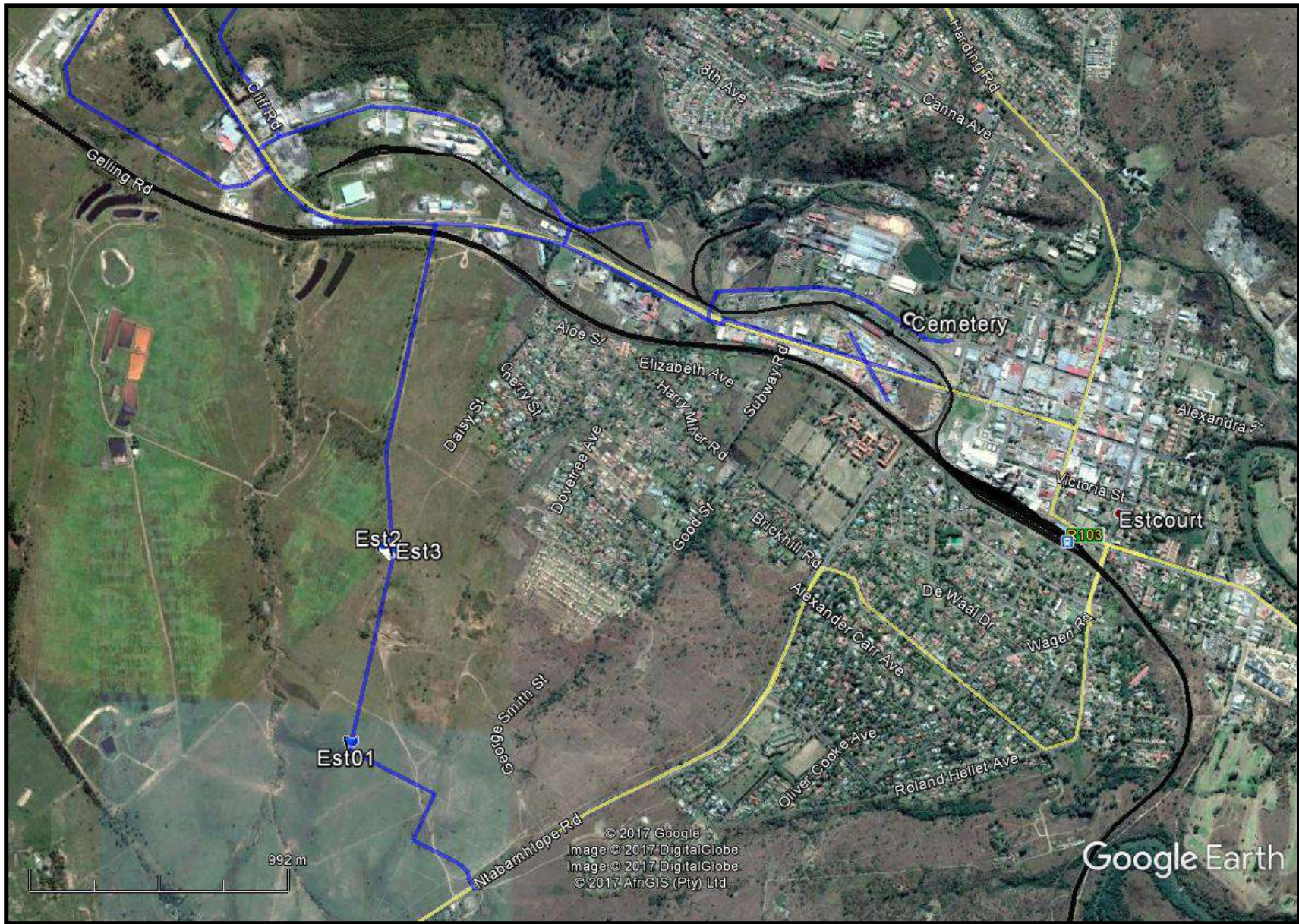


FIG. 9: STONE CAIRN AT EST01



EST02 AND EST03

EST02 AND EST03 are located on the northern side of the hill and are in close proximity to each other – within 30m. Both consist of stone walled features. EST02 consists of a large low stone walled cattle byre that is 11m in diameter (fig. 10). The byre is north facing. EST02 will not be affected by the pipeline.

EST03 is located ~30m east of EST02 and is northeast facing. The site consists of stone walled terraces and stone walling. The walling is in a poor condition (fig. 11). EST02 might be the cattle byre associated with the houses of EST03.

Several upper grinding stones and pottery sherds were found at EST03 (fig. 12). Both sites date to the Late Iron Age.

Significance: The site is of low significance as the main terracing has already been disturbed. However, the occurrence of artefacts suggests that there could be more archaeological deposit. Subsurface features might still occur and this would then change the sites to medium significance.

Mitigation: It would be preferable for the pipeline to be moved away from the site. There is an area ~20m east of the edge of the site that does not have terracing. If the site is to be affected, then it will need to be photographed and mapped. This area will need to be monitored during construction activity for subsurface features by a qualified archaeologist.

FIG. 10: CATTLE BYRE AT EST02



FIG. 11: TERRACING AT EST03



FIG 12: POTTERY SHARDS AT EST03



CEMETERY

A modern cemetery occurs within 30m of the pipeline footprint. The pipeline is unlikely to affect the cemetery. However, the client should ensure there are no additional municipal by-laws relating to modern cemeteries and pipelines or municipal infrastructures.

FIG. 13: CEMETERY IN ESTCOURT



MANAGEMENT PLAN

Three heritage sites were noted during the survey, of which the current pipeline footprint will directly impact two. The locations of the sites have already been given to the surveyors who might move the line away from the sites and keeping a 20m buffer between the site and the footprint. The final layout will be reviewed at a desktop level.

If the footprint is within 50m of EST01, then EST01 needs to be fenced off. If the pipeline cannot be moved for logistical reasons, then the possible grave can be excavated.

The area east of EST03 will require on site monitoring during the earthmoving and construction phase of the project. This might entail salvaging and/or

archaeological excavation during construction. EST03 will need to be mapped and photographed by a qualified archaeologist if it is impacted.

A permit from Amafa KZN will be required if any archaeological sites are impacted. A permit to damage palaeontological sites will be required if Dr. Groenewald notes fossil bearing layers during his fieldwork. Permit applications should be submitted at least 3months before construction begins.

CONCLUSION

A heritage survey was undertaken for the proposed Estcourt Industrial pipe network in order to reduce the current water losses experienced, and to ensure the Estcourt Industrial area receives an uninterrupted supply of water. The existing network consists of AC pipelines which have numerous leaks, and bursts frequently due to aging infrastructure.

The heritage survey located three archaeological sites, of which two are in the current pipeline footprint. Both sites will require further mitigation if impacted on by the construction activities.

The palaeontological impact assessment moved directly into a Phase 2 Chance Find Protocol and that report will be submitted separately.

REFERENCES

60_44 Flight path 12, photo 13750

60_44 Flight path 13, photo 13815

2829DD Frere 1:50 000 topographical map 1945, 2000

2929BB Estcourt 1:50 000 topographical map 1947, 2000

Natal Museum Site Record Database

SAHRIS Database

Umlando Database

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.

A handwritten signature in black ink, appearing to read 'G Anderson', with a horizontal line underneath.

Gavin Anderson
Archaeologist/Heritage Impact Assessor