# DESKTOP SURVEY OF THE VERULAM PEDESTRIAN BRIDGE

## FOR JEFFARES & GREEN AFRIKA

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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 eThekwini Metropolitan Municipality Engineering Unit: Roads Provision, appointed JG Afrika (Pty) Ltd to undertake the environmental service required for the proposed development of a pedestrian bridge, Verulam, Ward 51, eThekwini, KwaZulu-Natal.

At present, pedestrians needing to cross the non-perennial river utilise a wooden plank across the river. Crossing points have proven to be dangerous and inaccessible during the periods of heavy storms. To mitigate this, and ensure safe passage, a pedestrian bridge is proposed. The bridge structure will consist of reinforced concrete deck, 1.5m in width, which will be connected to bedrock using CFA piles and reinforced concrete columns.

These crossing points consequently pose a great health and safety risk to the community when being utilised under normal conditions and flood conditions. Disabled individuals utilise the main roads of the area and requires an almost 14km round trip. The crossing links people on the east with clinics and schools in the west. Currently school children and sickly individuals in the area cross the rivers to reach the schools and clinics on a daily basis. The current crossing consists of a single plank across each river bordered by steep muddy informal slopes.

Fig 1 – 3 shows the location of the bridge. Figure 4 shows the scenic views of the bridge area.

**FIG. 1 GENERAL LOCATION OF THE STUDY AREA**

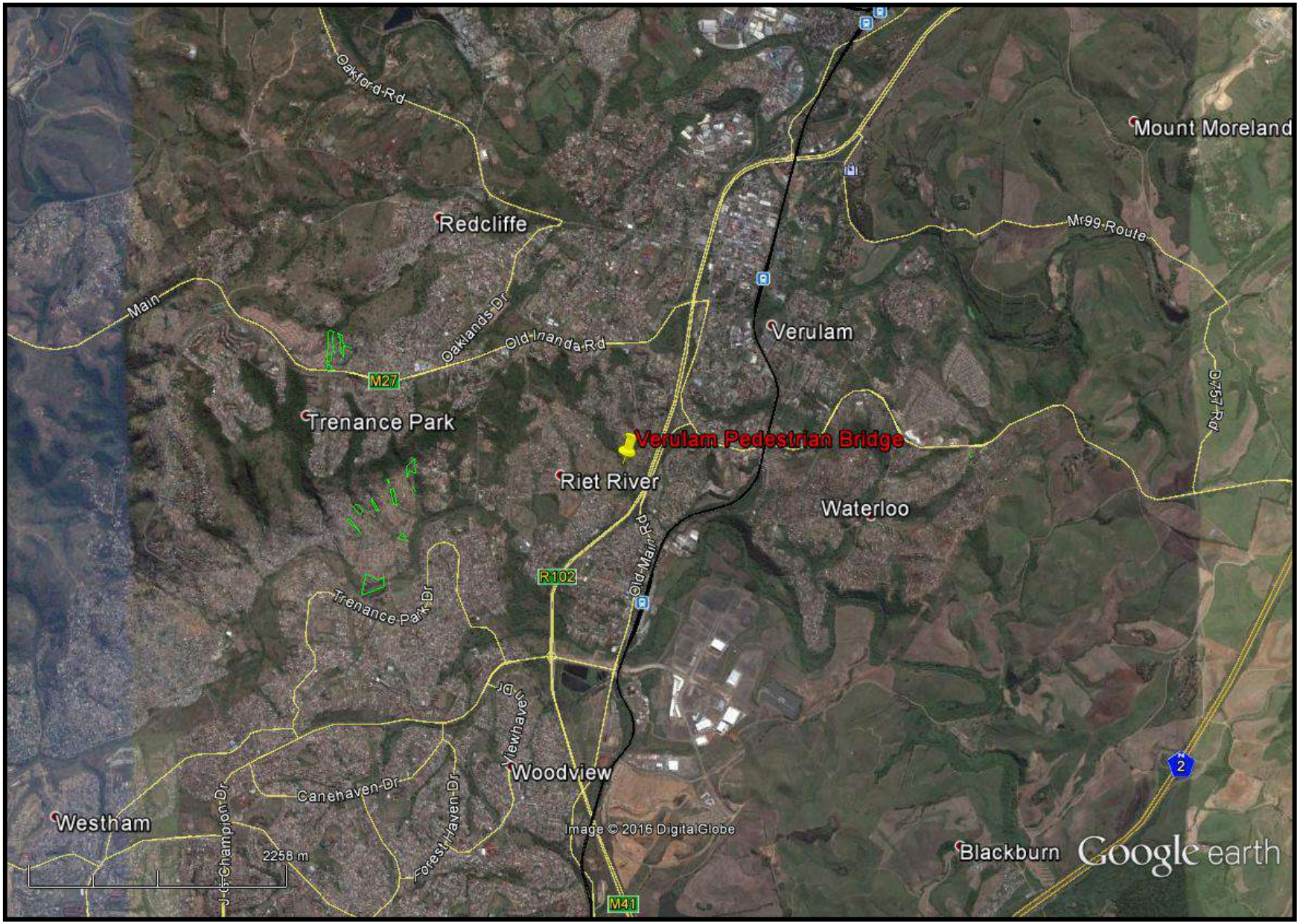

**FIG. 2: AERIAL OVERVIEW OF THE STUDY AREA**

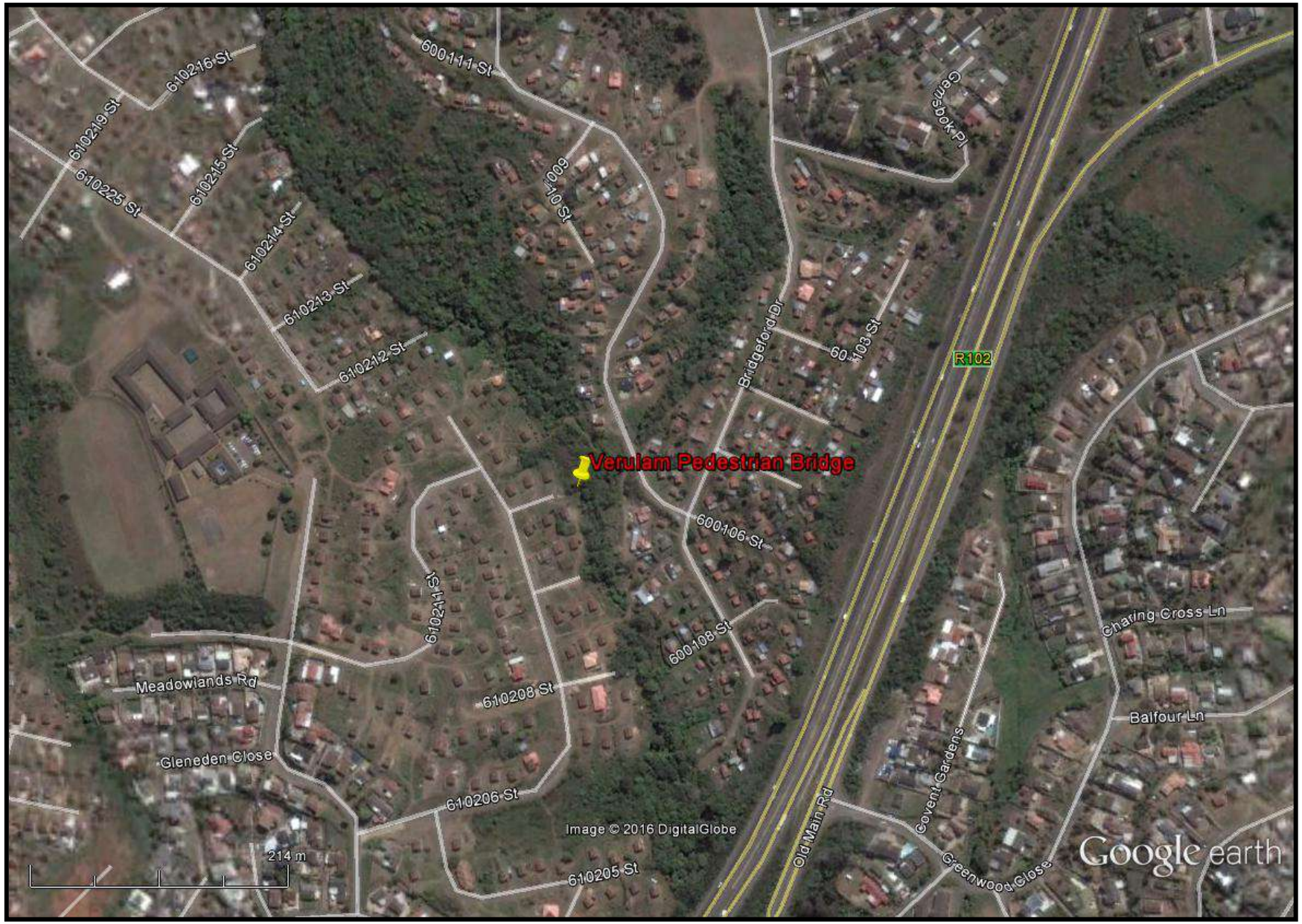

**FIG. 3: TOPOGRAPHICAL OVERVIEW OF THE WESTERN STUDY AREA**

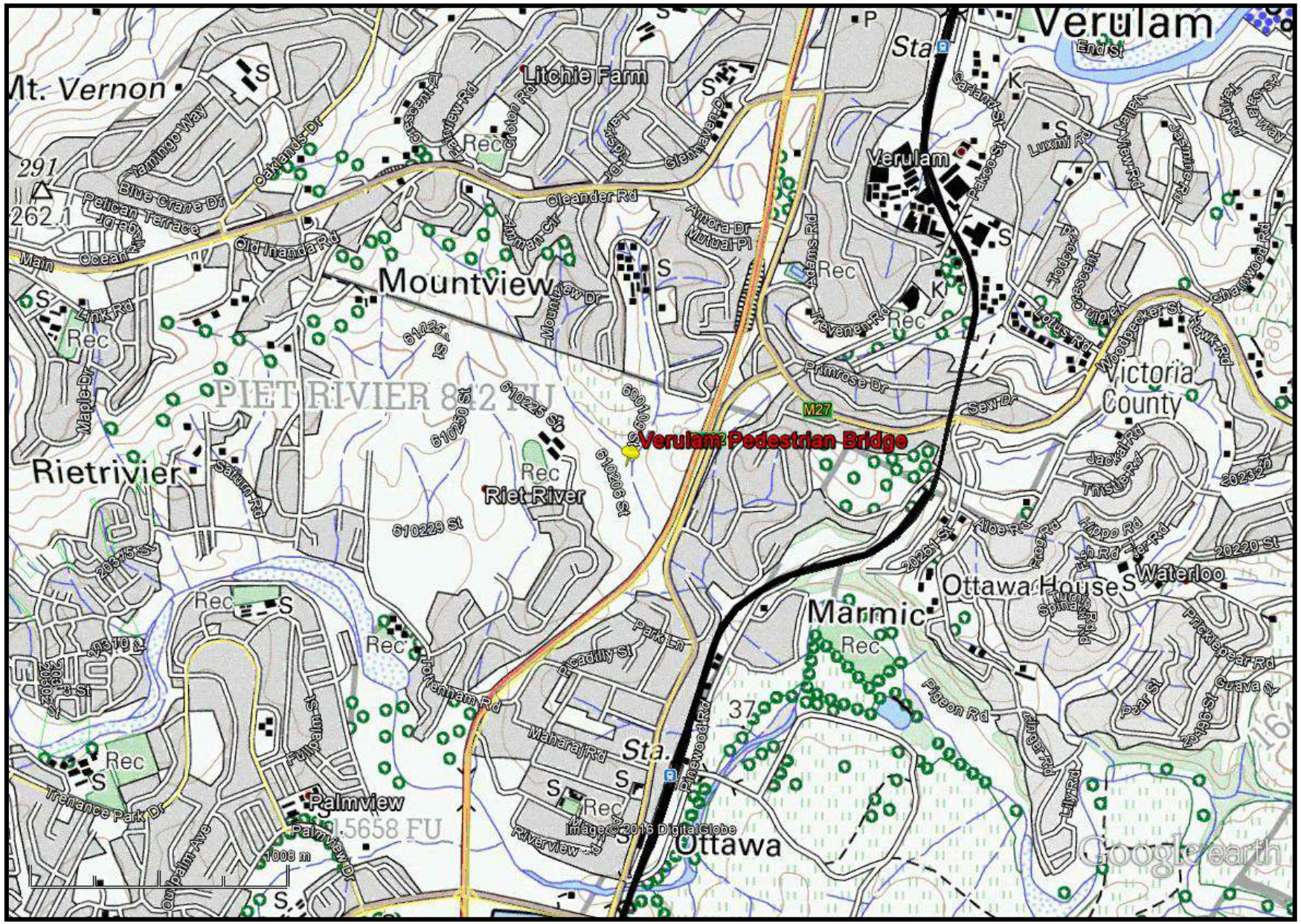

**FIG. 4: SCENIC VIEWS OF THE PROPOSED BRIDGE**

## 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. No sites occur in the study area.

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

The 1937 aerial photographs (fig. 6) and 1942 1:50 000 topographical map (fig. 7) indicate that area was under cultivation before becoming part of the KwaDabeka settlement/township. Moreover, the area has been affected by more recent dwellings that would have removed any previous heritage sites.

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

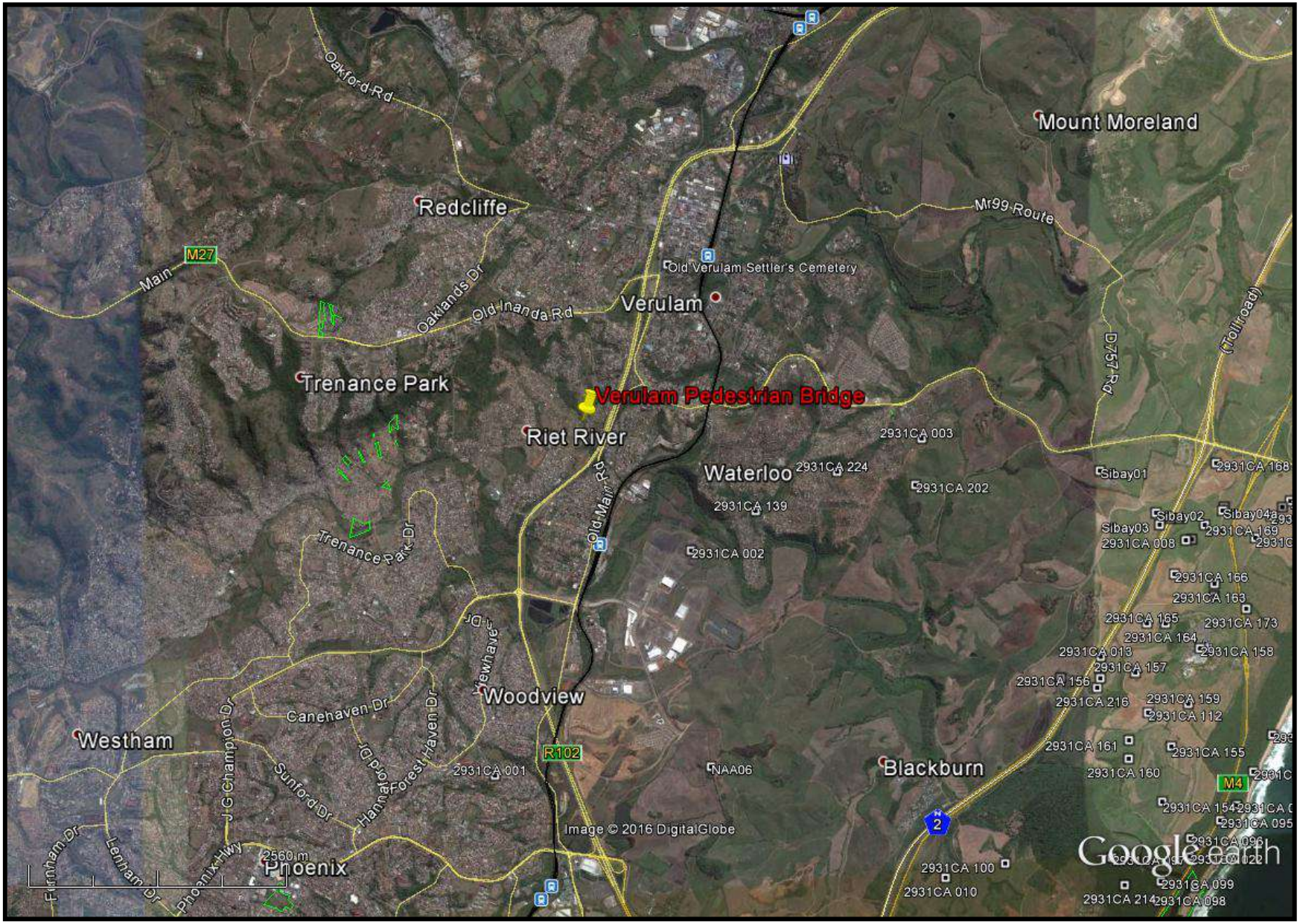

**FIG. 6: STUDY AREA IN 1937**

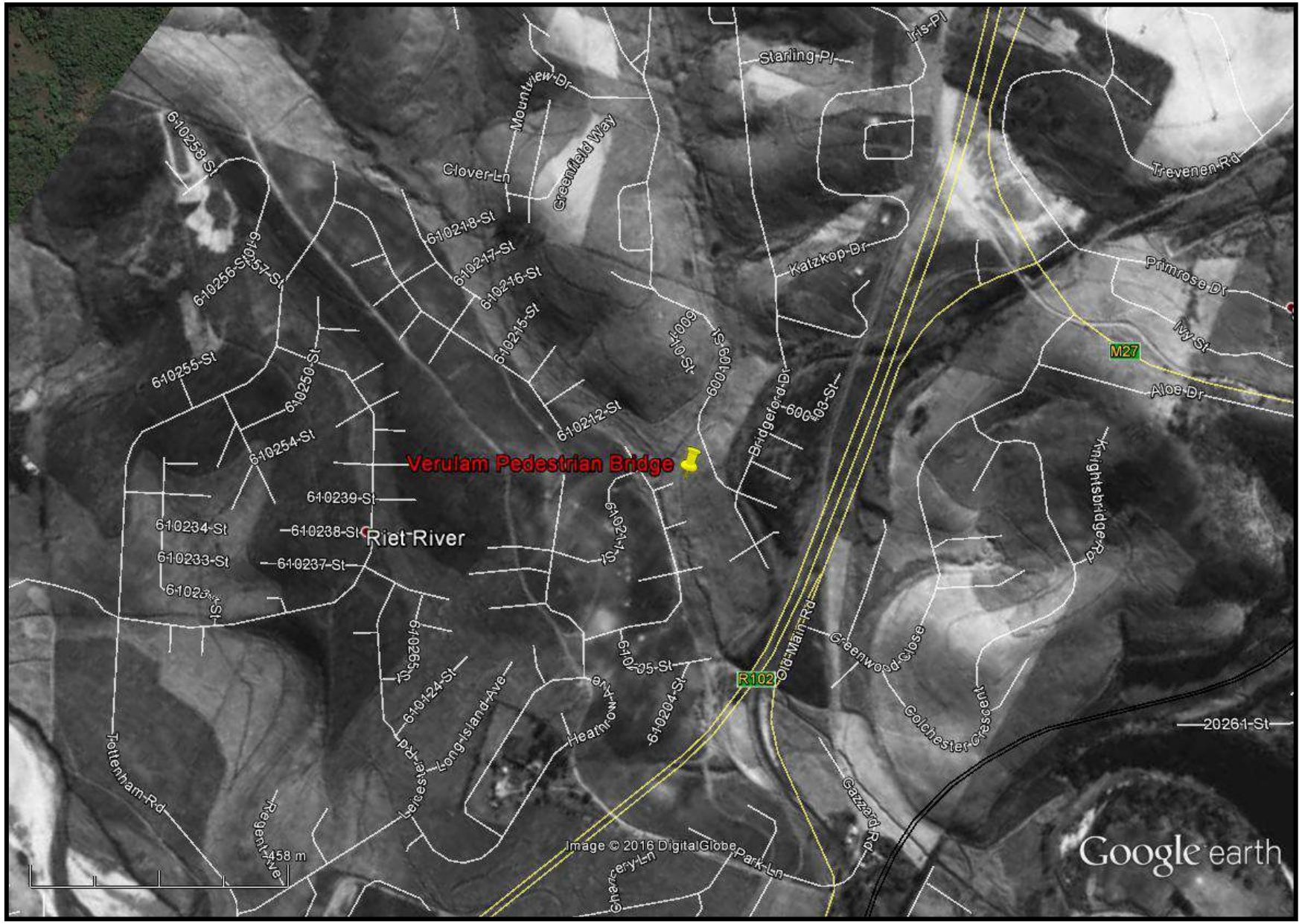

**FIG. 7: STUDY AREA IN 1969**

## PALAEONTOLOGICAL IMPACT ASSESSMENT

The study area occurs in an area of moderate palaeontological significance (fig. 8). Since the footprint of the bridge will be less than a hectare in size, it would not necessitate a PIA study. However, a protocol for palaeontological finds will be required. The geotechnical surveys will indicate the exact layers that will be affected and this will be sent to Dr Gideon Groenewald for comment.

**FIG. 8: PALEONTOLOGICAL SENSITIVITY**

| 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. |

## RECOMMENDATION AND CONCLUSION

A desktop heritage survey was undertaken for the proposed Verulam Pedestrian Bridge. The bridge would alleviate safety and health concerns for the local community.

No heritage sites were noted in the desktop study. The desktop study noted that the area has been in use for several decades. Any heritage site that could have occurred in the study area would have been destroyed by now.

I recommend that the bridge is exempt from further HIA work.