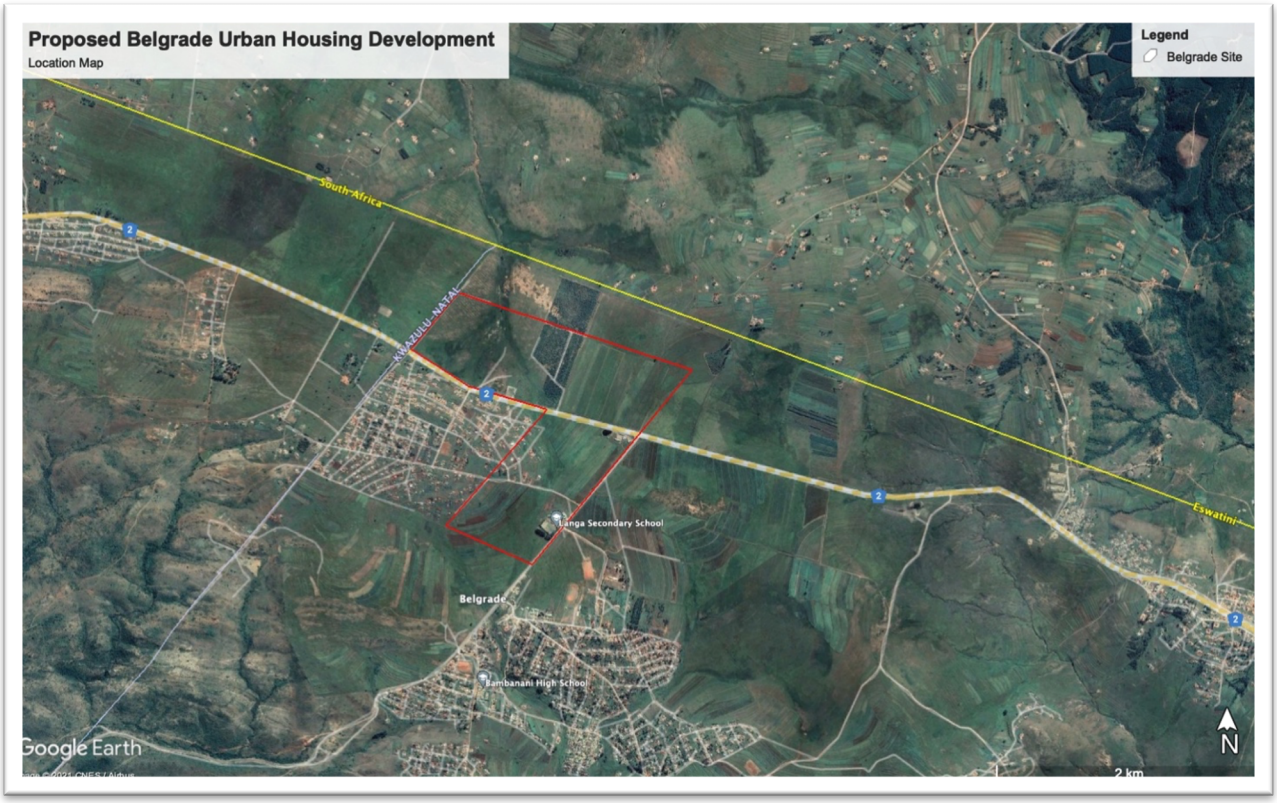
G & A Heritage

Heritage Management Consultants



PROPOSED BELGRADE URBAN HOUSING DEVELOPMENT, UPHONGOLO LOCAL MUNICIPALITY, ZULULAND DISTRICT OF THE KWAZULU-NATAL PROVINCE

Heritage Impact Assessment (HIA) Report

November 2021

CREDIT SHEET

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REPORT AUTHOR

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Disclaimer; *Although all possible care is taken to identify all sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the study. G&A Heritage and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

Statement of Independence
As the duly appointed representative of G&A Heritage, I Stephan Gaigher, hereby confirm my independence as a specialist and declare that neither I nor G&A Heritage have any interests, be it business or otherwise, in any proposed activity, application or appeal in respect of which the Environmental Consultant was appointed as Environmental Assessment Practitioner, other than fair remuneration for work performed on this project.

SIGNED BY: STEPHAN GAIGHER

MANAGEMENT SUMMARY

Project Name and Location

Proposed Belgrade Urban Housing Development located on the Farm Belgrade 27 HU in the uPhongolo Local Municipality, Zululand District in the KwaZulu-Natal Province.

Consultant

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Appointed By

Zamokuhle Development Consultants

Date of Report

19 November 2021

MANAGEMENT SUMMARY

The purpose of the management summary is to distil the information contained in the report into a format that can be used to give specific results quickly and facilitate management decisions. It is not the purpose of the management summary to repeat in shortened format all the information contained in the report, but rather to give a statement of results for decision making purposes.

This study focuses on the proposed Belgrade urban housing development, located on the Farm Belgrade 27 HU in the uPhongolo Local Municipality, Zululand District of the KwaZulu-Natal Province.

This study encompasses the heritage impact investigation. A preliminary layout has been supplied to lead this phase of this study.

Scope of Work
A Heritage Impact Assessment (including Archaeological, Cultural heritage, Built Heritage and Basic Palaeontological Assessment to determine the impacts on heritage resources within the study area.

The following is required to perform this assessment:

- A desk-top investigation of the area;
- A site visit to the proposed development site;
- Identify possible archaeological, cultural, historic, built and palaeontological sites within the proposed development area;
- Evaluate the potential impacts of construction and operation of the proposed development on archaeological, cultural, historical resources; built and palaeontological resources; and
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural, historical, built and palaeontological importance.

The purpose of this study is to determine the possible occurrence of sites with cultural heritage significance within the study area. The study is based on archival and document combined with fieldwork investigations.

Findings and Recommendations
The study area, located on the Farm Belgrade 27 HU in the uPhongolo Local Municipality, Zululand District of the KwaZulu-Natal Province was investigated during a field visit and through archival studies.

A graveyard was observed within the study area. It is recommended that a permit be obtained, and the graves be relocated to a Municipal Cemetery to avoid damage.

An informal church is located within the study area.

The rest of the study area was found to be devoid of any heritage sites with significance and severely altered from the natural landscape. It is recommended that obscured, subterranean sites be managed, if they are encountered.

Fatal Flaws
No fatal flaws were identified.

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ABBREVIATIONS

Abbreviation	Meaning
BP	Before Present
c.	circa
BCE	Before the Common Era
Bp	Before Present
CE	Common Era
ECO	Environmental Control Officer
EIA	Early Iron Age
ELO	Environmental Liaison Officer
ESA	Early Stone Age
ESMS	Environmental and Social Management System
ESSS	Environmental and Social Safeguard Standards
Fm	Femtometre (10^{-15}m)
GPS	Geographic Positioning System
HIA	Heritage Impact Assessment
ICP	Informed Consultation and Participation
LIA	Late Iron Age
LSA	Late Stone Age
KZN	KwaZulu-Natal
MSA	Middle Stone Age
MYA	Million Years Ago
NHRA	National Heritage Resources Act
PHRA	Provincial Heritage Resources Agency
PIA	Palaeontological Impact Assessment
PS	Performance Standard
SAHRA	South African Heritage Resource Agency
SAHRIS	South African Heritage Information System
SAPS	South African Police Service
SHE	Safety, Health and Environment
SHEQ	Safety, Health, Environment and Quality
S&EIR	Scoping and Environmental Impact Reporting
Um	Micrometre (10^{-6}m)
WGS 84	World Geodetic System for 1984

GLOSSARY OF TERMS

'**Archaeological**' means:

a) Material remains resulting from human activity which are in a state of disuse and are in or on land and are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
b) Rock art, being a form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and is older than 100 years including any area within 10 m of such representation; and
c) Wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land or in the maritime cultural zone referred to in section 5 of the Maritime Zones Act 1994 (Act 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which are older than 60 years or which in terms of national legislation are considered to be worthy of conservation;
d) Features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found.

'**Circa**' is used in front of a particular year to indicate an approximate date.

'Grave' means a place of interment and includes the contents, headstone or other marker of and any other structures on or associated with such place. The South African Heritage Resources Agency (SAHRA) will only issue a permit for the alteration of a grave if it is satisfied that every reasonable effort has been made to contact and obtain permission from the families concerned.

'Paleontological' means 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.

A '**place**' is defined as:

a) A site, area or region;
b) A building or other structure (which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure);
c) A group of buildings or other structures (which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures); and (d) an open space, including a public square, street or park; and in relation to the management of a place, includes the immediate surroundings of a place.

'**Structures**' means any building, works, device, or other facility made by people and which is fixed to land and any fixtures, fittings and equipment associated therewith older than 60 years.

1. General

1.1 Project Description

G&A Heritage was appointed by *Zamokuhle Development Consultants* to undertake a Heritage Impact Assessment (HIA) for the proposed Belgrade urban housing development, located on the Farm Belgrade 27 HU in the uPhongolo Local Municipality, Zululand District of the KwaZulu-Natal Province.

The extent of the study area is approximately 190ha.

1.2 Project Location

The study area is located on Farm Belgrade 27 HU in the uPhongolo Local Municipality, Zululand District of the KwaZulu-Natal Province. The border between KwaZulu-Natal and Mpumalanga Provinces forms the north-western top boundary of the site. The Swaziland border is approximately 400m north of the site. The national route N2 passes through the study area.

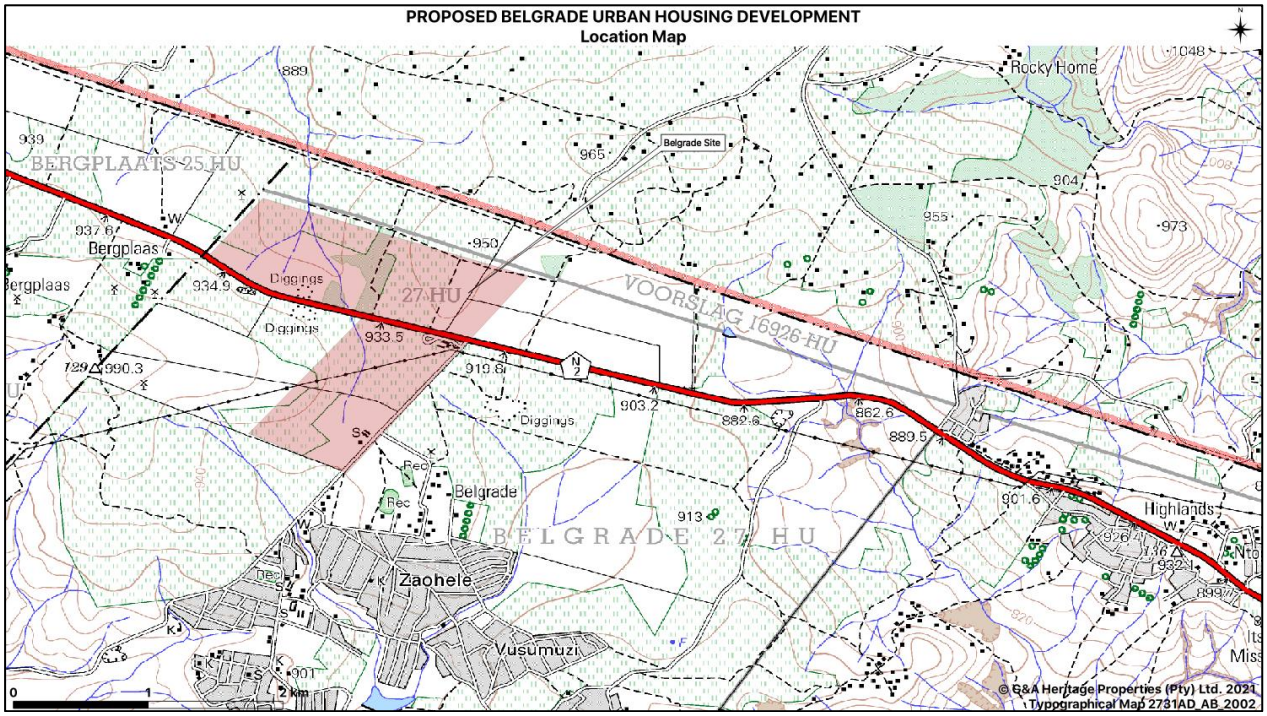

Figure 1. Proposed Belgrade Urban Housing Development Location Map

1.3 Technical Scope of HIA

This HIA focused only on the areas to be directly affected by the proposed development and is meant to deliver, evaluate and inform on the following aspects:

(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 the relevant legal descriptions, development proponent requirements and as per international best practise approaches and charters;
(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 following categories of heritage objects are considered.

Graves: Places of interment including the contents, headstone or other marker of and any other structures on or associated with such place. This may include any of the following:

1) Ancestral graves,
2) Royal graves and graves of traditional leaders
3) Graves of victims of conflict i.e. graves of important individuals
4) Historical graves and cemeteries older than 60 years
5) Other human remains, buried or otherwise.

The removal of graves is subject to the following procedures:

- Notification of the impending removals (using local language media and notices at the grave site);
- Consultation with individuals or communities related or known to the deceased;
- Satisfactory arrangements for the curation of human remains and / or headstones in a museum, where applicable;
- Procurement of a permit from the relevant controlling body;
- Appropriate arrangements for the exhumation (preferably by a suitably trained archaeologist) and re-interment (sometimes by a registered undertaker, in a formally proclaimed cemetery);
- Observation of rituals or ceremonies required by the families.

Movable objects: This includes objects such as historic or rare books and manuscripts, paintings, drawings, sculptures, statuettes and carvings; modern or historic religious items; historic costumes, jewellery and textiles; fragments of monuments or historic buildings; archaeological material; and natural history collections such as shells, flora, or minerals. Discoveries and access resulting from a project may increase the vulnerability of cultural objects to theft, trafficking or abuse. This may include any of the following:

1) Objects recovered from the soil or water including archaeological and paleontological objects and material, meteorites and rare geological specimens;
2) Ethnographic art and objects
3) Military objects
4) Objects of decorative art
5) Objects of fine art
6) Objects of scientific or technological interest
7) Books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings
8) Any other prescribed categories, but excluding any object made by a living person.

Protection of Historic Battlefields

Heritage "Places": A 'place' is defined as:

a) A site, area or region;
b) A building or other structure (which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure);
c) A group of buildings or other structures (which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures); and
d) An open space, including a public square, street or park; and in relation to the management of a place, includes the immediate surroundings of a place.
e) Traditional Buildings used in cultural ceremonies.

Heritage Structures: Refers to single or groups of architectural works found in urban or rural settings providing evidence of a particular civilisation, a significant development or a historic event. It includes groups

of buildings, structures and open spaces constituting past or contemporary human settlements that are recognised as cohesive and valuable from an architectural, aesthetic, spiritual or socio-cultural perspective. This may also include any building, works, device, or other facility made by people and which is fixed to land and any fixtures, fittings and equipment associated therewith older than 60 years.

Archaeological Sites
Archaeological sites comprise any combination of structural remains, artefacts, human or ecological elements and may be located entirely beneath, partially above, or entirely above the land or water surface. Archaeological material may be found anywhere on the earth's surface, singly or scattered over large areas. Such material includes burial areas, human remains, artefacts and fossils. Archaeological sites may include:

a) Material remains resulting from human activity which are in a state of disuse and are in or on land and are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
b) Rock art, being a form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and is older than 100 years including any area within 10 m of such representation; and
c) Wrecks, being any vessel or aircraft, or any part thereof, which was wrecked, whether on land or in the maritime cultural zone, and any cargo, debris or artefacts found or associated therewith, which are older than 60 years or which in terms of national legislation are considered to be worthy of conservation;
d) Features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found.

Paleontological resources: Refers to 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.

Sacred or Spiritual Sites: Refers to natural features with cultural significance, which may include sacred hills, mountains, landscapes, streams, rivers, waterfalls, caves and rocks; sacred trees or plants, groves and forests; carvings or paintings on exposed rock faces or in caves; and paleontological deposits of early human, animal or fossilised remains. This heritage may have significance to local community groups or minority populations.

1.4 Geographical / Spatial Scope of HIA

The geographic and spatial scope of the HIA centres on the proposed Belgrade urban housing development on the Farm Belgrade 27 HU in the uPhongolo Local Municipality, Zululand District of the KwaZulu-Natal Province.

Any sites within the directly impacted study areas that can be affected by the proposed development and, where known, are included in this report. Mitigation or secondary investigations take this footprint as the spatial parameters of the study area.

1.5 GPS Track Path

The following image shows a plotting of the GPS track paths recorded during the fieldwork. Several files were combined, and this does not represent a single uninterrupted recording. GPX Files are available.

Figure 2. GPS Trackpath

1.5 Temporal Scope

The proposed project will consist of three phases;

1) Planning
2) Development
3) Operational

Due to the nature of the proposed development, impacts on heritage sites are only anticipated during the development phase of the proposed project. The operational phase will not result in any further alterations to heritage on any significant scale.

2. Legislative Context

2.1 National Legislation

Section 38(1) of the South African Heritage Resources Act (25 of 1999) requires that a heritage study is undertaken for:

(a) Construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
(b) Construction of a bridge or similar structure exceeding 50 m in length; and
(c) Any development, or other activity which will change the character of an area of land, or water –
(1) Exceeding 10 000 m^2 in extent;
(2) Involving three or more existing erven or subdivisions thereof; or
(3) Involving three or more erven, or subdivisions thereof, which have been consolidated within the past five years; or
(d) The costs of which will exceed a sum set in terms of regulations; or
(e) Any other category of development provided for in regulations.

While the above describes the parameters of developments that fall under this Act., Section 38 (8) of the NHRA is applicable to this development. This section states that;

(8) *The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (Act 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environment Affairs and Tourism, or the Minerals Act, 1991 (Act 50 of 1991), or any other legislation: Provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent.*

In regard to a development such as this that falls under Section 38 (8) of the NHRA, the requirements of Section 38 (3) applies to the subsequent reporting, stating that;

(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.
1) Ancestral graves,
2) Royal graves and graves of traditional leaders,
3) Graves of victims of conflict (iv) graves of important individuals,
4) Historical graves and cemeteries older than 60 years, and
5) Other human remains which are not covered under the Human Tissues Act, 1983 (Act No.65 of 1983 as amended);

h) Movable objects, including;
1) Objects recovered from the soil or waters of South Africa including archaeological and paleontological objects and material, meteorites and rare geological specimens;

2) Ethnographic art and objects;
3) Military objects;
4) Objects of decorative art;
5) Objects of fine art;
6) Objects of scientific or technological interest;
7) Books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings; and
8) Any other prescribed categories, but excluding any object made by a living person;

i) Battlefields;
j) Traditional building techniques.

A '**place**' is defined as:

a) A site, area or region;
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c) A group of buildings or other structures (which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures); and (d) an open space, including a public square, street or park; and in relation to the management of a place, includes the immediate surroundings of a place.

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'Grave' means a place of interment and includes the contents, headstone or other marker of and any other structures on or associated with such place. The South African Heritage Resources Agency (SAHRA) will only issue a permit for the alteration of a grave if it is satisfied that every reasonable effort has been made to contact and obtain permission from the families concerned.

The removal of graves is subject to the following procedures as outlined by the SAHRA:

- Notification of the impending removals (using English, Afrikaans and local language media and notices at the grave site);
- Consultation with individuals or communities related or known to the deceased;
- Satisfactory arrangements for the curation of human remains and / or headstones in a museum, where applicable;
- Procurement of a permit from the SAHRA;
- Appropriate arrangements for the exhumation (preferably by a suitably trained archaeologist) and re-interment (sometimes by a registered undertaker, in a formally proclaimed cemetery);
- Observation of rituals or ceremonies required by the families.

The limitations and assumptions associated with this heritage impact assessment are as follows;

- Field investigations were performed on foot and by vehicle where access was readily available.
- Sites were evaluated by means of description of the cultural landscape, direct observations and analysis of written sources and available databases.
- It was assumed that the site layout as provided by Zamokuhle Development Consultants is accurate.
- We assumed that the public participation process performed as part of the Basic Assessment process was sufficiently encompassing not to be repeated in the Heritage Assessment Phase.

Table 1. Impacts on the NHRA Sections

Act	Section	Description	Possible Impact	Action
National Heritage Resources Act (NHRA)	34	Preservation of buildings older than 60 years	No impact	None
	35	Archaeological, paleontological and meteor sites	No impact	None
	36	Graves and burial sites	Yes	Recommended Relocation of the Graves
	37	Protection of public monuments	No impact	None
	38	Does activity trigger a HIA?	Yes	HIA

Table 2. NHRA Triggers

Action Trigger	Yes/No	Description
Construction of a road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length.	No	N/A
Construction of a bridge or similar structure exceeding 50m in length.	No	N/A
Development exceeding 5000 m^2	Yes	Proposed Belgrade Urban Housing Development
Development involving more than 3 erven or sub divisions	No	N/A
Development involving more than 3 erven or sub divisions that have been consolidated in the past 5 years	No	N/A
Re-zoning of site exceeding 10 000 m^2	No	N/A
Any other development category, public open space, squares, parks or recreational grounds	No	N/A

3. Methodology

3.1 Heritage Management

This study defines the heritage component of the EIA process being undertaken for the proposed Belgrade urban housing development, located on the Farm Belgrade 27 HU in the uPhongolo Local Municipality, Zululand District of the KwaZulu-Natal Province.

It is described as a first phase (HIA). This report attempts to evaluate both the accumulated heritage knowledge of the area and information derived from direct physical observations.

3.2 Inventory

Inventory studies involve the in-field survey and recording of archaeological resources within a proposed development area. The nature and scope of this type of study is defined primarily by the results of the overview study. In the case of site-specific developments, direct implementation of an inventory study may preclude the need for an overview.

There are a number of different methodological approaches to conducting inventory studies. Therefore, the proponent, in collaboration with the archaeological consultant, must develop an inventory plan for review and approval by the SAHRA prior to implementation (*Dincause, Dena F., H. Martin Wobst, Robert J. Hasenstab and David M. Lacy 1984)*.

3.3 Evaluating Heritage Impacts

A combination of document research as well as the determination of the geographic suitability of areas and the evaluation of aerial photographs determined which areas could and should be accessed.

After plotting of the site on a GPS the areas were accessed using suitable combinations of vehicle access and access by foot.

Sites were documented by digital photography and geo-located with GPS readings using the WGS 84 datum. An aerial drone was used to evaluate the site from different heights and to improve coverage of the area.

Further techniques (where possible) included interviews with local inhabitants, visiting local museums and information centers and discussions with local experts. All this information was combined with information from an extensive literature study as well as the result of archival studies based on the SAHRA (South African Heritage Resource Agency) provincial databases.

This Heritage Impact Assessment relies on the analysis of written documents, maps, aerial photographs and other archival sources combined with the results of site investigations and interviews with effected people. Site investigations are not exhaustive and often focus on areas such as river confluence areas, elevated sites or occupational ruins.

The following documents were consulted in this study;

- South African National Archive Documents
- SAHRIS (South African Heritage Resources Information System) Database of Heritage Studies
- Historic Maps
- 1968, 1986 and 2002 Surveyor General Topographic Map series
- 1952 1:10 000 aerial photo survey
- Google Earth 2021 imagery
- Published articles and books
- JSTOR Article Archive

3.4 Site Visit / Fieldwork Details

Fieldwork for the HIA was done on the 16th of November 2021. Most of the areas were found to be accessible by foot, although thick sickle bush covers a large portion of the site. Vehicular access was impossible in most areas. Areas of possible significance were investigated on foot. The survey was tracked using GPS and a track file in GPX format is available on request.

Where sites were identified it was documented photographically and plotted using GPS with the WGS 84 datum point as reference. GPX files are available on request from G&A Heritage.

The study area was surveyed using standard archaeological surveying methods. The area was surveyed using directional parameters supplied by the GPS and surveyed by vehicle and on foot. This technique has proven to result in the maximum coverage of an area.

Standard archaeological documentation formats were employed in the description of sites. Using standard site documentation forms as comparable medium, it enabled the surveyors to evaluate the relative importance of sites found. Furthermore, GPS (Global Positioning System) readings of all finds and sites were taken. This information was then plotted using a ***Garmin Colorado*** GPS (WGS 84- datum).

Indicators such as surface finds, plant growth anomalies, local information and topography were used in identifying sites of possible archaeological importance. Test probes were done at intervals to determine sub-surface occurrence of archaeological material. The importance of sites was assessed by comparisons with published information as well as comparative collections.

Test excavation is that form of archaeological excavation where the purpose is to establish the nature and extent of archaeological deposits and features present in a location, which it is proposed to develop (though not normally to fully investigate those deposits or features) and allow an assessment to be made of the archaeological impact of the proposed development. It may also be referred to as archaeological testing' (DAHGI 1999a, 27).

'Test excavation should not be confused with, or referred to as, archaeological assessment which is the overall process of assessing the archaeological impact of development. Test excavation is one of the techniques in carrying out archaeological assessment which may also include, as appropriate, documentary research, field walking, examination of upstanding or visible features or structures, examination of aerial photographs, satellite or other remote sensing imagery, geophysical survey, and topographical assessment' (DAHGI 1999b, 18).

3.5 Assumptions

It was assumed that the impacted areas will be limited to the proposed development. It is furthermore assumed that the *PalaeoSensitivity* Map provided on the SAHRIS platform is comprehensive enough to inform on actions in this regard.

3.6 Gaps / Limitations / Uncertainty

Due to the intensive sickle bush cover in the study area, it was difficult to make surface observations of heritage deposits in some areas.

3.7 Specialist Specific Methodology

The scope of work includes:

- the identification and assessment of archaeological, cultural, historic and built sites within the study area.
- Archival study of existing data and information for the study area.
- Site inspection and fieldwork.
- This site work includes communicating with local inhabitants to confirm possible locations of heritage and cultural sites.

- Impact assessment has been performed according to the methodology as described in the relevant Impact Evaluation

This HIA Methodology assists in evaluating the overall effect of a proposed activity on the heritage environment. The determination of the effect of a heritage impact on a heritage parameter is determined through a systematic analysis of the various components of the impact. This is undertaken using information that is available to the heritage practitioner through the process of heritage impact assessment. The impact evaluation of predicted impacts was undertaken through an assessment of the significance of the impacts.

3.8 Visual Impact Assessment Methodology

Visual impacts of developments result when sites that are culturally celebrated are visually affected by a development. The exact parameters for the determination of visual impacts have not yet been rigidly defined and are still mostly open to interpretation. CNdV Architects and The Department of Environmental Affairs and Development Planning (2006) have developed some guidelines for the management of the visual impacts of wind turbines in the Western Cape, although these have not yet been formalised. In these guidelines they recommend a buffer zone of 1km around significant heritage sites to minimise the visual impact.

Due to the fact that the project will mainly involve sub-surface infrastructure it is not anticipated that any visual impacts will be encountered.

4. Findings

4.1 Built Environment

Some structures associated with rural living were identified;

- Dirt and tar roads
- Fences
- A shopping complex and driving school
- Langa Secondary School
- Power lines
- Residential dwellings
- Modern, cement ruins
- Anti-erosion gabions
- Footpaths

Mitigation

These structures are not historically significant.

Figure 3. Built Environment

Figure 4. Modern, cement ruins

Figure 5. Anti-erosion gabions

Figure 6. Anti-erosion gabions

Figure 7. Anti-erosion gabions

4.2 Cultural Landscape

The cultural landscape in the study area is strongly associated with urban and rural living previously cultivated fields and a eucalyptus plantation observed within the study area.

Figure 8. Northern section of the study area

Figure 9. Northern boundary of the sites is defined by concrete sleepers

Figure 10. Fences and previously cultivated fields observed within the study area

Figure 11. Fences and previously cultivated fields observed within the study area

Figure 12. Grassland and eucalyptus plantation

Figure 13. Eucalyptus plantation

4.3 Natural Landscape

The area is classified as mixed wetland and sponge with commercial plantations.

Landscape Type	Description	Occurrence still possible?	Likely occurrence?
1 Paleontological	Mostly fossil remains. Remains include microbial fossils such as found in Baberton Greenstones	No	No
2 Archaeological	Evidence of human occupation associated with the following phases – Early-, Middle-, Late Stone Age, Early-, Late Iron Age, Pre-Contact Sites, Post-Contact Sites	No	No
3 Historic Built Environment	- Historical townscapes/streetscapes - Historical structures; i.e. older than 60 years - Formal public spaces - Formally declared urban conservation areas - Places associated with social identity/displacement	No	No
4 Historic Farmland	These possess distinctive patterns of settlement and historical features such as: - Historical farm yards - Historical farm workers villages/settlements - Irrigation furrows - Tree alignments and groupings - Historical routes and pathways - Distinctive types of planting - Distinctive architecture of cultivation e.g. planting blocks, trellising, terracing, ornamental planting.	No	No
5 Historic rural town	- Historic mission settlements - Historic townscapes	No	No
6 Pristine natural landscape	- Historical patterns of access to a natural amenity	No	No

	- Formally proclaimed nature reserves - Evidence of pre-colonial occupation - Scenic resources, e.g. view corridors, viewing sites, visual edges, visual linkages - Historical structures/settlements older than 60 years - Pre-colonial or historical burial sites - Geological sites of cultural significance.		
7 Relic Landscape	- Past farming settlements - Past industrial sites - Places of isolation related to attitudes to medical treatment - Battle sites - Sites of displacement,	No	No
8 Burial grounds and grave sites	- Pre-colonial burials (marked or unmarked, known or unknown) - Historical graves (marked or unmarked, known or unknown) - Graves of victims of conflict - Human remains (older than 100 years) - Associated burial goods (older than 100 years) - Burial architecture (older than 60 years)	Yes	Identified on site
9 Associated Landscapes	- Sites associated with living heritage e.g. initiation sites, harvesting of natural resources for traditional medicinal purposes - Sites associated with displacement & contestation - Sites of political conflict/struggle - Sites associated with an historic event/person - Sites associated with public memory	No	No
10 Historical Farmyard	- Setting of the yard and its context - Composition of structures - Historical/architectural value of individual structures - Tree alignments - Views to and from - Axial relationships - System of enclosure, e.g. defining walls - Systems of water reticulation and irrigation, e.g. furrows - Sites associated with slavery and farm labour - Colonial period archaeology	No	No
11 Historic institutions	- Historical prisons - Hospital sites - Historical school/reformatory sites - Military bases	No	No
12 Scenic visual	- Scenic routes	No	No
13 Amenity landscape	- View sheds - View points - Views to and from - Gateway conditions - Distinctive representative landscape conditions - Scenic corridors	No	No

5. Measuring Impacts

In 2003 the SAHRA (South African Heritage Resources Agency) compiled the following guidelines to evaluate the cultural significance of individual heritage resources:

- **Type of Resource**
  - Place
  - Archaeological Site
  - Structure
  - Grave
  - Palaeontological Feature
  - Geological Feature

- **Type of Significance**

  - Historic Value
    - Important in the community, or pattern of history
    - Important in the evolution of cultural landscapes and settlement patterns
    - Important in exhibiting density, richness or diversity of cultural features illustrating the human occupation and evolution of the nation, province, region or locality.
    - Important for association with events, developments or cultural phases that have had a significant role in the human occupation and evolution of the nation, province, region or community.
    - Important as an example for technical, creative, design or artistic excellence, innovation or achievement in a particular period.
    - It has strong or special association with the life or work of a person, group or organisation of importance in history
    - Importance for close associations with individuals, groups or organisations whose life, works or activities have been significant within the history of the nation, province, region or community.
    - It has significance relating to the history of slavery
    - Importance for a direct link to the history of slavery in South Africa.

  - Aesthetic Value
    - It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group.
    - Important to a community for aesthetic characteristics held in high esteem or otherwise valued by the community.
    - Importance for its creative, design or artistic excellence, innovation or achievement.
    - Importance for its contribution to the aesthetic values of the setting demonstrated by a landmark quality or having impact on important vistas or otherwise contributing to the identified aesthetic qualities of the cultural environs or the natural landscape within which it is located.
    - In the case of an historic precinct, importance for the aesthetic character created by the individual components which collectively form a significant streetscape, townscape or cultural environment.

  - Scientific Value
    - It has potential to yield information that will contribute to an understanding of natural or cultural heritage
    - Importance for information contributing to a wider understanding of natural or cultural history by virtue of its use as a research site, teaching site, type locality, reference or benchmark site.
    - Importance for information contributing to a wider understanding of the origin of the universe or of the development of the earth.

- Importance for information contributing to a wider understanding of the origin of life; the development of plant or animal species, or the biological or cultural development of hominid or human species.
- Importance for its potential to yield information contributing to a wider understanding of the history of human occupation of the nation, Province, region or locality.
- It is important in demonstrating a high degree of creative or technical achievement at a particular period
- Importance for its technical innovation or achievement.

a) Does the site contain evidence, which may substantively enhance understanding of culture history, culture process, and other aspects of local and regional prehistory?

- internal stratification and depth
- chronologically sensitive cultural items
- materials for absolute dating
- association with ancient landforms
- quantity and variety of tool type
- distinct intra-site activity areas
- tool types indicative of specific socio-economic or religious activity
- cultural features such as burials, dwellings, hearths, etc.
- diagnostic faunal and floral remains
- exotic cultural items and materials
- uniqueness or representativeness of the site
- integrity of the site

b) Does the site contain evidence which may be used for experimentation aimed at improving archaeological methods and techniques?

- monitoring impacts from artificial or natural agents
- site preservation or conservation experiments
- data recovery experiments
- sampling experiments
- intra-site spatial analysis

c) Does the site contain evidence which can make important contributions to paleo environmental studies?

- topographical, geomorphological context
- depositional character
- diagnostic faunal, floral data

d) Does the site contain evidence which can contribute to other scientific disciplines such as hydrology, geomorphology, pedology, meteorology, zoology, botany, forensic medicine, and environmental hazards research, or to industry including forestry and commercial fisheries?

- Social Value / Public Significance
  - It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons
  - Importance as a place highly valued by a community or cultural group for reasons of social, cultural, religious, spiritual, symbolic, aesthetic or educational associations.
  - Importance in contributing to a community's sense of place.

a) Does the site have potential for public use in an interpretive, educational or recreational capacity?

- integrity of the site
- technical and economic feasibility of restoration and development for public use

- visibility of cultural features and their ability to be easily interpreted
- accessibility to the public
- opportunities for protection against vandalism
- representativeness and uniqueness of the site
- aesthetics of the local setting
- proximity to established recreation areas
- present and potential land use
- land ownership and administration
- legal and jurisdictional status
- local community attitude toward development

b) Does the site receive visitation or use by tourists, local residents or school groups?

- Ethnic Significance
  Does the site presently have traditional, social or religious importance to a particular group or community?
  - ethnographic or ethno-historic reference
  - documented local community recognition or, and concern for, the site

- Economic Significance
  What value of user-benefits may be placed on the site?
  - visitors' willingness-to-pay
  - visitors' travel costs

- Scientific Significance
  a) Does the site contain evidence, which may substantively enhance understanding of historic patterns of settlement and land use in a particular locality, regional or larger area?
  b) Does the site contain evidence, which can make important contributions to other scientific disciplines or industry?

- Historic Significance
  a) Is the site associated with the early exploration, settlement, land use, or other aspect of southern Africa's cultural development?
  b) Is the site associated with the life or activities of a particular historic figure, group, organization, or institution that has made a significant contribution to, or impact on, the community, province or nation?
  c) Is the site associated with a particular historic event whether cultural, economic, military, religious, social or political that has made a significant contribution to, or impact on, the community, province or nation?
  d) Is the site associated with a traditional recurring event in the history of the community, province, or nation, such as an annual celebration?

- Public Significance
  a) Does the site have potential for public use in an interpretive, educational or recreational capacity?
  - visibility and accessibility to the public
  - ability of the site to be easily interpreted
  - opportunities for protection against vandalism
  - economic and engineering feasibility of reconstruction, restoration and maintenance
  - representativeness and uniqueness of the site
  - proximity to established recreation areas
  - compatibility with surrounding zoning regulations or land use
  - land ownership and administration
  - local community attitude toward site preservation, development or destruction
  - present use of site

b) Does the site receive visitation or use by tourists, local residents or school groups?

- Other
  - Is the site a commonly acknowledged landmark?
  - Does, or could, the site contribute to a sense of continuity or identity either alone or in conjunction with similar sites in the vicinity?
  - Is the site a good typical example of an early structure or device commonly used for a specific purpose throughout an area or period of time?
  - Is the site representative of a particular architectural style or pattern?

For each predicted impact, criteria are described. These criteria include the **magnitude** (size or degree scale), which also includes the **type** of impact, being either a positive or negative impact; the **duration** (temporal scale); and the **extent** (spatial scale), as well as the **probability** (likelihood). The methodology is quantitative and generated through a spreadsheet but requires professional judgement in the application of the criteria.
When assessing impacts, broader considerations are also considered, these include the **confidence** with which the assessment was undertaken, the **reversibility** of the impact and the resource **irreplaceability**.

Calculations
(as applied in the excel spreadsheet 'Belgrade Urban Housing Development.xls') – Available on request.

For each predicted impact, certain criteria are applied to establish the likely **significance** of the impact, firstly in the case of no mitigation being applied and then with the most effective mitigation measure(s) in place.

These criteria include the **magnitude** *(*size or degree scale), which also includes the **type** of impact, being either a positive or negative impact; the **duration** (temporal scale); and the **extent** (spatial scale). These numerical ratings are used in an equation whereby the **consequence** of the impact can be calculated. Consequence is calculated as follows:

Consequence = type x (magnitude + duration + extent).

To calculate the significance of an impact, the **probability** (or likelihood) of that impact occurring is applied to the consequence.

Significance = consequence x probability

Depending on the numerical result, the impact would fall into a significance category as negligible, minor, moderate or major, and the type would be either positive or negative.

The following tables show the scales used to classify the above variables and define each of the rating categories.

5.1 Magnitude

The magnitude refers to the degree of alteration of the affected environmental receptor. The relevant descriptor for magnitude is selected by the user (refer to Table).

Table 3. Description of magnitude and assigned numerical values

Numerical Rating	Magnitude	
	Category	**Descriptors**
1	**Negligible**	Natural and/ or social functions and/ or processes are negligibly altered

2	**Very low**	Natural and/ or social functions and/ or processes are slightly altered
3	**Low**	Natural and/ or social functions and/ or processes are somewhat altered
4	**Moderate**	Natural and/ or social functions and/ or processes are moderately altered
5	**High**	Natural and/ or social functions and/ or processes are notably altered
6	**Very high**	Natural and/ or social functions and/ or processes are majorly altered
7	**Extremely high**	Natural and/ or social functions and/ or processes are severely altered

*NOTE: Where applicable, the magnitude of the impact is related to a relevant standard or threshold or is based on specialist knowledge and understanding of that particular field.

5.2 Duration

The duration refers to the length of permanence of the impact on the environmental receptor. The relevant descriptor for duration is selected by the user (refer to Table).

Table 4. Description of duration and assigned numerical values

Numerical Rating	Duration	
	Category	**Descriptors**
1	**Immediate**	Impact will self-remedy immediately
2	**Brief**	Impact will not last longer than 1 year
3	**Short term**	Impact will last between 1 and 5 years
4	**Medium term**	Impact will last between 5 and 10 years
5	**Long term**	Impact will last between 10 and 15 years
6	**On-going**	Impact will last between 15 and 20 years
7	**Permanent**	Impact may be permanent, or in excess of 20 years

5.3 Extent

The extent refers to the geographical scale of impact on the environmental receptor. The relevant descriptor for extent is selected by the user (refer to Table).

Table 5. Description of extent and assigned numerical values

Numerical Rating	Extent	
	Category	Descriptors
1	**Very limited**	Impacts very limited / felt in isolated areas of the study area
2	**Limited**	Impacts limited to specific parts of the study area
3	**Local**	Impacts felt mostly throughout the study area

4	**Municipal area**	Impacts felt outside the study area, at a municipal level
5	**Regional**	Impacts felt outside the study area, at a regional / provincial level
6	**National**	Impacts felt outside the study area, at a national level
7	**International**	Impacts felt outside the study area, at an international level

5.4 Probability

To calculate the significance of an impact, the probability (or likelihood) of that impact occurring is also taken into account. (Refer to Table).

Table 6. Definition of probability ratings

Numerical Rating	**Probability**	
	Category	**Descriptors**
1	**Highly unlikely / None**	Expected never to happen
2	**Rare / improbable**	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
3	**Unlikely**	Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur
4	**Probable**	Has occurred here or elsewhere and could therefore occur
5	**Likely**	The impact may occur
6	**Almost certain / Highly probable**	It is most likely that the impact will occur
7	**Certain / Definite**	There are sound scientific reasons to expect that the impact will definitely occur

5.5 Significance

These are auto-calculated in the spreadsheet as described above and includes the following categories in Table 11. This table is for illustration only.

Table 7. Application of significance ratings

Range		**Significance rating**
-147	-109	Major (-)
-108	-73	Moderate (-)
-72	-36	Minor (-)
-35	-1	Negligible (-)
0	0	Neutral
1	35	Negligible (+)
36	72	Minor (+)

73	108	Moderate (+)
109	147	Major (+)

The following, broader considerations will also be considered. These include the level of confidence in the assessment rating; the reversibility of the impact; and the irreplaceability of the resource as set out in Tables 12, 13 and 14 respectively.

Table 8. Definition of confidence ratings

Rating	Descriptor
Low	Judgement is based on intuition
Medium	Determination is based on common sense and general knowledge
High	Substantive supportive data exists to verify the assessment

Table 9. Definition of reversibility ratings

Rating	Descriptor
Low	The affected environment will not be able to recover from the impact - permanently modified
Medium	The affected environment will only recover from the impact with significant intervention
High	The affected environmental will be able to recover from the impact

Table 10. Definition of irreplaceability ratings

Rating	Descriptor
Low	The resource is not damaged irreparably or is not scarce
Medium	The resource is damaged irreparably but is represented elsewhere
High	The resource is irreparably damaged and is not represented elsewhere

5. Description of Affected Environment

5.1 Map of Key Features

Figure 14. Map of Key Features (Google Earth)

5.2 Documented Sites

The area was accessed by vehicle and investigated on foot. The areas have been mostly disturbed from green field condition and is strongly associated with urban and rural living with overgrazing and previously cultivated fields and an eucalyptus plantation observed within the study area.

A graveyard and informal church were observed on site.

5.2.1 Graveyard

A large informal cemetery that is still being used by the community. Although many of the older graves are barely visible it is estimated that the graveyard contains at least 100+ graves. Although the majority is indicated by stone dressings there are also several newer graves fashioned from concrete and granite.

GPS Coordinates: 27°15’40.18’’S 31°16’19.64’’E

Figure 15. Google Earth Location Map of the Graveyard

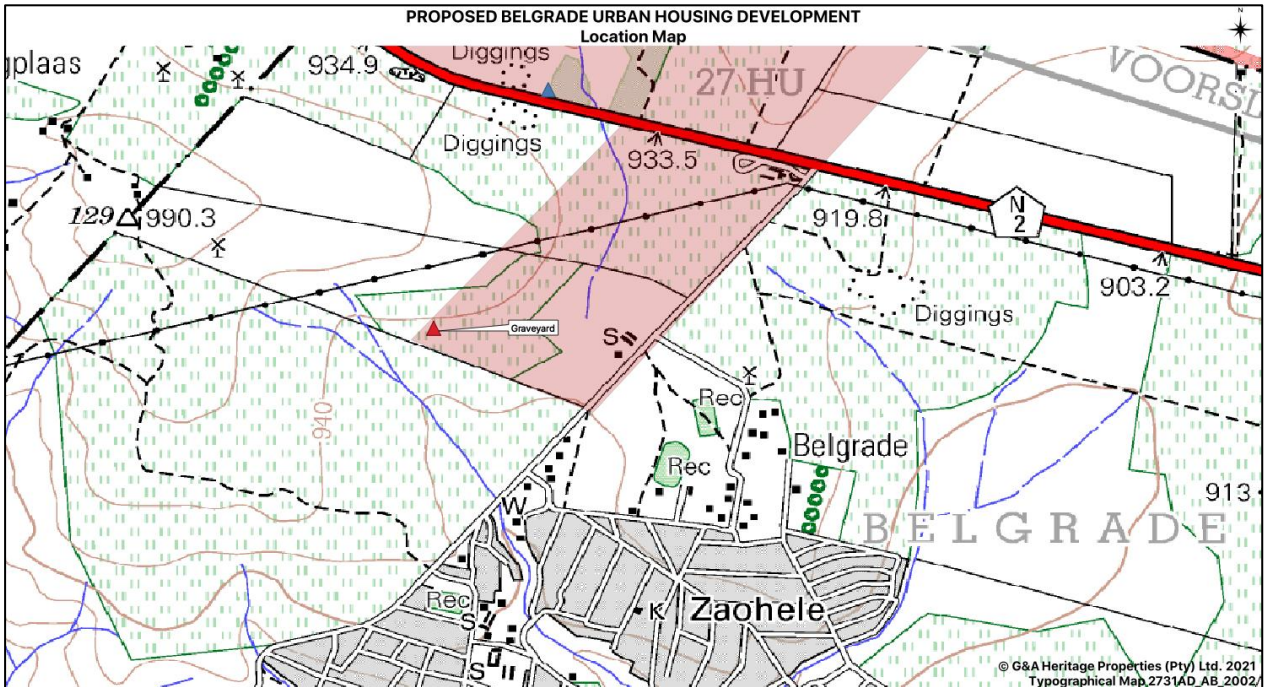

Figure 16. Typographical Map of the Graveyard

Figure 17. Graveyard

Figure 18. Graveyard

Figure 19. Graveyard

Figure 20. Graveyard

Figure 21. Graveyard

Figure 22. Graveyard

Figure 23. Graveyard

5.2.2 Informal Church

An open-air informal religious gathering area most likely associated with the local ZCC faction. It is indicated by white washed rocks set in a large circle of around 30m in diameter.

GPS Coordinates: 27°15’09.29’’S 31°16’34.49’’E

Figure 24. Google Earth Location Map of the Informal Church

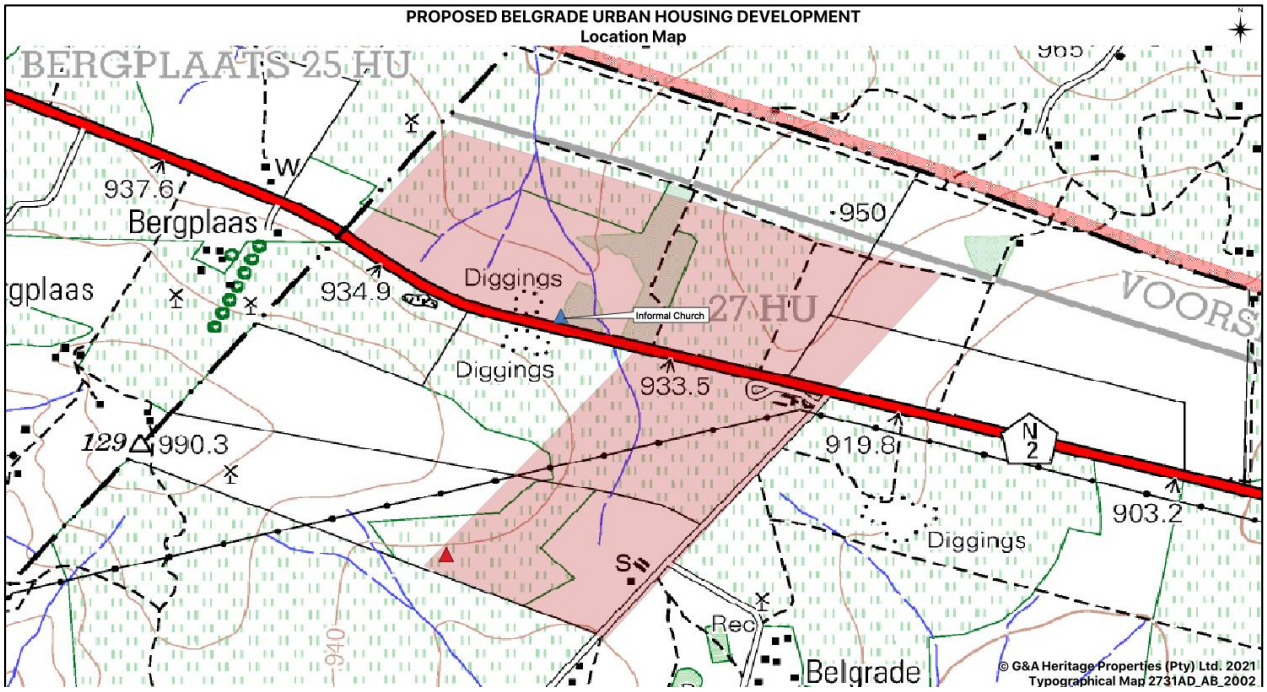

Figure 25. Typographical Map of the Informal Church

Figure 26. Informal Church

6. Baseline

Context Relevant to Project Location, Design, Operation, or Mitigation Decisions

The archaeology of KwaZulu-Natal spans three archaeological periods: the Stone Age, Iron Age and Historical / Colonial period. The early periods in the Stone Age archaeology of the region are recorded, amongst others, in Sibudu Cave on the coast of KZN, which shows evidence for early forms of cognitive human behavioural patterns in the Middle Stone Age of South African some 40 000 years BP (Wadley, 2005). The caves, plains, valleys and hills of KZN are known to once have been occupied by the San people. Evidence for this includes stone artefacts and an abundance of rock art, predominantly in the form of rock paintings in areas such as the Giant's Castle and Kamberg in the Drakensberg Mountains (Vinnicombe, 1976). Rock art sites have also been documented in the areas around Escourt, Mooi River and Dundee.

6.1 Palaeontology

The study area is designated as "Green" or "Moderate" in terms of its paleontological sensitivity. A Desktop Study will be submitted alongside the HIA.

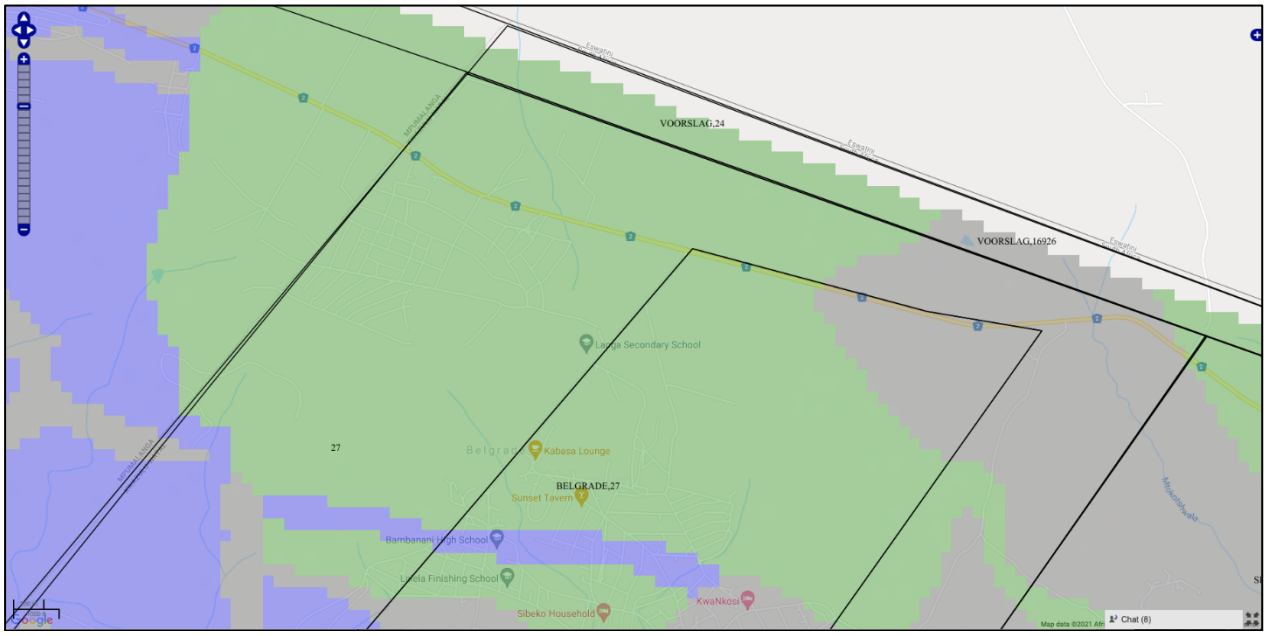

Figure 27. Paleo Sensitivity Map

Table 11. Palaeontological Sensitivity

Colour	Sensitivity	Action Required
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 area will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

6.2 Stone Age

This area is home to all three of the known phases of the Stone Age, namely the Early- (2.5 million to 250 000 years ago), Middle- (250 000 to 20 000 years ago) and Late Stone Age (22 000 to 200 years ago). The Late Stone Age in this also contains sites with rock art from the San and Khoekhoen cultural groups. Early to Middle Stone Age sites are uncommon in this area, however rock art sites and Late Stone Age sites are much better known.

During the Middle Stone Age, 200 000 years ago, modern man or Homo sapiens emerged, manufacturing a wider range of tools, with technologies more advanced than those from earlier periods. This enabled skilled hunter-gatherer bands to adapt to different environments. From this time onwards, rock shelters and caves were used for occupation and reoccupation over very long periods of time.

The Middle Stone Age (MSA), as defined by Goodwin and Van Riet Lowe (1929), was viewed as a switch in technology from core tools to flake tools, and was thought to represent an intermediate technology between the Earlier and Later Stone Age (LSA). Triangular flakes with convergent dorsal scars and faceted butts distinguished the MSA, and radial and discoidal types, along with single and double platform examples, dominated cores. The 'type fossil' was considered to be the worked flake point. Due to both the relatively long time span encompassed by the MSA (c. 250 000-20 000BP) and the high degree of regional variation, it has proved difficult to include all MSA assemblages within Goodwin and Van Riet Lowe's criteria. More recent attempts have been made to revise the definition of the MSA (Klein 1970; Beaumont & Vogel 1972; Volman1984) and to establish a cultural sequence but with limited success. As a result identifying and understanding the end of the MSA is still difficult. Disagreement concerning the MSA/LSA transition in southern Africa centres on four issues: 1) the definition of what constitutes final MSA technology; 2) the existence of a transitional MSA/LSAindustry; 3) the dating of the MSA/LSA transition; and 4) the existence of an Early LSA (ELSA) which represents a distinct industry that is not part of the earliest recognized LSA, the Robberg (Clark, 1997).

1985 excavation at Umhlatuzana rock shelter in Natal by Kaplan yielded a long and detailed sequence of stone artefacts, which covered the time range from the Middle Stone Age (MSA) to the Later Stone Age (LSA), including the MSA/LSA transition, and early LSA microlithic bladelet assemblages. The change from the MSA to the beginning of the LSA took place between 35 000 and 25 000 BP. Robberg-like assemblages recovered from Umhlatuzana are the first to be positively identified in Natal. Pre-dating 18 000 BP and post-dating 12 000 BP, they show that assemblages of this nature were produced earlier and later in Natal than elsewhere in the country. Changes in the Umhlatuzana stone artefact assemblages were not the result of the introduction from elsewhere of new types of tools, but took place locally, as the result of a single evolving cultural tradition in a trajectory of cultural and social change (Kaplan, 1986).

Recent research by Wadley on the Middle Stone Age of Sibudu Cave north of Durban indicated that distinctions between the Middle Stone Age and the Late Stone Age based on backed blades could be misleading (Wadley, 2005). Although research on MSA sites is limited, this research illustrates the potential value of investigating Stone Age sites in KZN closer.

The Late Stone Age, considered to have started some 20 000 years ago, is associated with the predecessors of the San and Khoi Khoi. Stone Age hunter-gatherers lived well into the 19th century in some places in SA. Stone Age sites may occur all over the area where an unknown number may have been obliterated by mining activities, urbanisation, industrialisation, agriculture and other development activities during the past decades.

A large representation of Rock-Art sites is located within this area. During 1981 Mazel completed a survey of the Drakensberg and Southern Natal and documented over 400 rock art sites with more than 20 000 paintings (Mazel, 1981). The occurrence of these sites is however subject to very specific environmental parameters, none of which are present in the study area.

6.3 Iron Age

During the third century AD, several groups of farming peoples from eastern and south central Africa began to settle along the east coast and river valleys that drain into the Indian Ocean (Maggs 1984a, 1989; Mitchell

2002). In eastern South Africa, these early farmers display a strong preference for settling a savannah environment along major water bodies where annual precipitation from 400 to over 1000mm provided adequate moisture for grain production. Over thirty EIA identified settlements in the Thukela Basin are clustered on discontinuous patches of rich colluvial soils within a short distance of the edge of the Thukela River or its tributaries. EIA settlements were initially established in the coastal forest in the fifth century AD and later in the savannah woodland belt alongside rivers in the (seventh century AD). The opening of riverine forest and woodlands by EIA farmers is apparent from the palaeobotanical record, current vegetation distribution (Hall 1981) and settlement distribution in the Thukela Basin. All documented sites are found within 100m of the relic canopy fringe (van Schalkwyk 1992).

EIA sites averaging 7 hectares in size are consistently located on the most productive nodes of soils confined to confluences and colluvial slip-off slopes along the major drainage courses, which comprise only about 9 per cent of the landscape (Maggs 1980: 7).

"*Interpretations of the internal spatial organization of EIA sites in southern Africa are complicated by the relatively long use and frequent reoccupation of sites, often over several hundred years (Maggs 1984b, 1989). These reoccupations of the same places have created a palimpsest of flat, expansive settlements, with both superimposed and laterally displaced stratigraphy (Greenfield et al. 2000). Despite this situation, several large-scale horizontal excavations of settlements in the region have demonstrated a spatial layout of features that are similar to homestead spatial organization derived from nineteenth- and twentieth-century Nguni and Sotho-Tswana ethnography (Kuper 1982), called the Central Cattle Pattern (CCP). This pattern is characterized by domestic residences of the senior man's wives placed in ranked order in an arc or circle around a central area containing livestock pens, the burials of high-status individuals and a court or assembly area where men gather to discuss political matters (Huffman 2001). Archaeologically, a similar pattern is represented by a series of domestic complexes (hut floors, grain bins or pits, ash and other refuse middens) surrounding a series of non-domestic activity areas, including livestock enclosures and specialist activity areas separated by an open space devoid of cultural materials. There is some variation in the size of the open space. At Broederstroom in north-eastern South Africa, the distance between hut floors and a livestock enclosure was as little as 10m (Huffman 1993). At KwaGandaganda in the Mngeni valley in KwaZulu-Natal, the open space was 90m across (Whitelaw 1994), and at Ndondondwane this open space was 60-100m*" (Greenfield and van Schalkwyk 2003) (Huskel J, Greenfield, Kent, D, Fowler, & Leonard O, van Schalkwyk, 2005).

As well, faunal evidence suggests that certain species, such as nyala antelope, were forced to shift the range of their habitat after the woodland was opened (Maggs 1995:175). A considerable number of Late Iron Age, stone walled sites, dating from the 18th and the 19th centuries (some of which may have been occupied as early as the 16th century), occur along and on top of the rocky ridges here These settlements and features in these sites, such as huts, were built with dry stone, reed and clay.

Stone walled settlements are concentrated in clusters of sites and sometimes are dispersed over large areas making them vulnerable to developments of various kinds. A site consists of a circular or elliptical outer wall that is composed of a number of scalloped walls facing inwards towards one or more enclosures. Whilst the outer scalloped walls served as dwelling quarters for various family groups, cattle, sheep and goat were stock in the centrally located enclosures. Huts with clay walls and floors were built inside the dwelling units. Pottery and metal items are common on the sites. However, iron and copper were not produced locally on these sites.

Many of the Iron Age sites are also associated with Zulu encampments. Due to the often semi-nomadic nature of these and the use of removable huts, these sites are often difficult to identify and short term occupational sites might only manifest in some stone circles, use to anchor these structures to the ground.

6.4 Historic Era

KwaZulu-Natal is an amalgamation of the 'homeland' territory of KwaZulu (literally 'home of the Zulus') and the province of Natal. The latter was named after the Christmas Day 1497 sighting of the coast by the great Portuguese explorer and navigator, Vasco da Gama. At that time the territory was occupied by clans of the Nguni tribe who had migrated south from central Africa over the previous few centuries.

British settlers first arrived at Port Natal (Durban) in 1824 when Shaka, King of the Zulu was firmly in charge of the hinterland. Later, the Zulu King, Dingane, at first offered the Boers land but went back on his word killing their leader, Piet Retief. Revenge came on 16th December, 1838, when a vastly outnumbered contingent of Boers defeated the Zulus at the Battle of Blood River. A Republic of Natalia was declared the following year but was annexed by Britain in 1843.

The Pongola Reserve was proclaimed as the first wildlife reserve in Africa on the 2nd of August 1889. In 1894 H.F. van Oord was appointed as the first Game Ranger of the Reserve and thus the first in Africa. In 1902 Lord Milner reproclaimed the Ponogla and Sabie Reserves, although the South African War had decimated the dame in Pongola inparticular. Col. James Stevenson Hamilton was appointed ans later transferred to the Sabie Reserve. Pongola was de-proclaimed in 1921.
(Camp, 2012)

http://www.pongolagamereserve.co.za/history

Sources:
- Ashe, Major & Wyatt-Edgell, Capt E V. *The Zulu Campaign*, (1880).
- Barthorp, Michael. *The Zulu War: A pictorial history*, (Poole 1980).
- Clammer, David. *The Zulu War* (St Martin's Press, 1973).
- Clarke, Sonia. *Zululand at War: 1879: The conduct of the Anglo-Zulu War.*
- Camp, T.A.S., 2012. *The conservation history of the former Eastern Transvaal region.*

6.5 Archival Research

Three main sources of information regarding the heritage sensitivity of this area could be identified. These were;
- Scientific publications on heritage related research in the area
- Previous heritage studies in the area as per the SAHRIS database
- Historic maps and figures as available in the National Archive

Scientific publications
Several publications on heritage related work in this area could be sourced. These include, but are not limited to;
- Maggs, T. (1980). The Iron Age Sequence South of the Vaal and Pongola Rivers: some Historical Implications. The Journal of African History, 21(01), 1.
- Huffman, T. N. (1982). Archaeology and Ethnohistory of the African Iron Age. Annual Review of Anthropology, 11(1), 133–150.
- The archaeology of the Nguni past byThomas N. Huffman. Southern African Humanities Vol. 16 Pages 79–111 Pietermaritzburg December, 2004.
- Fowler, K. D., Fayek, M., & Middleton, E. (2011). Clay acquisition and processing strategies during the first millennium A.D. in the Thukela River basin, South Africa: An ethnoarchaeological approach. Geoarchaeology, 26(5), 762–785.
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- Davies, O. (1951). Notes from Natal. The South African Archaeological Bulletin, 6(24), 112.
- Voigt, E. A. (1986). Iron Age Herding: Archaeological and Ethnoarchaeological Approaches to Pastoral Problems. Goodwin Series, 5, 13.
- Williams, D. P., Watson, A., & Goudie, A. S. (1982). Quaternary Colluvial Stratigraphy, Archaeological Sequences and Palaeoenvironment in Swaziland, Southern Africa. The Geographical Journal, 148(1), 50.

6.6 SAHRIS Database Studies

An extensive search into the SAHRIS database resulted in the identification of the following heritage related studies that have been performed over the last decade in the study area. Only studies within a radius of 50km from the study area were considered.

- Fourie, W. 2013. Pongola-Candover 132kV power line, upgrades to the Pongola Substation and Candover switching station, development of the Golela 132/22kV substation DBAR2.
- Van Der Walt, J. 2014. AIA for the Proposed Construction of the 2.5MW Pongola Solar Energy Facility near Ponogla, Kwazulu Natal.
- Anderson, G. 2004. Archaeological Survey of the Proposed Route for the Pongola-Vergenoeg Transmission Line.
- Millsteed, B. 2014. Desktop Palaeontological Heritage Impact Assessment Report on the site of a Proposed Solar Power Production Facility known as the Pongola Solar Energy Facility to be located on Portion 260 of the Farm Pongola 61, Kwazulu Natal Province.
- Prins, F. 2015. Heritage Impact Assessment of the Proposed Construction of Phongola (Mboza) River Bridge, Umhlabuyalingana Local Municipality, KwaZulu-Natal.
- Anderson, G. 2017. Heritage Survey of the Proposed N2 Upgrade Between Pongola and Mpumalanga Border.
- Anderson, G. 2009. Archaeological Survey of the Proposed Somopho Vodacom Tower, Pongola, KwaZulu-Natal.
- Anderson, G. 2009. Comment for a Heritage Survey of the Proposed Borrow Pits 4A and 4B, Pongola.
- Anderson, G. 2007. Archaeological Survey of the Proposed Itshelejuba Vodacom Tower, Pongola, KwaZulu-Natal.
- Prins, F. 2018. Phase One Heritage Impact Assessment of the Proposed Upgrade of the National Route 2, Sections 30, 31 and 32, from Kangela (N2.30 KM 14) to Pongola (N2/32 KM29.4)
- Gaigher, S. 2018. Heritage Impact Assessment for the Proposed Upgrade of the Dingukwazi High School, near Pongola town at Kwalubisi area in the uPhongolo Local Municipality, Zululand District of the KwaZulu-Natal Province.

Relevance of Listed Heritage Studies for the Study Area

Of specific value for this project is the 2007 report from Gavin Anderson – Archaeological Survey of the Proposed Itshelejuba Vodacom Tower, Pongola, KwaZulu-Natal. This study area is geographically the closest to the current area under investigation and several grave sites were recorded in the report.

- *2731AB 003 (Natal Museum site record). This site consists of three human graves. The upper grave (27°17'4.71''S 31°20'57.61''E) is near the crest of the hill and just southwest of the trigonometric beacon (that no longer exists). The grave is the largest of the three graves. The other two graves occur 46m southwest of the upper grave (27°17'5.97''S 31°20'56.45''E and 27°17'5.90''S 31°20'56.42''E). These two graves are of an adult and juvenile, with the juvenile occurring further down slope. One of the graves has several 5 cent coins placed in a niche amongst the gravestones. Th coins date from 1986 to the more recent 5 cent coin. These coins have been placed as part is an offering to the ancestral spirit. This also indicates that the graves are still revered and that living descendants exist.*

Figure 28. Location of the three graves (2731AB 003). 2007, G. Anderson

However, these graves will not be affected by the area investigated for the proposed Belgrade housing development. No other sites of heritage significance were recorded in the report.

The second report with a high relevance is the 2013 report by Wouter Fourie – Pongola-Candover 132kV power line, upgrades to the Pongola Substation and Candover switching station, development of the Golela 132/22 kV substation. Even though the starting point of the area under investigation is located approximately 35km southeast of the proposed Belgrade urban housing development (thus no sites identified in the report will be affected by the proposed development), Fourie's report describes other significant archaeological sites in the vicinity, ie. Border Cave and Magudu Hills as well as a detailed historical study of the area.

6.7 Historical Typographical Maps

Especially during the evaluation of historic structures, the use of archived historic maps is very handy. They give a direct chronological reference for such sites and lead the investigation on the ground.

The following historic map sets are relevant for this study (in chronological order);

- 2731AB_AD_1968
- 2731AB_AD_1986

- 2731AB_AD_2002

The historic maps show no heritage significant site indicators within the study area.

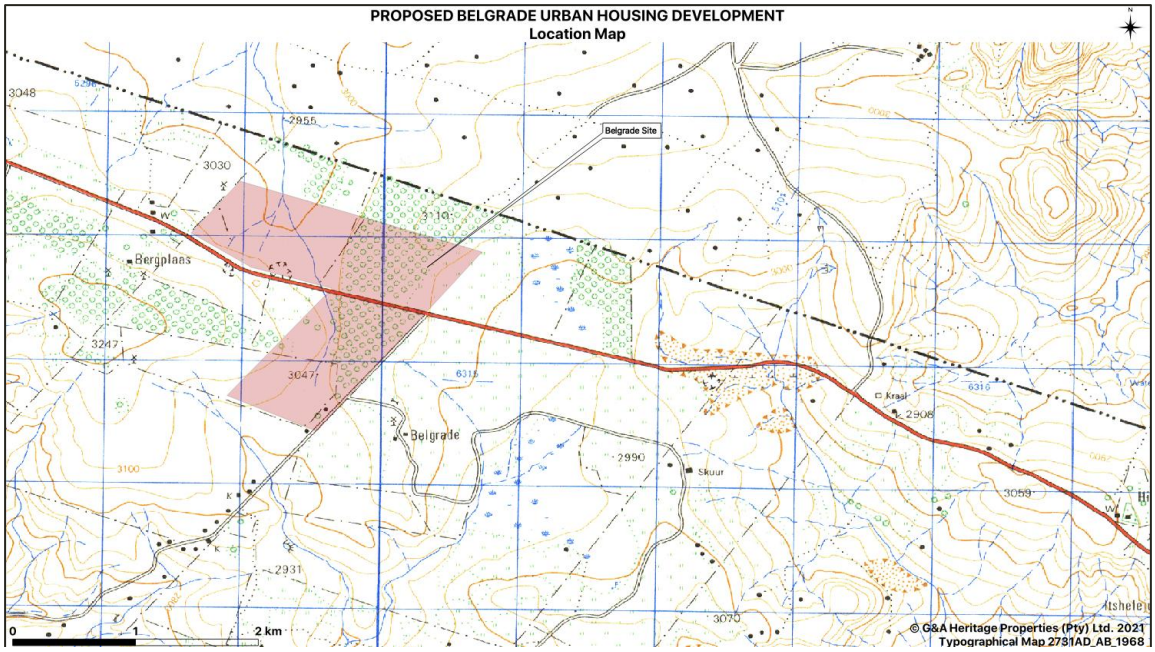


Figure 29. 2731AB_AD_1968 Topographic Map

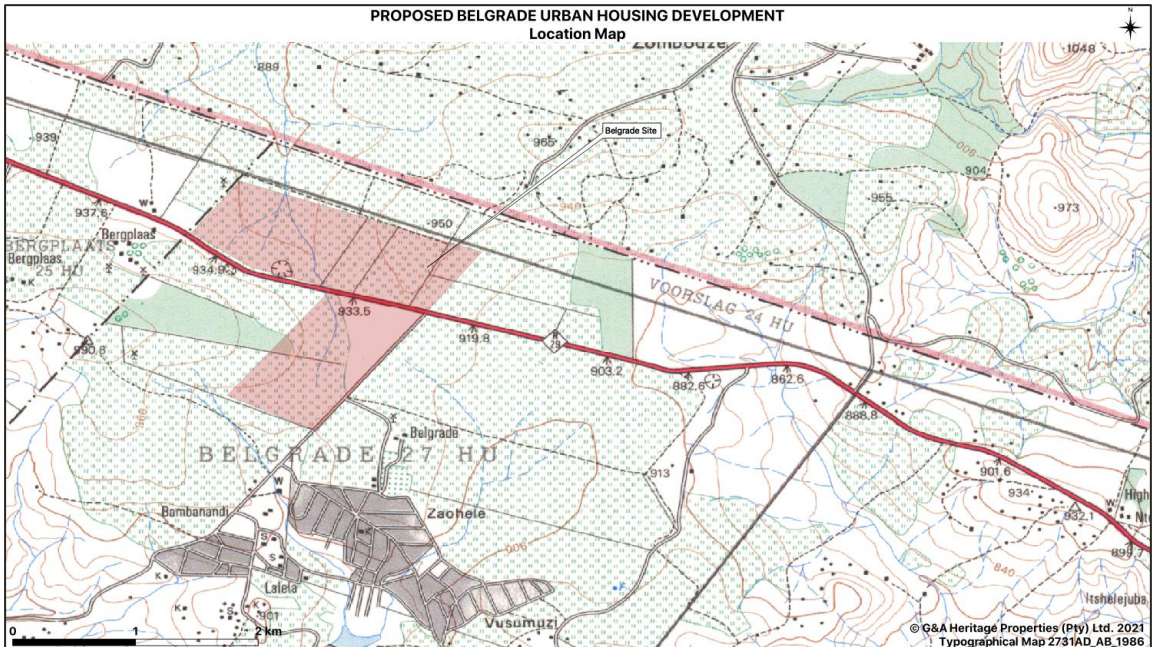


Figure 30. 2731AB_AD_1986 Topographic Map

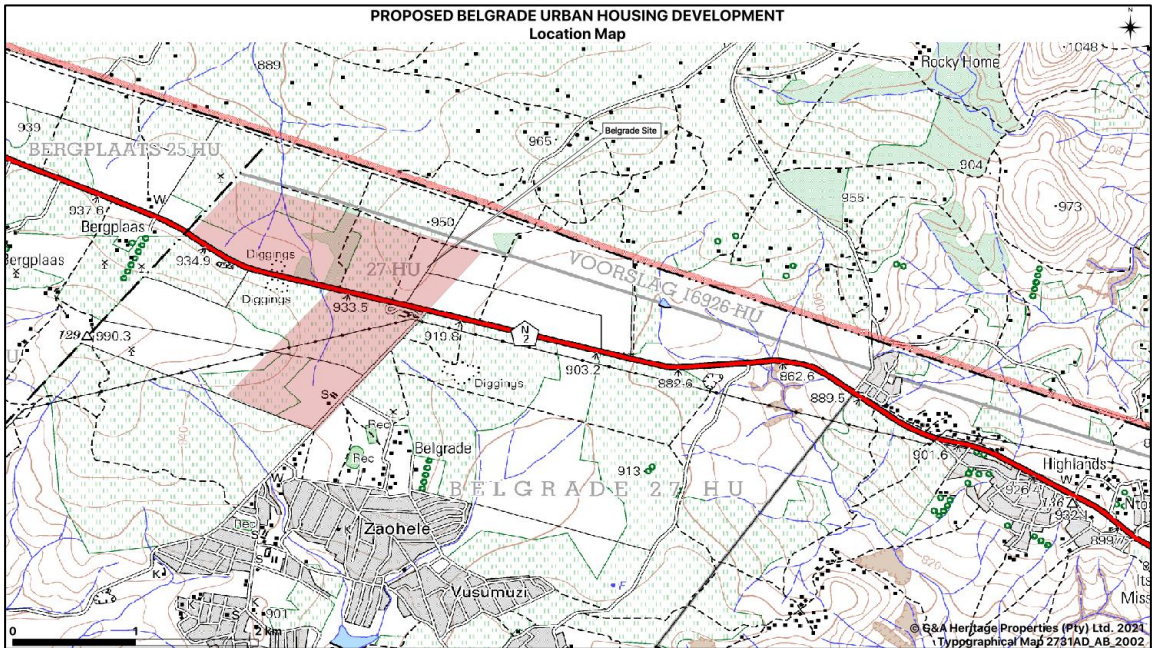


Figure 31. 2731AB_AD_2002 Topographic Map

7. Potential Heritage Impacts and Proposed Mitigation

Heritage Impact Assessment

7.1 Introduction and scope

This component will evaluate the potential impact that the proposed development could have on heritage sites and objects of community, cultural or scientific value. This includes archaeological, cultural heritage, built heritage and basic paleontological assessments to determine the impacts on heritage resources within the study area.
The scope of work includes:

- Identification and assessment of archaeological, cultural, historic, built and paleontological sites within the study area
- Archival study of existing data and information for the study area
- Site inspection and fieldwork: 29 September 2021. This site work includes communicating with local inhabitants to confirm possible locations of heritage and cultural sites.
- Compilation of a Heritage Impact Assessment (HIA) Report.

7.2 Impact Assessment and Proposed Mitigation

Ref:	1			
Project phase	**Construction**			
Impact	**Damage to Grave and Burial Sites**			
Description of impact	**Construction and site prepapration will physically damage burial and grave sites.**			
Mitigatability	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	**Exhumation and relocation of the identified grave sites**			
Assessment	**Without mitigation**		**With mitigation**	
Nature	Negative		Negative	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Brief	Impact will not last longer than 1 year
Extent	Regional	Impacts felt outside the study area, at a regional / provincial level	Limited	Impacts limited to specific parts of the study area
Magnitude	Very high	Natural and/ or social functions and/ or processes are majorly altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Certain / definite	There are sound scientific reasons to expect that the impact will definitely occur	Certain / definite	There are sound scientific reasons to expect that the impact will definitely occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Low	The affected environment will not be able to recover from the impact - permanently modified	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	High	The resource is irreparably damaged and is not represented elsewhere	Low	The resource is not damaged irreparably or is not scarce
Significance	**Major - negative**		**Minor - negative**	
Comment on significance	Burial sites have significant cultural value within the local ethnic culture. It is important the the relocation process takes thisinto account.			
Cumulative impacts	Extensive agricultural and mining activities in the area could compound this effect.			

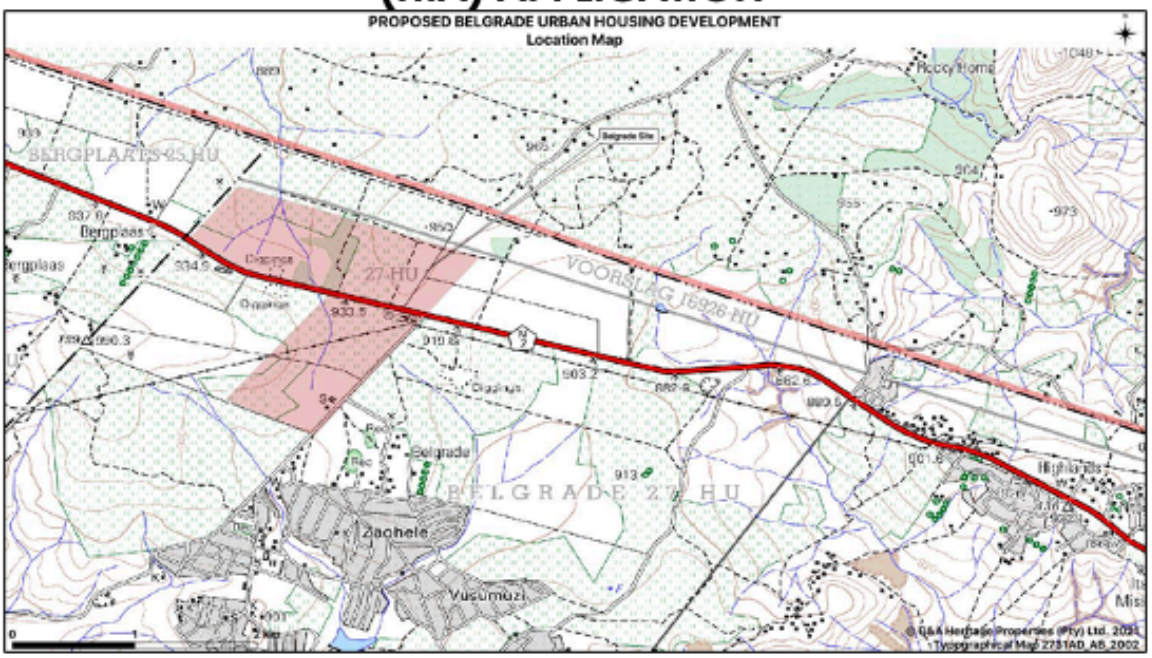
8. Public Participation

Public participation will be included in the larger environmental study stakeholder engagement process. Posters to this effect was placed on site in visible areas.

Figure 32. Site Signage

Figure 33. Site Signage

NOTICE OF PHASE 1 HERITAGE IMPACT ASSESSMENT (HIA) APPLICATION



Notice is hereby given that an application for a Phase 1 Heritage Impact Assessment (HIA) in terms of Section 38 of the National Heritage Resources Act (Act 25 of 1999) will be lodged with the Provincial Heritage Resources Authority of the KwaZulu-Natal – AMAFA.

Project Name: Proposed Belgrade Urban Housing Development

Proponent: Zamokuhle Development Consultants

Location: The proposed development is situated on the border between KwaZulu-Natal and Mpumalanga Provinces and approximately 500m south of the South Africa – Swaziland border. The National Route, N2, passes through the study area.

Project & Property Description: Zamokuhle Development Consultants proposes the urban housing development: Belgrade. Located on the farm Belgrade 27 HU, in the uPhongolo Local Municipality, Zululand District of the KwaZulu-Natal Province.

Date of Notice: 16 November 2021

The comment period for the Phase 1 Heritage Impact Assessment (HIA) is 30 Days.

Queries regarding this matter should be referred to:

G&A Heritage Properties (Pty) Ltd.
Public Participation Registration and Enquiries
P.O. Box 522
Louis Trichardt
0920
STEPHAN GAIGHER
C: 073 752 6583
E: stephan@gaheritage.co.za
www.gaheritage.co.za

Figure 34. Site Signage

9. Conclusions and Recommendations

The site for the proposed Belgrade urban housing development, located on the Farm Belgrade 27 HU in the uPhongolo Local Municipality, Zululand District of the KwaZulu-Natal Province was investigated during a field visit and through archival studies.

A graveyard was observed within the study area. It is recommended that a permit be obtained, and the graves be relocated to a Municipal Cemetery to avoid damage.

An informal church is located within the study area.

The rest of the study area was found to be devoid of any heritage sites with significance and severely altered from the natural landscape. It is recommended that obscured, subterranean sites be managed, if they are encountered.

Provided the recommendations in this report is followed there is no reason, from a heritage point of view, why this development cannot continue.

10. Chance Finds Protocol

It is important to note that, although unlikely, sub-surface remains of heritage sites could still be encountered during construction of the project. Such sites would offer no surface indication of their presence due to the high state of alterations in some areas as well as heavy vegetation cover in other areas. The following indicators of unmarked sub-surface sites could be encountered:

- Ash deposits (unnaturally grey appearance of soil compared to the surrounding substrate);
- Bone concentrations, either animal or human;
- Ceramic fragments such as pottery shards either historic or pre-contact;
- Stone concentrations of any formal nature.

The following recommendations are given should any sub-surface remains of heritage sites be identified as indicated above:

- All operators of excavation equipment should be made aware of the possibility of the occurrence of sub-surface heritage features and the following procedures should they be encountered.
- All construction in the immediate vicinity (50m radius of the site) should cease.
- The heritage practitioner should be informed as soon as possible.
- Mitigation measures (such as refilling etc.) should not be attempted.
- The area in a 50m radius of the find should be cordoned off with hazard tape.
- Public access should be limited.
- The area should be placed under guard.
- No media statements should be released until such time as the heritage practitioner has had enough time to analyze the finds.

Should any archaeological, palaeontological, or cultural heritage resources, including graves or human remains (as defined and protected by the NRA 1999) be identified during the vegetation cleaning, surface scraping, trenching, excavation or construction phases of the development, it is recommended that the process as described below is followed.

On-site Reporting Process:

- The identifier should immediately notify his / her supervisor of the find(s).
- The identifier's supervisor should report the incident to the on-site SHE / SHEQ officer within 24hours of the find(s).
- Should the find(s) relate to human remains, the on-site SHE / SHEQ officer should immediately notify the nearest SAPS station of the find(s).
- The on-site SHE / SHEQ officer should report the find(s) to the appointed ECO / ELO officer within 24 hours after the find(s) was / were reported by the relevant supervisor.
- Within 72 hours of the find(s) being reported to the SHE / SHEQ officer, the ECO / ELO officer should ensure that the find(s) is reported on the SAHRIS Database, and the relevant heritage specialist is contacted to make arrangements for a heritage inspection.
- Should the find(s) relate to human remains, the ECO/ ELO officer should ensure that the heritage inspection coincides with the SAPS inspection, to verify if the find(s) is / are of forensic, authentic (informal / older than 60 years) or archaeological (older than 100 years) origin.
- The heritage specialist should compile a heritage site inspection report based on the site-specific findings. The report should make recommendations for the destruction, conservation or mitigation of the find(s) and prescribe a recommended way forward for the development. The report should be submitted to the ECO / ELO officer, who should ensure submission thereof on the SAHRIS database.
- SAHRA / the relevant PHRA will state legal requirements for the development to proceed in the SAHRA / PHRA comments on the heritage inspection report.
- The developer should proceed with implementation of the SAHRA / PHRA comment requirements, which may well stipulate permit specifications to proceed.
    - Should the permit specifications stipulate further Phase 2 archaeological investigations (including grave mitigation), a suitable accredited heritage specialist should be appointed to conduct the work according to the applicable SAHRA / PHRA process.

- The heritage specialist should apply for the permit.
- Upon issue of the SAHRA / PHRA permit, the Phase 2 heritage mitigation program may commence.
- Should the permit specifications stipulate destruction of the find(s) under a SAHRA / PHRA permit, the developer should immediately proceed with the permit application.
- Upon the issue of the SAHRA / PHRA permit, the developer may legally proceed with the destruction of the archaeological, palaeontological or cultural heritage resource(s).
- Upon completion of the Phase 2 heritage mitigation program, the heritage specialist will submit a Phase 2 report to the ECO / ELO officer, who should in turn ensure the submission thereof on the SAHRIS database.
- Report recommendations may include that the remainder of a heritage site be destroyed under a SAHRA / PHRA permit.
- Should the find(s) relate to human remains of forensic origin, the matter will be directly addressed by SAPS. A SAHRA / PHRA permit will not be applicable.

NOTE: the SAHRA / PHRA permit and process requirements relating to the mitigation of human remains requires suitable advertising of the find(s), consultation, mitigation and re-internment / deposition process.

Duties of the Supervisor:

1. The supervisor should ensure that all activities in the vicinity of the find(s) are ceased immediately upon the reporting thereof by the identifier.
2. The supervisor should ensure that the location of the find(s) is secured within 24 hours of the reporting thereof by means of a temporary fence allowing for a 5 – 10m heritage conservation buffer zone around the find(s). The temporary conserved area should be sign-posted as a "No Entry – Heritage Site" zone.
3. Where development was impacted on the resource, no attempt should be made to remove artefacts / objects / remains further from their context and should any artefacts / objects / remains that has / have been removed should be collected and placed within the conservation area or kept for safekeeping with the SHE / SHEQ officer.
4. It is imperative that where development has impacted on any archaeological, palaeontological or cultural heritage resources, the context of the find(s) be preserved as much as possible for interpretive and sample testing purposes.
5. The supervisor should record the name, company and capacity of the identifier and compile a brief report describing the events surrounding the find(s).
6. The report should be submitted to the SHE / SHEQ officer at the time of the incident report.

Duties of the SHE / SHEQ officer:

1. The SHE / SHEQ officer should ensure that the location of the find(s) is recorded with a GPS. A photographic record of the find(s), including implementation of temporary conservation measures, should be compiled. Where relevant a scale bar, or object that can indicate the scale, should be inserted in the photographs for interpretive purposes.
2. The SHE / SHEQ officer should ensure that the supervisor's report, GPS co-ordinate and photographic record of the find(s) are submitted to the ECO / ELO officer.
3. Should the find(s) relate to human remains, the SHE / SHEQ officer should ensure that the mentioned reporting be made available to the SAPS at the time of the incident report.
4. Any retrieved artefacts / objects / remains should, in consultation with the ECO / ELO officer, be kept in a safe place (preferable on site).

Duties of the ECO / ELO officer:

1. The ECO / ELO officer should ensure that the incident is reported on the SAHRIS Database. (The ECO / ELO officer should ensure that he / she is registered on the relevant SAHRIS case with SAHRIS authorship to the case at the time of appointment to enable heritage reporting.)
2. The ECO / ELO officer should ensure that the incident report is forwarded to the heritage specialist for interpretive purposes at his / her soonest opportunity and prior to the heritage site inspection.
3. The ECO / ELO officer should facilitate appointment of the heritage specialist by the developer / construction consultant for the heritage inspection.
4. The ECO / ELO officer should facilitate access by the heritage specialist to any retrieved artefacts / objects / remains that have been kept in safekeeping.

5. Should the find(s) relate to human remains, the SHE / SHEQ officer should facilitate coordination of the heritage site inspection and the SAPS site inspection.
6. The ECO / ELO officer should facilitate heritage reporting and heritage compliance requirements by SAHRA / the relevant PHRA, between the developer / construction consultant, the heritage specialist, the SHE / SHEQ officer (where relevant) and the SAPS (where relevant).

Duties of the Developer / Construction Consultant:

1. The developer / construction consultant should ensure that an adequate heritage contingency budget is accommodated within the project budget to facilitate and streamline the heritage compliance process in the event of identification of incidental archaeological, palaeontological and / or cultural heritage resources during the course of the vegetation cleaning, surface scraping, trenching, excavation or construction phases of the development, when resources not visible at the time of the surface assessment may be exposed.

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