PROPOSED MAKHOKHOBA ROAD, MKHAMBATHINI LOCAL MUNICIPALITY, KWAZULU-NATAL

Phase 1 Heritage Impact Assessment

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FOR: SA SHEQ
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EXECUTIVE SUMMARY

The Mkhambathini Local Municipality proposes to construct the Makhokhoba Road and associated bridge. The proposed project is the construction of a new road development for vehicular access to the small village. The road will be 5.5m wide and 0.44km in length. A bridge is also proposed to cross the watercourse. The bridge will be 10.5m in height and 100m in length. The new road will connect with the P502 (Ingomankulu) road.

The proposed road is approximately 444 m in length hence triggering section 41 (1)(a) of the KwaZulu-Natal Amafa and Research Institute Act, 2018 (Act No 5 of 2018) which lists developments or activities that may require an HIA. Section 41 (1)(a) refers to the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length.

The proposed road is located in Cosmoore, Ward 3 which falls under the Mkhambathini Local Municipality. It is situated approximately 9 km from the town of Camperdown and the N3 highway.

An inspection of the alignment of the proposed road was undertaken on 24 March 2021. Visibility was hampered by a thick grass layer. The entire length of the proposed road was inspected on foot.

During the site inspection, no heritage resources were found along the alignment of the road; however, several graves were found near some of the homesteads. All the graves found are situated well away from the proposed road. From the historical aerial images and maps consulted, the project area has become more developed since the 1970s and has been cultivated for many years indicating a disturbed environment.

The South African fossil sensitivity map indicated that the proposed road falls in an area of moderate fossil sensitivity which requires that a desktop palaeontological study be undertaken. The desktop study indicated that the proposed road lies in the eastern part of the main Karoo Basin that is filled with Karoo Supergroup rocks. Karoo Supergroup rocks range in age from about 300 million years ago (Myr) to 183 Myr Lower Jurassic, and cover a large proportion of the surface area of South Africa. As the continent moved northwards the ice sheets melted and the meltwater filled the Karoo Basin, together with debris and sediments. These deposits are known as the Dwyka Group.

Of relevance to this project are the basal Dwyka Group tillites, diamictites and mudstones. The Dwyka Group is made up of seven facies that were deposited in a marine basin under differing environmental settings of glacial formation and retreat. Only the mudrock facies are fossiliferous facies of the Dwyka Group. The geological structures within the project area, however, suggest that the rocks are either much too old and not the correct type (Natal Group) to contain fossils. Fossils have only been recorded from mudstone facies in the Dwyka Group and in the project area, the rocks are tillites and diamictites. Since there is an extremely small chance that fossils may be found in the Dwyka Group, a Fossil Chance Find Protocol that forms part of the desktop study must be included in the EMPr for the project. The desktop study concluded that the potential impact of the road to fossil heritage resources is extremely low

No heritage resources or sites were found during the site inspection of the alignment and surrounds of the proposed road. Several graves were found close to homesteads and it is therefore recommended that construction of the proposed road does not impact on any of the existing homesteads.

It is recommended that the construction of Makhokhoba Road may proceed from a heritage perspective as long as the recommendations and mitigation measures provided in this report and in the desktop palaeontological report are implemented.

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I, **Jean Lois Beater**, act as an independent specialist for this project and I do not have any vested interest either business, financial, personal or other, in the proposed activity other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014.

AUTHOR DETAILS

Name	Qualification	Professional Registration
Jean Beater (JLB Consulting)	MA (Heritage Studies) MSc (Environmental Management)	Member of Association of South African Professional Archaeologists (No. 349) Member of IAIAsa (No. 1538)

1. INTRODUCTION

The Mkhambathini Local Municipality proposes to construct Makhokhoba Road and associated bridge in UMgungundlovu District. The proposed Makhokhoba Road project is the construction of a new road development for vehicular access to the small village. The road will be 5.5m wide and 0.44km in length. A bridge is also proposed to cross the watercourse. The bridge will be 10.5m in height and 100m in length. The proposed road will connect with the P502 (Ingomankulu) road.

The Phase I HIA was undertaken to assess whether any heritage resources will be impacted by the proposed construction of the Makhokhoba road and bridge.

2. LEGISLATIVE BACKGROUND

The proposed road is approximately 444 m in length hence triggering section 41 (1)(a) of the KwaZulu-Natal Amafa and Research Institute Act, 2018 (Act No 5 of 2018) which lists developments or activities that may require an HIA. Section 41 (1)(a) refers to: *"the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length"*.

The proposed upgrade may also impact graves, structures, archaeological and palaeontological resources that are protected in terms of sections 37, 38, 39, and 40 of the KwaZulu-Natal Amafa and Research Institute Act, 2018.

Section 3 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) lists heritage resources as follows:

(a) places, buildings, structures and equipment of cultural significance;
(b) places to which oral traditions are attached or which are associated with living heritage;
(c) historical settlements and townscapes;
(d) landscapes and natural features of cultural significance;
(e) geological sites of scientific or cultural importance;
(f) archaeological and paleontological sites;
(g) graves and burial grounds, including—
    (i) ancestral graves;
    (ii) royal graves and graves of traditional leaders;
    (iii) graves of victims of conflict;

(iv) graves of individuals designated by the Minister by notice in the *Gazette*;

(v) historical graves and cemeteries; and

(vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);

(h) sites of significance relating to the history of slavery in South Africa; and

(i) movable objects, including:

(i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;

(ii) objects to which oral traditions are attached or which are associated with living heritage;

(iii) ethnographic art and objects;

(iv) military objects;

(v) objects of decorative or fine art;

(vi) objects of scientific or technological interest; and

(vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).

3. LOCATION

The proposed road is located in Cosmoore, Ward 3 which falls under the Mkhambathini Local Municipality. It is situated approximately 9 km from the town of Camperdown and the N3 highway (see **Figure 1** below).

The road will T-off from the Ingomankulu Road which feeds off the R603 road. The start of the proposed road is at 29°46'23.92" S, 30°29'49.05" E and it's end point will be at 29°46'19.62" S, 30°29'40.43" E. The bridge to cross the watercourse will be located approximately at: 29°46'23.22" S, 30°29'48.17" E (see **Figure 2**).

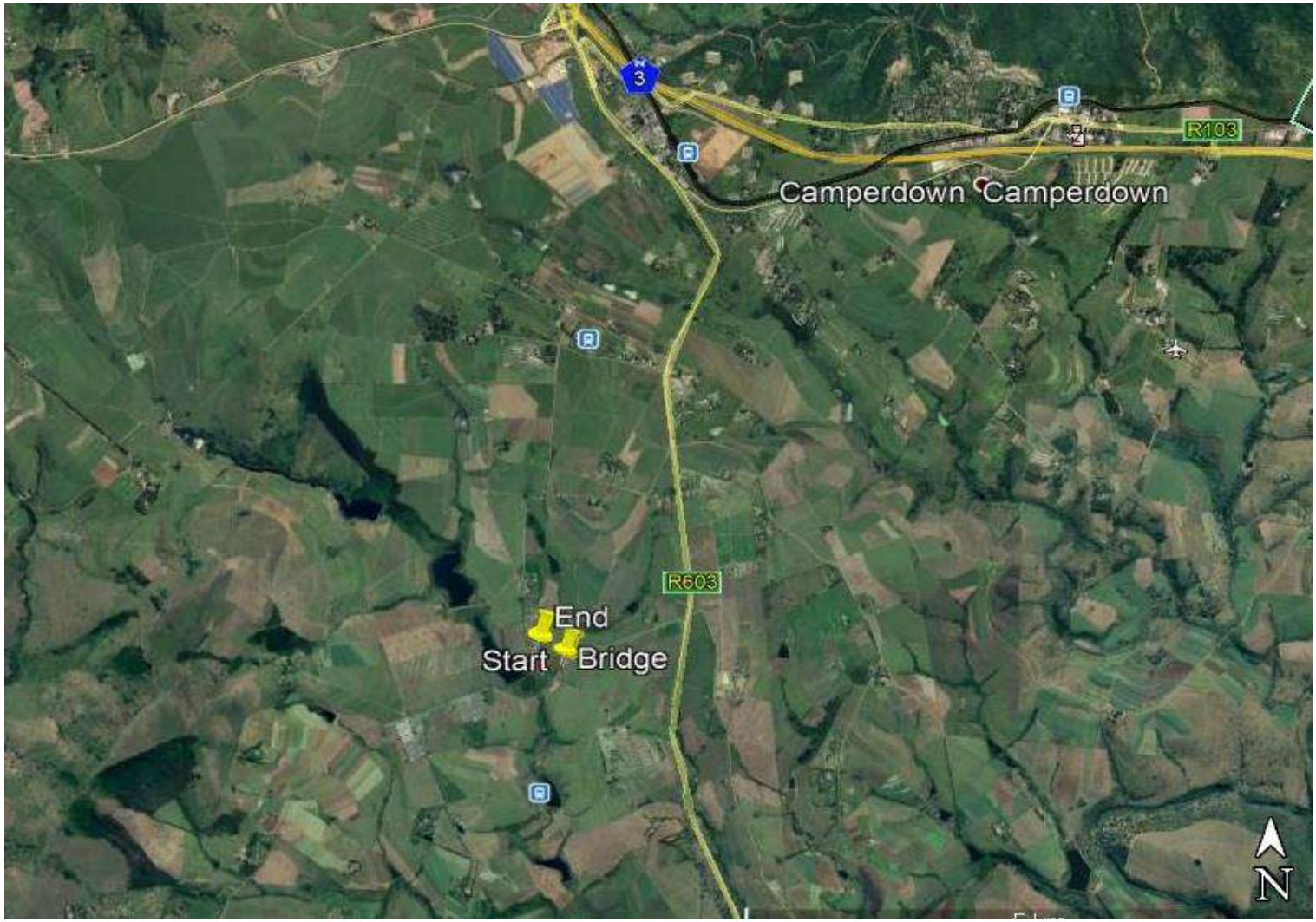

Figure 1: Road indicated with placemarks in wider context

Figure 2: Closer view of road indicated in red

4. TERMS OF REFERENCE

Undertake a Phase 1 HIA in order to determine the possible existence of heritage resources, as listed above in Chapter 2, that could be impacted by the proposed road construction. Provide mitigation measures to limit or avoid the impact of the project on heritage resources (if any).

The heritage specialist will submit the HIA report to the provincial heritage resources authority, namely the KwaZulu-Natal Amafa and Research Institute (hereafter referred to as the Institute), for their consideration and comment.

5. METHODOLOGY AND CONSTRAINTS

A survey of literature, including other heritage impact assessment (HIA) reports completed for the wider surrounding area, was undertaken in order to ascertain the history of the area and what type of heritage resources have or may be found in the area. In addition, historical aerial images and topographic maps of the area were consulted that were retrieved from the Department of Rural Development and Land Reform's CDNGI Geospatial Portal (www.cdngiportal.co.za).

An inspection of the alignment of the proposed road was undertaken on 24 March 2021. Visibility was hampered by a thick grass layer due to the good rains over summer. The entire length of the proposed road was inspected on foot.

6. HISTORICAL BACKGROUND OF THE STUDY AREA

According to Active Heritage (2016:2), the greater Umlaas Road is relatively well covered by archaeological surveys. The available evidence indicates that the area contains mostly Early Stone Age material from eighteen sites. Most of these sites are situated close to water, such as the uMngeni River, in open air context. A large number of Early Iron Age sites have been located in the uMngeni Valley.

By 1500 years ago, early Bantu-speaking farmers settled adjacent to the uMngeni River in the greater Camperdown area. Due to the fact that these first farmers introduced metal technology to southern Africa they are designated as the Early Iron Age in archaeological literature. These sites characteristically occur on alluvial or colluvial soil adjacent to large rivers below the 1000m

contour. The Early Iron Age farmers originally came from western Africa and brought with them an elaborate initiation complex and a value system centred on the central significance of cattle (Active Heritage 2016:2).

Later Iron Age sites also occur in the wider area. These were Bantu-speaking agropastoralists who arrived in southern Africa around 1000 year ago via East Africa. Later Iron Age communities in KwaZulu-Natal were the direct ancestors of the Zulu people. The larger Umngeni Valley area was inhabited by various Nguni-speaking groups such as the Dlanyawo, Nyavu and Njilo, in the beginning of the 19th century. With the exception of the Nyavu who remained fiercely independent most of these communities were incorporated into the Zulu Kingdom of Shaka in the 1820's (Active Heritage 2016:3).

The pioneering efforts of John Vanderplank, who in 1864 had planted the first wattle seed from Australia at Camperdown, where he lived and these efforts were continued by other farmers in Natal (Guest 1989:319).

According to Bulpin (undated:171 - 172), in 1865, the Natal Mercury reported that the plans for the new Camperdown township were available to interested people. Everything was done to induce people to settle at Camperdown including small-holdings been offered to farmers but by 1870 Camperdown still only consisted of two or three homesteads and a roadside inn and was known as a stopping post between Durban and Pietermaritzburg.

7. RESULTS OF SITE INSPECTION

The 1968 1:50 000 topographic map of the area (2930CD_ED1_GEO) shows no habitation on the project area in the proposed road is to be constructed. The approximate position of the road is indicated in red in **Figure 3** below. The old narrow gauge railway line located east of the proposed Makhokhoba Road is also depicted on the images below.

By 1973, at least one homestead with a number of dwellings is visible on the aerial photographic image (ref: 498_29_002_07299) of the project area as can be seen in **Figure 4**. By 1975, there are three homesteads in the project area and by 1983 (ref: 498_193_006_00118), there are four homesteads located just below the alignment of the proposed road and many residences north of and outside of the project area as depicted in **Figure 5**.

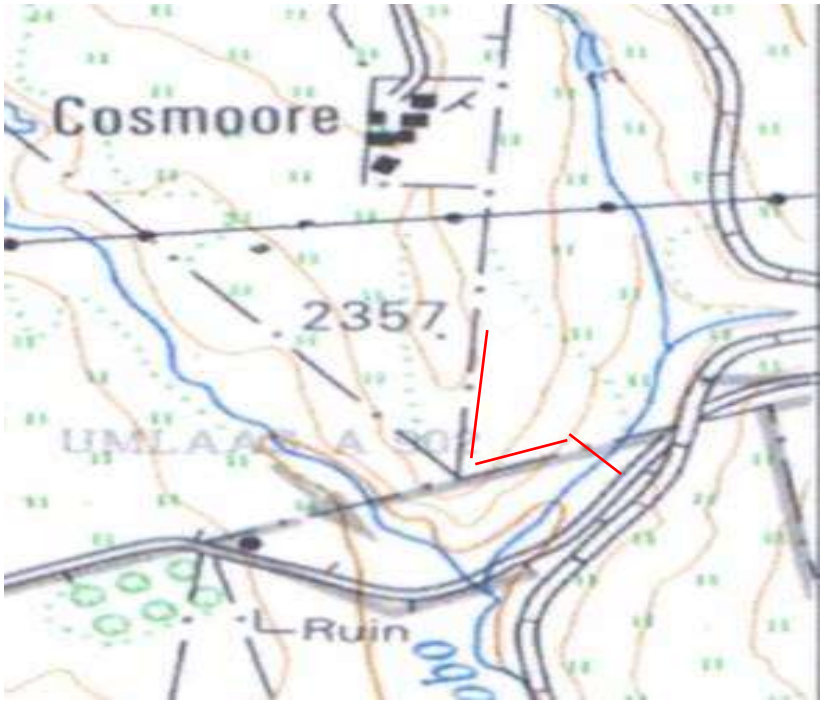

Figure 3: Section of 1968 topographical map of project area

Figure 4: Aerial image of project area with proposed road depicted in red

Figure 5: 1983 aerial image of area in which road is to be constructed

By the year 2000, the residences now visible on the Google Earth image are reflected in the topographical map of the year. The 1989 and 2000 topographical maps also show that the entire area around the homesteads was under cultivation. From the historical aerial images and maps consulted, the area has become more and more developed since the 1970s and has been cultivated for many years indicating a disturbed area.

During the site inspection, no heritage resources were found along the alignment of the road; however, several graves were found near some of the homesteads. There are more graves outside the alignment of the road but they are situated well away from the proposed road behind houses and homesteads. The graves recorded during the site inspection are provided in **Table 1** below.

Figure 6: Approximate position of proposed bridge

Figure 7: Looking towards Ingomankulu Road and along proposed alignment of road

Figure 8: View looking up the alignment of road from the watercourse

Figure 9: Section of alignment of proposed road showing dense grass cover

Figure 10: View looking south along proposed alignment with houses on western side of road

Figure 11: Grave outlined with rock

Figure 12: Grave made from packed rock

Figure 13: Overgrown grave marked with marble cross

The graves recorded during the site inspection are listed in the table below.

Table 1: Graves recorded during site inspection

COORDINATES	DESCRIPTION	MITIGATION
29˚46'25.2'' S; 30˚29'41.7'' E 29˚46'25.3'' S; 30˚29'41.6'' E	Six graves close to homestead of Babhekile Khoza; graves situated 35m south of road (**Figures 11** and **12**)	No mitigation required as graves are situated well away from proposed road
29˚46'24.3'' S; 30˚29'39.2'' E	Five graves situated behind houses close to sugar cane fields; graves situated about 33 m west of proposed road (**Figure 13**)	No mitigation required as graves are situated well away from proposed road

The South African fossil sensitivity map indicates that the proposed road falls in an area of moderate fossil sensitivity as indicated in **Figure 14** below. An area of moderate fossil sensitivity requires that a desktop palaeontological study be undertaken.

This study was undertaken by Prof. M. Bamford (see **Appendix 1**). The findings of the study were that the proposed road lies in the eastern part of the main Karoo Basin that is filled with Karoo Supergroup rocks. Karoo Supergroup rocks range in age from about 300 million years ago (Myr) to 183 Myr Lower Jurassic, and cover a large proportion of the surface area of South Africa. The Karoo Basin was bounded to the south by the Cape Fold Belt mountains and to the north by the Cargonian Highlands while the continent was positioned over the South Pole and was part of the supercontinent Gondwanaland. Due to this position, there was a series of ice sheets covering the land. As the continent moved northwards the ice sheets melted and the meltwater filled the Karoo Basin, together with debris and sediments. These deposits are known as the Dwyka Group. Overlying the Dwyka Group sediments are the Ecca Group sandstones, shales and mudstones. The basin subsequently filled with Beaufort Group and Stormberg Group strata, and was capped by the Jurassic Drakensberg basalts, and dolerite dykes (Bamford:6).

Of relevance to this project are the basal Dwyka Group tillites, diamictites and mudstones. The Dwyka Group is made up of seven facies that were deposited in a marine basin under differing environmental settings of glacial formation and retreat. In the north and east these are called the Mbizane Formation, and the Elandsvlei Formation in the south and west. The mudrock facies is the only fossiliferous facies of the Dwyka Group (Bamford: 6-7).

1 in 250 000 geological formation layers are courtesy of the Council for GeoScience

For more information, go to How to Use the Palaeontological (fossil) Sensitivity Map

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.

Figure 14: Fossil sensitivity of project area indicated with rectangle

Based on the nature of the project, surface activities may impact upon the fossil heritage if preserved in the development footprint. The geological structures, however, suggest that the rocks are either much too old and not the correct type (Natal Group) to contain fossils. Fossils have only been recorded from mudstone facies in the Dwyka Group and in the project area, the rocks are tillites and diamictites. Since there is an extremely small chance that fossils may be found in the Dwyka Group, a Fossil Chance Find Protocol has been included in the desktop study which must be included in the Environmental Management Programme (EMPr) for the project. The desktop study concluded that the potential impact of the road to fossil heritage resources would be extremely low (Bamford:9).

8. RECOMMENDATIONS AND CONCLUSION

No heritage resources or sites were found during the site inspection of the alignment and surrounds of the proposed road. Several graves were found close to homesteads and it is therefore recommended that construction of the proposed road does not impact on any of the existing homesteads.

The desktop palaeontological study found that the geological structures in the project area suggest that the rocks are either much too old and not the correct type (Natal Group) to contain fossils. Fossils have only been recorded from mudstone facies in the Dwyka Group and in the project area, the rocks are tillites and diamictites. Since there is an extremely small chance that fossils may be found in the Dwyka Group, a Fossil Chance Find Protocol has been included in the desktop report which must be included in the EMPr.

Based on the above, it is recommended that the construction of Makhokhoba Road may proceed from a heritage perspective as long as the recommendations and mitigation measures provided in this report and in the desktop palaeontological report are implemented.

9. MITIGATION MEASURES

- For any chance heritage finds (such as graves, etc.), all work must cease in the area affected and the Contractor must immediately inform the Project Manager. A heritage specialist must be called to site to inspect the finding/s. The provincial heritage resource agency, the Institute, must be informed about the finding/s.
- The heritage specialist will assess the significance of the resource and provide guidance on the way forward.
- Permits must be obtained from the Institute if heritage resources are to be removed, destroyed or altered.
- All heritage resources found in close proximity to the construction area must be protected by a 7 m buffer in which no construction can take place. The buffer material (danger tape, fencing, etc.) must be highly visible to construction crews.
- Under no circumstances may any heritage material be destroyed or removed from site unless under direction of a heritage specialist.
- Should any recent remains be found on site that could potentially be human remains, the South African Police Service (SAPS) as well as the Institute must be informed. No SAPS official may remove remains until the correct permit/s have been obtained.

- The Fossil Chance Find Protocol provided in the desktop palaeontological study must be included in the EMPr and be implemented where necessary.

10. REFERENCES

Active Heritage. 2016. *Cultural Heritage Impact Assessment of the proposed Anniedale quarry site adjacent to the R603, Camperdown*.

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Bulpin, T.V. Undated. *To the shores of Natal*. Cape Town: Citadel Press

Duminy, A and Guest, B. 1989. The new economy in *Natal and Zululand from earliest times to 1910. A new history*. Pietermaritzburg: University of Natal Press