STERKSPRUIT TRUNK SEWER PROJECT (WARD 4), HAMMARSDALE, KWAZULU-NATAL

Phase 1 Heritage Impact Assessment

December 2018

FOR: **ECA Consulting**
Nicole Naidoo

AUTHOR: JLB Consulting
Jean Beater

EXECUTIVE SUMMARY

eThekwini Water and Sanitation is proposing to construct a trunk sewer pipeline along a tributary of the Sterkspruit River in Hammarsdale. The project comprises approximately 6267m of continuously welded HDPE pipeline and approximately 5519m of HDuPVC sewerage reticulation. The project will be split into two phases, namely Phase 1 which entails the construction of 5660m of waterborne gravity sewerage reticulation to serve 15 sites, and Phase 2 which entails the construction of 6126m of waterborne gravity sewerage reticulation to serve 21 sites.

The total length of the trunk sewer pipeline is 11,786m in length hence it triggers section 38 (1) (a) of the National Heritage Resources Act (NHRA), 1999 (Act No 25 of 1999) that refers to developments that may require a heritage impact assessment. The relevant development is categorised as—(a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length.

Hammarsdale is situated approximately 40km north west of the centre of Durban. The project is located directly north of Hammarsdale. The area close to Hammarsdale is largely industrial whereas the area further north is more rural with some privately owned properties.

An inspection of the project site was undertaken on 29 November 2018. Sections of the pipeline that crossed private land could not be inspected due to access issues. Good visibility was encountered on most of the pipeline routes; however, some of the forested and wetland areas were difficult to access due to thick undergrowth.

During the site inspection no heritage resources were found along the proposed pipeline routes. However, two sites that may be impacted by the proposed development were identified. In Phase 1, one of the pipeline routes passes very close to a dwelling and associated structures which are located at 29°46'57.21"S 30°38'16.20"E. It is recommended that the pipeline is moved 15m to the east of the dwelling to avoid any impact on the structures and the owners.

The second site is a pipeline forming part of Phase 2 which is situated about 45m west of a dwelling and associated structures which are located at: 29°46'33.91"S 30°39'9.64"E. The house appears to be older than 60 years and is therefore protected by heritage legislation. It is recommended that no activity related to the pipeline takes place within 20 m of the house and its associated buildings as there may be graves close to the homestead.

According to the South African fossil sensitivity map, the proposed trunk sewer project falls within an area of low fossil sensitivity. No further studies are required; however, a protocol for chance finds is required. The chance find protocol is included in Chapter 9 of this report.

If the recommendations and mitigation measures provided in the main body of this report are adhered to, then the construction of the Sterkspruit trunk sewer project may proceed from a heritage perspective.

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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.

SPECIALIST DETAILS

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

1. INTRODUCTION

eThekwini Water and Sanitation is proposing to construct a trunk sewer pipeline along a tributary of the Sterkspruit River in Hammarsdale. The project comprises approximately 6267m of continuously welded HDPE pipeline and approximately 5519m of HDuPVC sewerage reticulation. The project will be split into two phases, namely:

- Phase 1 – the construction of approximately 5660m of waterborne gravity sewerage reticulation to serve 15 sites;
- Phase 2 – the construction of approximately 6126m of waterborne gravity sewerage reticulation to serve 21 sites.

JLB Consulting was appointed by the ECA Consulting, the Environmental Assessment Practitioner (EAP) to undertake a Phase 1 Heritage Impact Assessment (HIA) of the proposed trunk sewer project. This is the Phase 1 HIA report.

2. LEGISLATIVE BACKGROUND

The total length of the trunk sewer pipeline is 11,786m in length hence it triggers section 38 (1) (a) of the National Heritage Resources Act (NHRA), 1999 (Act No 25 of 1999) that lists activities that require a heritage impact assessment (HIA). The relevant sub-section refers to developments categorised as—

> (a) the construction of a road, wall, power line, **pipeline**, canal or other similar form of linear development or barrier exceeding 300m in length.

In addition, the proposed project may impact on graves, structures, archaeological and palaeontological resources that are protected in terms of sections 33, 34, 35, and 36 of the KwaZulu-Natal Heritage Act (KZNHA) (No. 4 of 2008).

In terms of section 3 of the NHRA, heritage resources are:

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

(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).

The Phase I HIA was undertaken to assess whether any heritage resources will be impacted by the proposed trunk sewer project.

3. LOCATION

Hammarsdale is situated approximately 40km north west of the centre of Durban. The project is located directly north of Hammarsdale. The area close to Hammarsdale is largely industrial whereas the area further north is more rural with more privately owned properties. The township known as Mpumalanga is situated to the west of the trunk sewer project (see **Figures 1, 2** and **3** below).

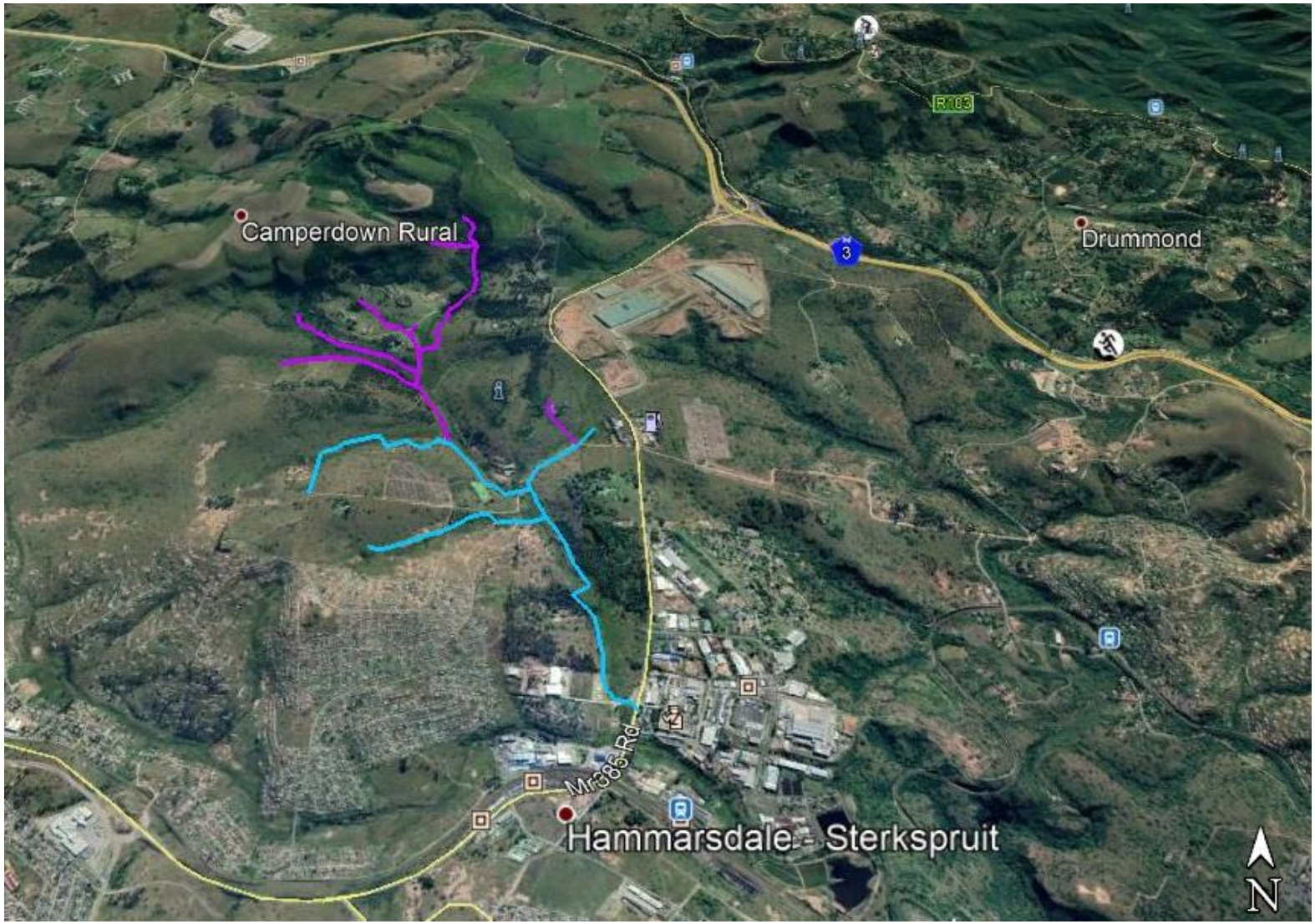


Figure 1: Aerial view of project and surrounds

Figure 2: View of Phase 1 indicated in turquoise

Figure 3: View of Phase 2 indicated in cerise

4. TERMS OF REFERENCE

Undertake a Phase 1 Heritage Impact Assessment in order to determine the possible existence of heritage resources, as listed above, that could be impacted by the proposed trunk sewer project. Provide mitigation measures to limit or avoid the impact of the proposed project on heritage resources (if any).

Submit the HIA report to the provincial heritage resources authority, Amafa aKwaZulu-Natali (Amafa), for their assessment and comment.

5. METHODOLOGY

A survey of literature, including other heritage impact assessment reports completed for the larger 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 of development.

An inspection of the project site was undertaken on 29 November 2018. Sections of the pipeline that crossed private land could not be inspected due to access issues. Good visibility was encountered on most of the pipeline routes; however, walking through some of the forested areas and near wetlands was challenging as these areas were thickly overgrown or had thick undergrowth making access and visibility difficult.

6. HISTORICAL BACKGROUND OF PROJECT AND SURROUNDING AREA

The greater Hammarsdale area is relatively well covered by archaeological surveys conducted by the KwaZulu-Natal Museum in the 1960's and 1970's. The evidence indicates that the area contains mostly Early Stone Age material (eighteen sites), most of which are situated close to water, such as the Umngeni River, in open air contexts. A large number of Early Iron Age sites, i.e. twenty, have been located in the adjacent Mngeni Valley. Stone Age sites of all the main periods and cultural traditions occur within the greater Hammarsdale area. Most of these occur in open air contexts as exposed by donga and sheet erosion (Prins 2012:2).

By 1500 years ago, early Bantu-speaking farmers also settled adjacent to the Umngeni River to the north of Hammarsdale. As 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. Later Iron Age sites also occur in this area. These were Bantu-speaking agropastoralists who arrived in southern Africa after 1000 year ago via East Africa. Later Iron Age communities in KwaZulu-Natal were the direct ancestors of the Zulu people (Prins 2013:3).

The township of Mpumalanga, situated immediately west of the project, is situated on the former Methodist mission station 'Peaceville' established by Rev. John Allsopp on the farms Woody Glen and Georgedale in 1862. Allsopp created a community of landowning African Christian converts (known as amakholwa or 'believers'), who bought property from the missionaries. Land and ownership were central to the original settlement of Mpumalanga. As a mission reserve 'Peaceville' allowed Africans to become landowners, which made it attractive to amakholwa who purchased property there in their own right (Durban Local History Museums 2018:4).

By the 1950s the community on Georgedale farm was divided into three groups, namely the original kholwa settlers who had been landowners since the mission was established, more recent arrivals who had also bought land in the mission and finally, their tenants. 'Peaceville' mission and the neighbouring industries of Hammarsdale were then identified by apartheid planners as a 'decentralisation point', to draw African workers away from cities in an attempt to reverse the process of urbanisation. Land was simply expropriated from owners or tenants of small properties, with the promise of a house in the new township. A plan for the construction of 10 400 houses was completed at the end of 1966, and Mpumalanga township was formally created in 1968 (Durban Local History Museums 2018:5-6).

Along with the rest of South Africa, political tensions rose within all sections of Mpumalanga township during the late 1970s and early 1980s. From August 1985 a wave of widespread and deadly political violence consumed the township for the next seven years. During that time Zulu nationalists belonging to the Inkatha organisation and linked to the government, engaged in war with members of the progressive United Democratic Front (UDF) as well as members of other progressive organisations such as Azapo (Durban Local History Museums 2018:2).

7. RESULT OF SITE INSPECTION

The routes of the proposed pipelines were inspected by foot. Most routes were inspected apart from those situated within private property and in a very few areas where thick undergrowth impeded access.

Phase 1 of the project starts close to Hammarsdale and moves northwards along a tributary of the Sterkspruit. The area is initially open grassland with a few eucalyptus (gum) trees; as the pipeline heads further north it crosses through an eucalyptus plantation. The adjacent tributary is heavily overgrown with vegetation. No heritage resources were noted during the inspection.

Figure 4: Pipeline route looking southwards towards Hammarsdale

Figure 5: Eucalyptus plantation

The pipeline route that goes to the west and north of the township of Mpumalanga is disturbed by some erosion and by informal roads, pathways, power lines and illegal sand mining. A search for archaeological scatter within the eroded areas revealed no material.

Figure 6: Eroded area with power lines

Figure 7: Towards end of pipeline with township in background

The pipeline route that runs adjacent to the route situated north of the township of Mpumalanga runs in a north-westerly direction through a fenced off area of what appears to be a recycling operation and a dam. The area is disturbed through by the recycling operation and the dam and no heritage sites were found during the inspection.

Figure 8: Dam with fencing in left hand corner

The route then turns westward to run initially on the southern side of the wetland, before crossing to the northern side before crossing again just below the man-made dam. This area forms part of a power line servitude with open grassland and some eroded areas.

Figure 9: Pipeline route looking towards the west

Towards the end of the route, the pipeline passes very close to a dwelling and associated structures which are located at 29°46'57.21"S 30°38'16.20"E. The dwelling and structures are fenced so they could not be inspected. It is recommended that the pipeline is moved 15m to the east of the dwelling to avoid any impact on the structures and the owners (see **Figure 16** below).

Figure 10: Pipeline route with dam and power lines in background

The remainder of the Phase 1 sewerage reticulation runs along the D816 gravel road before ending below a scrapyard and close to what appears to be existing stormwater infrastructure located at 29°46'41.2"S 30°39'16.4"E.

Figure 11: Possible stormwater infrastructure

A section of the Phase 2 component of the trunk sewer project is situated in the same area as the pipeline discussed above. The pipeline crosses open grassland ending about 45 m west of a dwelling and associated structures which are located at: 29°46'33.91"S 30°39'9.64"E. The house appears to be older than 60 years and is therefore protected by heritage legislation. No activity related to the pipeline may take place within 20 m of the house and its associated buildings as there may be graves close to the homestead (see **Figure 16** below).

The Phase 2 component of the trunk sewer project is located north of the Phase 1 component. The southernmost route crosses through a plantation of trees with thick undergrowth which made visibility and access difficult at times.

Figure 12: Dense undergrowth

Much of the pipeline route that is located immediately north the pipeline discussed above could not be inspected as it crosses privately owned land and is also situated very close to the wetland which was densely overgrown and impossible to access.

Sections of the remaining pipeline were inspected apart from those on privately owned land. This included those sections of the pipeline route that run through a well-established eucalyptus forest where access was possible. No heritage sites were discovered during the inspection.

Figure 13: Dense vegetation close to wetland

Figure 14: Part of pipeline route crossing wetland

Figure 15: Section of pipeline situated on privately owned land

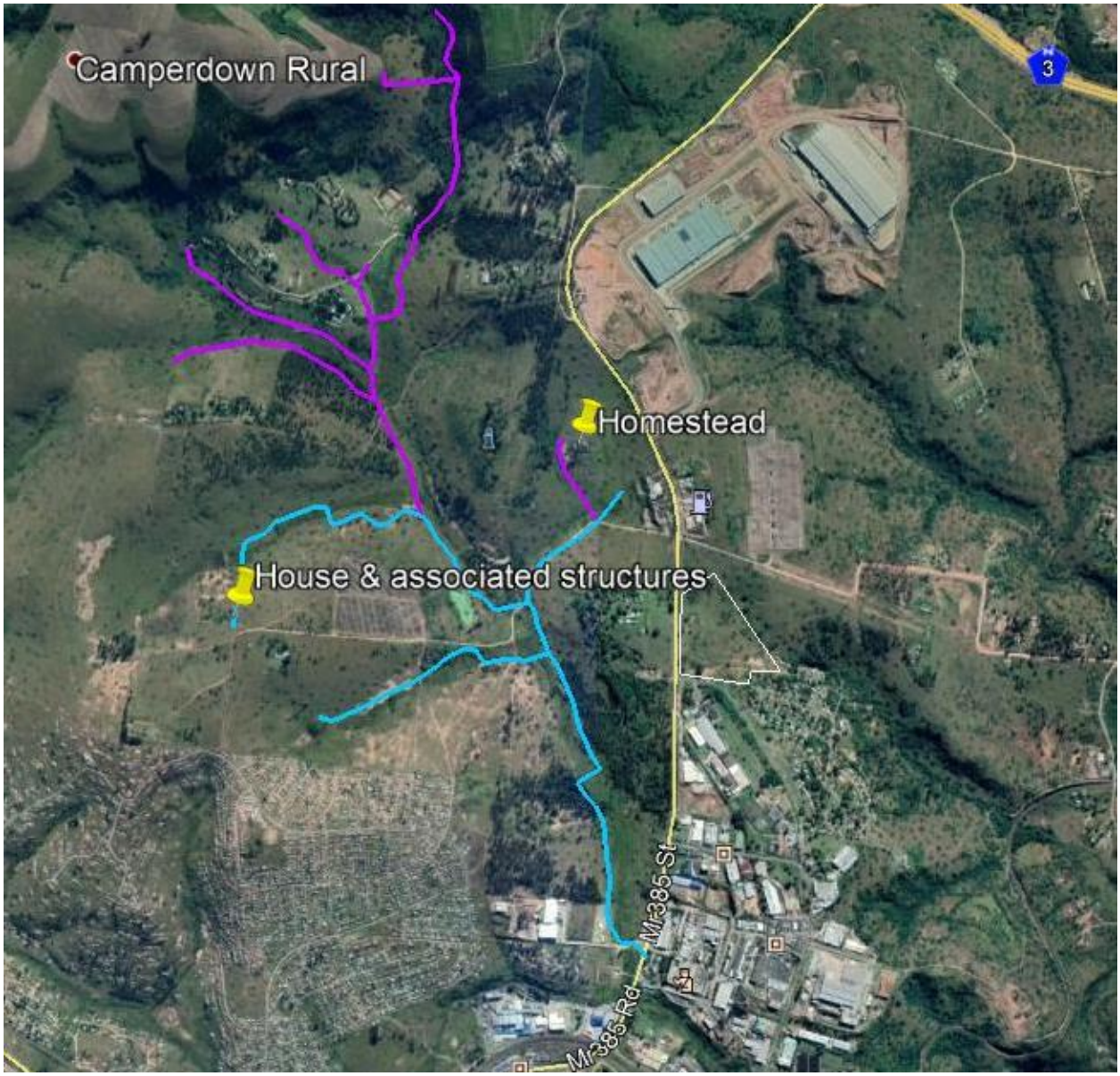
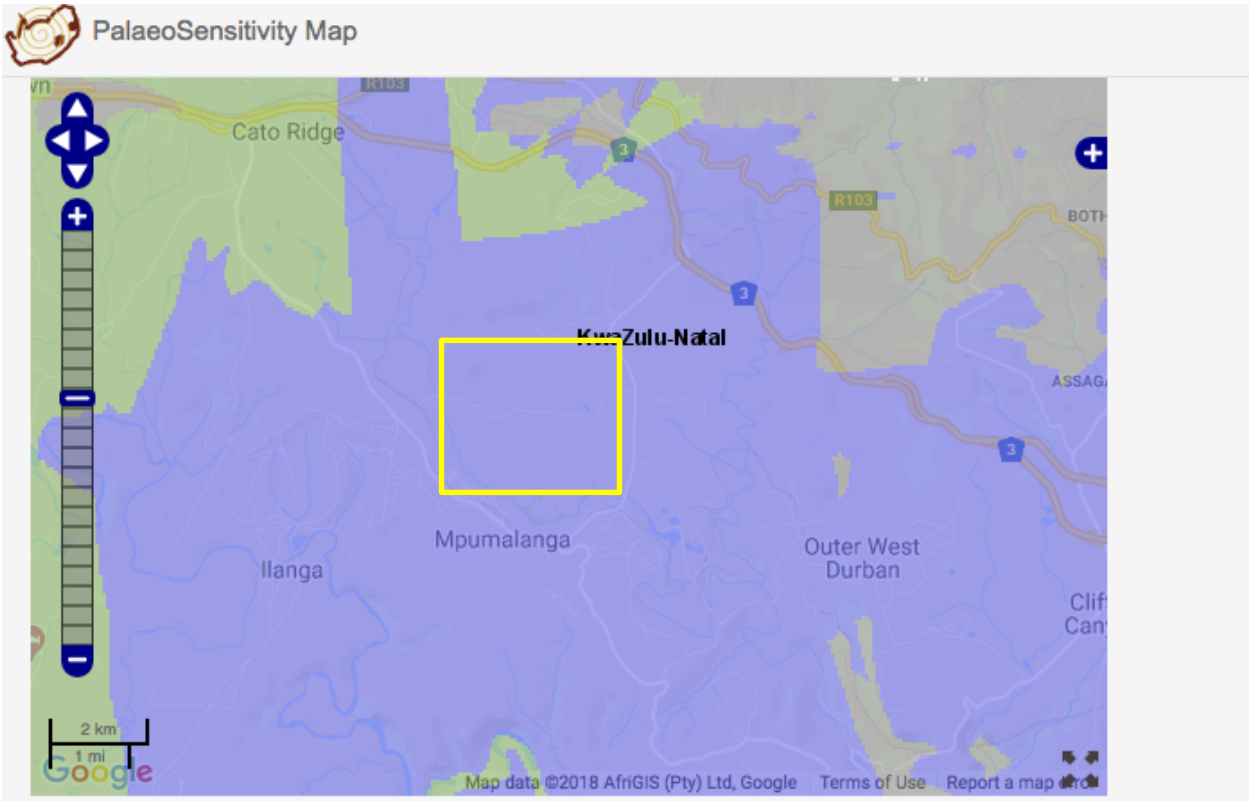


Figure 16: Project with areas of concern shown

According to the South African fossil sensitivity map, the proposed trunk sewer project falls within an area of low fossil sensitivity as indicated by the blue colour in **Figure 17** below. No further studies are required; however, a protocol for chance finds is required. This chance find protocol is included in Chapter 9 of this report.



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 17: Fossil sensitivity of project outlined in yellow

8. RECOMMENDATIONS AND CONCLUSION

A site inspection of the pipelines that comprise the Sterkspruit trunk sewer project revealed very few heritage sites, all of which are not directly impacted by the proposed reticulation project. The following is, however, recommended:

- The section of pipeline situated very close to a dwelling and associated structures located at 29°46'57.21"S 30°38'16.20"E should be moved 15m to the east of the dwelling to avoid any impact on the structures.

- The house and outbuildings situated at 29°46'33.91"S 30°39'9.64"E should be avoided during the preparation and laying of the pipeline. No activity related to the pipeline may take place within 20 m of the house and associated buildings.

If the recommendations and mitigation measures provided in this report are implemented and adhered to, then the construction of the Sterkspruit trunk sewer project may proceed from a heritage perspective.

9. ADDITIONAL MITIGATION MEASURES

- Workers should be made aware of the types of heritage resources, such as graves, that could be found during the construction of the proposed trunk sewer project. The process in terms of chance finds as mentioned in the bullet point below must then be followed.
- For any chance heritage finds (graves, etc.), all work must cease in the area affected and the Contractor must immediately inform the Project Manager. A registered heritage specialist must be called to site to inspect the finding/s. The relevant heritage resource agency (Amafa) 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 Amafa if heritage resources are to be removed, destroyed or altered.
- 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 as well as Amafa must be contacted. No SAPS official may remove remains (recent or not) until the correct permit/s have been obtained.
- The following should be adhered to in terms of chance fossil finds:
    - When excavation takes place for the placing of the pipelines, any rocks disturbed during this process must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (trace fossils, plants, insects, bone, and coal) should be put aside in a suitably protected place.
    - Photographs of possible fossils should be sent to a palaeontologist for preliminary assessment.
    - A qualified palaeontologist should visit the site to inspect the selected material and check dumps where necessary.

- Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site an Amafa permit must be obtained. Annual reports must be submitted to Amafa as required by the relevant permits.

10. REFERENCES

Durban History Museums. 2015. *The oral history of political violence as an education tool at Mpumalanga Township*. (https://durbanhistorymuseums.org.za/tragic-legacy-in-new-light). Retrieved 03/12/2018.

eThembeni Cultural Heritage. 2013. *Phase 1 Heritage Impact Assessment Report: proposed Keystone Park Light Industrial, Warehousing and Logistics Precinct, Hammarsdale, eThekwini Metropolitan Municipality, KwaZulu-Natal*. Unpublished report

Prins, F. 2012. *Cultural Heritage Impact Assessment of the proposed 11ha mixed-use development on Portion 361 (of 25) of the Farm Uitkomst and Doornrug No. 852, near Hammarsdale,* KwaZulu-Natal. Unpublished report

APPENDIX 1
CURRICULUM VITAE

CURRICULUM VITAE JEAN LOIS BEATER

Nationality: South African

Qualifications & Membership with Professional societies:

Accredited Heritage Professional: Amafa aKwaZulu-Natali

Affiliate Member of the Association of Southern African Professional Archaeologists (ASAPA) (No. 349)

International Association of Impact Assessment (SA Branch) (Membership No. 1538)

EMPLOYMENT RECORD

April 2015 – present: **JLB Consulting**

Undertake Heritage Impact Assessments (HIAs) and Heritage Management Plans (HMPs)

Environmental authorisation processes (Scoping & Environmental Impact Assessments, Basic Assessments); Water Use Licence Applications (WULAs); EMPRs, public participation process, etc.

March 2014 – March 2015: **Senior Environmental Consultant: Nemai Consulting cc**

Project management of various Basic Assessments and Scoping & EIAs; EMFs

Undertake HIAs and WULAs for clients;

Deal with clients, appoint & manage specialists, undertake public participation process, compile & manage project budgets

March 2010 – February 2014: **Environmental & Heritage Impact Consultant**

Undertake Heritage Impact Assessments (HIAs) for various clients;

Project management of environmental authorisation processes (S&EIRs, BARs); WULAs; EMPRs, public participation, etc.

June 2005 – February 2010: **Senior Environmental Specialist - PBA International (South Africa) Pty Ltd**

Project management of various EIA studies (Basic Assessments and Scoping & EIRs);

Undertake HIAs for various clients;

Manage clients, appoint & manage specialists, undertake public participation process; compile & manage project budgets.

POST-GRADUATE EDUCATION AND DEGREES

2002	University of the Witwatersrand	MA (Heritage Studies)
2016	University of the Free State	MSc (Environmental Management)

HERITAGE PROJECTS UNDERTAKEN INCLUDE:

- Historical significance report of the Bryntirion Ministerial Estate complex, Pretoria for Department of Public Works
- Cultural heritage survey of several farms in Northern and Eastern Cape for proposed solar power developments
- Heritage Impact Assessment for the Hammersdale water supply pipeline, eThekwini Municipality, KZN
- Heritage Impact Assessments for the Raw Water and Potable Water components of the uMkhomazi Water Supply Project, KZN.
- Heritage Management Plans for the Raw Water and Potable Water components of the uMkhomazi Water Supply Project, KZN
- Heritage Impact Assessment for Quha River Bridge, Umzumbe area
- Heritage Impact Assessment for Bloukrans and Qabango River crossings near Frere in Umtshezi Local Municipality (LM)
- Heritage Impact Assessment for the Burbreeze Water Infrastructure (pipeline and reservoir) Project, Tongaat
- Heritage Impact Assessment: Mbhele and Dressing pedestrian bridges near Ramsgate
- Heritage Impact Assessment for the Ezimbokodweni *in-situ* housing project, Amanzimtoti
- Heritage Impact Assessment for the Maphephethweni water pipeline project, eThekwini Municipality
- Heritage Impact Assessment for the road determination project in the Greater Johannesburg area, Gauteng Province
- Heritage Impact Assessment for the Impendle Water Treatment Plant, KZN
- Heritage Impact Assessment for the Madrassa An-Noor Facility for the Blind near Cedara Agricultural College, Umngeni Municipality
- Heritage Impact Assessment for Ixopo CRU Housing development, Ubuhlebezwe LM
- Heritage Impact Assessment for Kokstad CRU Housing development, Greater Kokstad Municipality
- Walk down heritage survey of proposed construction of Neptune to Pembroke 400kV power lines, near East London, Eastern Cape Province
- Heritage Impact Assessments for the Northern (12) and Southern (5) borrow pits project within eThekwini Municipality
- HIA for the Queen's substation and associated 132kV power line project, Hartzenbergfontein Agricultural Holdings, Walkerville, Gauteng Province
- HIA for the proposed Ezingadeni Low Level Bridge, Mondlo, Abaqulusi LM
- HIA for the upgrade of Jennings Road, Estcourt, Inkosi Langalibalele LM, KZN

- HIA for the irrigation projects at Isondlo Dairy Farm, Okhahlamba Local Municipality and KwaSobabili Cooperative, Imbabazane Local Municipality, KZN
- HIA for the Hartebeestpoort Housing Development, Tshwane, Gauteng Province
- HIA for the N3 Logistics Hub, Lesidi Local Municipality, Gauteng Province
- HIA for the Mgeni Adit, Zululand Anthracite Colliery near Ulundi, KZN
- HIA for the Mookadi-Mahikeng 400kV power line between Vryburg and Mahikeng, North-West Province
- HIA for the upgrade of Provincial Road P728, eThekwini Municipality
- HIA for Umshwati BWSS Phase 4, Ndwedwe Local Municipality, KZN
- HIA for Aviemore substation and 88kV power line project, Dundee, KZN
- Heritage screening for the R603 Adams Road settlement plan, eThekwini Municipality
- HIA for Area 8 Pit Extension, Somkhele Anthracite Mine near Mtubatuba, KZN