PROPOSED CONSTRUCTION OF TRUNK SEWER AT GWALA FARM, ETHEKWINI MUNICIPALITY, KWAZULU-NATAL

Phase 1 Heritage Impact Assessment

February 2021

FOR: **ECA Consulting**
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EXECUTIVE SUMMARY

The eThekwini Water and Sanitation Unit is proposing to construct a trunk sewer (ranging from 250mm to 450mm diameter) that ties into the existing infrastructure which leads to the Tongaat Wastewater Treatment Works. The trunk sewer is proposed to be constructed adjacent to the Hlawe River where it will service current developments without sewer provision and proposed developments that have already been approved for construction.

The length of the proposed trunk sewer is 6km hence it hence it triggers sections 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 300m in length.

The project area is situated west of the centre of Tongaat and north of the suburbs of Belvedere, Trurolands and Buffelsdale. It is located close to and immediately south of the Hlawe River.

An inspection of the project site was undertaken on 17 February 2021. Visibility was at times difficult as sections of the alignment were overgrown with vegetation and sugar cane. Some of the access roads were very wet and not passable; however, much of the proposed alignment of the trunk sewer was investigated.

Much of the alignment was inspected on foot. The area is disturbed due to sugar cane farming and some sand mining on the river bank. In some areas, some of the bush had been cut down. During the inspection, only one structure was found which was the remains of a stone wall. No other heritage resources were observed during the inspection.

A low wall made of stone, found during site inspection, is located approximately 60m north-east of the proposed trunk sewer. On the 1937 1:50 000 topographical map (2931CA) of the area, a road is indicated crossing the river at approximately the same point hence the structure could be the remains of a bridge/culvert servicing this road since then. This structure is, however, not indicated on the relevant section of the map.

The wall is of low heritage significance because its purpose and context could not be established. However, it appears to be over 60 years and is therefore protected by section 37 of the KwaZulu-Natal Amafa and Research Institute Act, 2018, which refers to the protection of structures that are or that may reasonably be expected to be older than 60 years. If it is to be impacted by the installation of the trunk sewer, the relevant permit must be obtained from the Institute (Amafa)

prior to any activity taking place. It is the specialist's recommendation that construction activities avoid the structure all together. However, if it is expected that the project will impact the wall, then an application can be made to the Institute for the alteration or demolition of the structure.

The fossil sensitivity map indicates that the project area falls into a zone of moderate sensitivity with a slight overlap into an area of low sensitivity. A moderate sensitivity requires that a desktop paleaontological study be undertaken. However, due to the disturbed nature of the project area through ongoing cultivation, there is a low risk that intact and significant fossil finds will still be found therefore it is recommended that no desktop palaeontological assessment is required. However, a protocol for chance finds of fossils is included in the mitigation measures provided in Chapter 9 of this report.

It is recommended that the construction of the trunk sewer proceed from a heritage perspective as long as the recommendations provided regarding the protection of the stone wall and additional mitigation measures provided are adhered to.

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I, Jean 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

The eThekwini Water and Sanitation Unit is proposing to construct a 6-kilometre (km) trunk sewer (ranging from 250mm to 450mm diameter) that ties into the existing infrastructure which leads to the Tongaat Wastewater Treatment Works. The trunk sewer is proposed to be constructed adjacent to the Hlawe River where it will service current (Gwala Farm and Hazelmere) developments without sewer provision and proposed (Belvedere and Umbhayi) developments that have already been approved for construction.

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

2. LEGISLATIVE BACKGROUND

The length of the proposed trunk sewer is 6km hence it hence it triggers 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 300m in length.”.

The project 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.

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).

3. LOCATION

The project area is situated west of the centre of Tongaat and north of the suburbs of Belvedere, Trurolands and Buffelsdale (see **Figure 1**). It is located close to and immediately south of the Hlawe River. The western end/start of the pipeline is located at 29°34’51.77” S 31°03’52.17” E whilst the eastern end/start point is at 29°34’20.05” S 31°06’08.58” E.

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 installation of the proposed trunk sewer. 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, the KwaZulu-Natal Amafa and Research Institute (hereafter referred to as the Institute), for their assessment and comment.

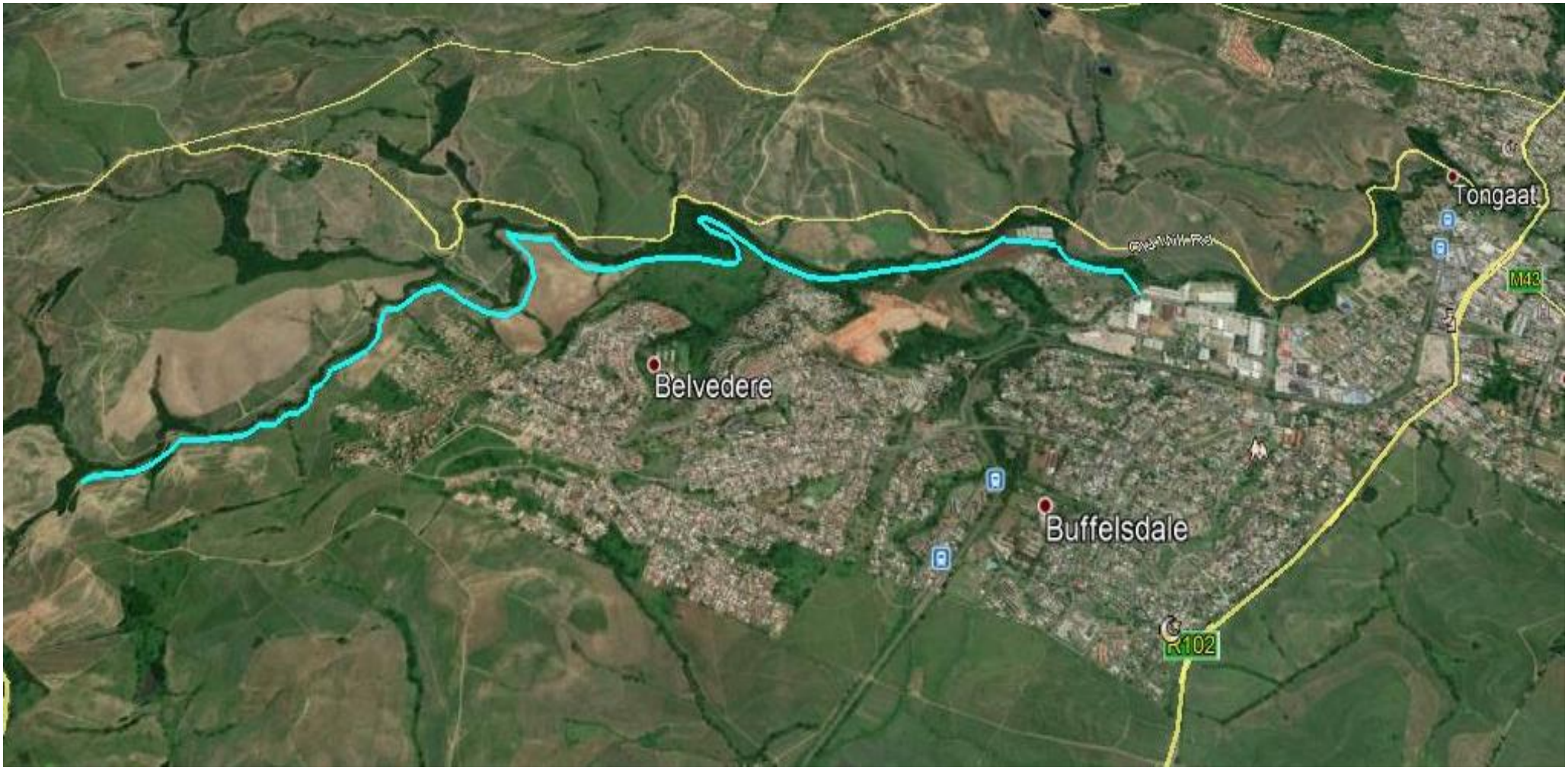


Figure 1: Location of trunk sewer (turquoise line) in relation to Tongaat and surrounding suburbs

5. METHODOLOGY AND CONSTRAINTS

A survey of literature, including other heritage impact assessment reports that may have been 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 17 February 2021. Visibility was at times difficult as sections of the alignment were overgrown with vegetation, both indigenous and invasive as well as sugar cane. Access roads also disturb the area and some of these were very wet and not passable; however, much of the proposed alignment of the trunk sewer was investigated.

6. HISTORICAL BACKGROUND OF PROJECT AND SURROUNDING AREA

The greater Tongaat area has been relatively well surveyed for archaeological heritage sites by various institutions including the KwaZulu-Natal Museum. The available evidence indicates that the area contains a wide array of archaeological sites covering different time-periods and cultural traditions. Eighty heritage sites occur in the larger surrounding area. These range from Early Stone Age, Middle Stone Age, and Later Stone Age to Early Iron Age, Middle and Later Iron Age sites as well as historical sites relating to the rise of the Zulu Kingdom and the subsequent colonial period (Prins 2014:1).

The name Tongaat was taken from the nearby Tongati River, the Zulu word for the indigenous trees that flourish on river banks. The history of Tongaat shows that the present site of Tongaat was selected in 1846 by a government commission as one of a number of villages, which it was hoped, would be established through emigration. The village was initially named “Victoria”. It developed into a town in the 19th Century because of the successful cultivation of sugar cane in the area. This led to the development of huge and very successful sugar estates which asserted themselves as a distinctive force in the cultural and political spheres of the region’s social history (Urban-Econ 2008:22).

Sugar cultivation was extremely labour intensive, particularly at seasonal peaks. From the 1860s the labour requirements of the sugar industry were met by indentured Indian labour. This gave rise to the establishment of an informal community of indentured labourers where no form of

development control existed. The effects of the malaria epidemic in 1930 triggered the establishment of health committees that were eventually formalised as the Tongaat Town Board in 1944 (Urban-Econ 2008:22).

7. RESULT OF SITE INSPECTION

Much of the alignment was inspected on foot. The area is disturbed due to sugar cane farming and some sand mining on the river bank. In some areas, some of the bush had been cut down. It was unclear if this was an official clearing of invasive bush or it was been done to acquire wood for household purposes. During the inspection, only one structure was found that is the remains of a stone wall. No other heritage resources were observed during the inspection.

Figure 2: Alignment near wastewater treatment works

Figure 3: Section of alignment show thick vegetation and undergrowth

Figure 4: Trunk sewer alignment located in sugar cane field

Figure 5: Section of alignment of trunk sewer

Figure 6: Clearing of area along Hlawe River

A low wall made of stone was found at 29°34’21.9” S 31°04’35.4” E. It is located approximately 60m north-east of the proposed trunk sewer. On the 1937 1:50 000 topographical map (2931CA) of the area, a road is indicated crossing the river at approximately the same point hence the

structure could be the remains of a bridge/culvert servicing this road. This structure is, however, not indicated on the relevant section of the map in **Figure 7** below.

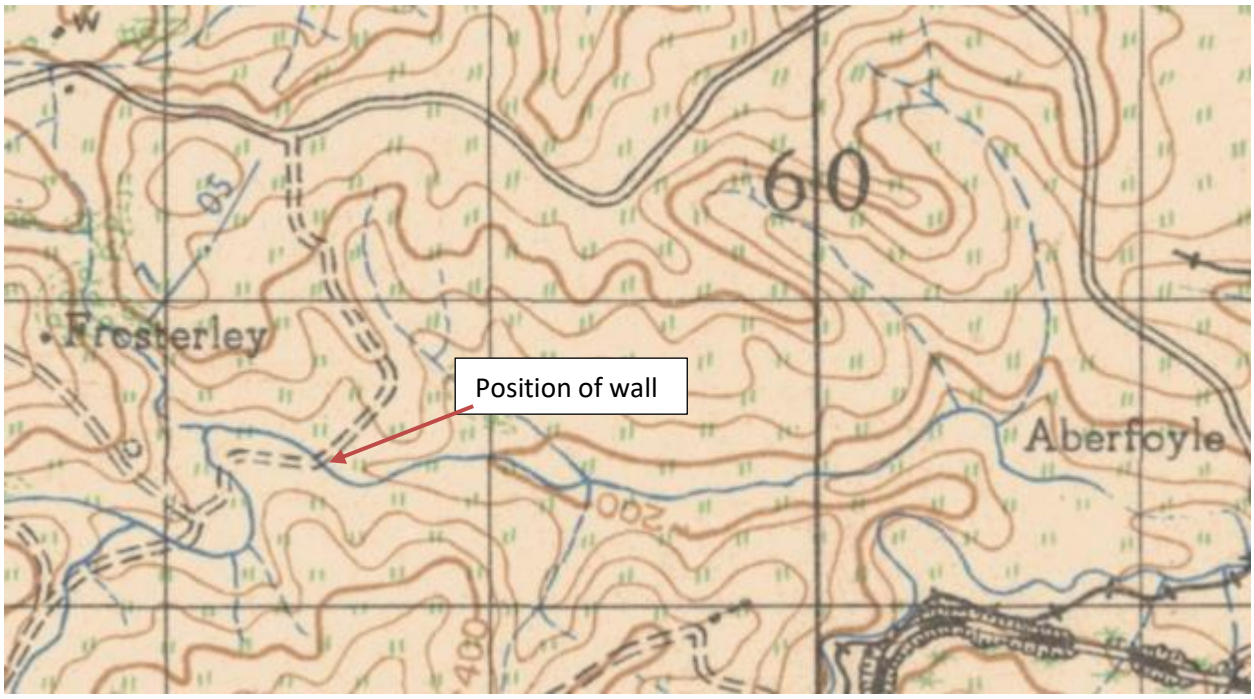


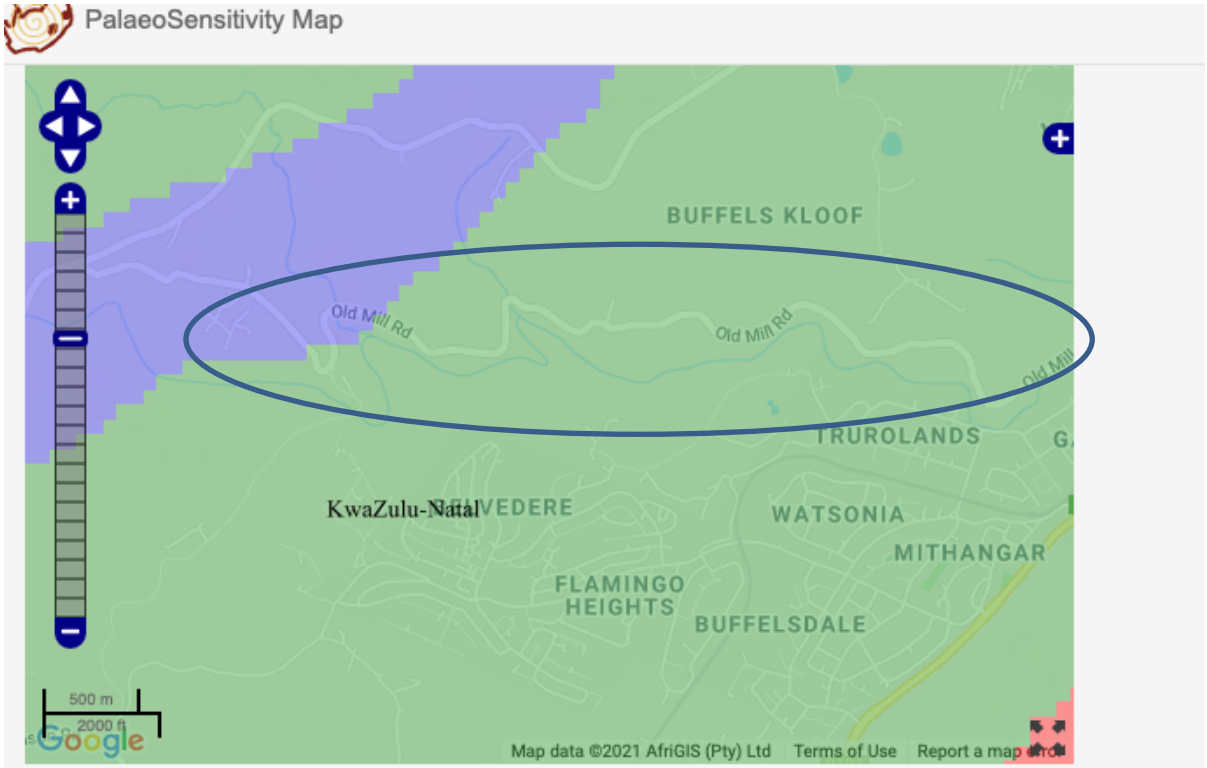
Figure 7: 1937 topographical map of section of project area

Figure 8: Remains of stone structure / wall

The wall is of low heritage significance because its purpose and context could not be established. However, it appears to be over 60 years and is therefore protected by section 37 of the KwaZulu-Natal Amafa and Research Institute Act, 2018, which refers to the protection of structures that

are or that may reasonably be expected to be older than 60 years. If it is to be impacted by the installation of the trunk sewer, the relevant permit must be obtained from the Institute (Amafa) prior to any activity taking place. It is the specialist's recommendation that construction activities avoid the structure all together.

The fossil sensitivity map of the South Africa indicates that the project area falls into a zone of moderate sensitivity as indicated with the green colour on **Figure 9** below. There is a slight overlap into an area of low sensitivity (blue colour on western end of trunk sewer). A moderate sensitivity requires that a desktop paleaontological study be undertaken. Due to the disturbed nature of the project area through ongoing cultivation of the project area which is shown in the 1937 topographical map referred to above, there is a low risk that intact and significant fossil finds will still be found therefore it is recommended that no desktop assessment is required. However, a protocol for chance finds of fossils is included in the mitigation measures listed below.



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 9: Fossil sensitivity of project area indicated within blue outline

8. ASSESSMENT OF SIGNIFICANCE

The assessment of impacts has considered the direct, indirect and cumulative impacts of heritage resources identified during the Phase 1 HIA study in terms of the following criteria:

- The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high).
- The **duration**, wherein it will be indicated whether:
    - the lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;
    - the lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2;
    - medium-term (5–15 years) – assigned a score of 3;
    - long term (> 15 years) - assigned a score of 4; or
    - permanent - assigned a score of 5;
- The **magnitude**, quantified on a scale from 0-10, where 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- The **probability** of occurrence, which shall describe the likelihood of the impact occurring. Probability will be estimated on a scale of 1–5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
- The **significance**, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high; and
- The **status**, which will be described as either positive, negative or neutral.
- The degree to which the impact can be mitigated.

The following formula was applied to calculate the impact significance after the factors were ranked for each impact: SP = (magnitude + duration + scale) x probability.

The significance weightings for each potential impact are as follows:

- < 30 points: Low (i.e. where this impact would not have a direct influence on the decision to develop in the area),
- 30-60 points: Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated),
- >60 points: High (i.e. where the impact must have an influence on the decision process to develop in the area).

Table 1: Assessment of stone structure

Nature: Alteration, damage or destruction of structure reasonably expected to be >60 years		
	Without mitigation	***With mitigation***
Extent	*Local (1)*	*Local (1)*
Duration	*Permanent (5)*	*Long-term (4)*
Magnitude	*Low (4)*	*Low (4)*
Probability	*Probable (3)*	*Improbable (2)*
Significance	***30 (Medium)***	***18 (Low)***
Status (positive or negative)	*Negative*	*Negative*
Reversibility	*None*	*Low*
Irreplaceable loss of resources	*Yes*	*Yes*
Can impacts be mitigated?	*Yes*	
Mitigation measures • *If possible, the remains of the stone wall should be left in-situ and a buffer of 5 m be placed around it so that construction and maintenance activities do not impact on it. No activity may take place within the buffer.* • *If necessary, an application can be made to the Institute (Amafa) for the alteration or demolition of the wall. Section 2 of the 2012 KZN Heritage Regulations which refers to the process when making application for the demolition, alteration or addition to a structure which Is, or which may reasonably be expected to be older than 60 years must be adhered to.*		
Cumulative impacts: *Low*		

9. CONCLUSIONS

Apart from the remains of a stone wall that crosses part of the Hlawe River, no other heritage sites were found during the site inspection. The area is disturbed by sugar cane farming and parts of the alignment for the trunk sewer are heavily overgrown with vegetation which made visibility and access difficult. It is recommended that the construction of the trunk sewer proceed from a heritage perspective as long as the recommendations provided above regarding the stone wall and the mitigation measures provided below are adhered to.

10. MITIGATION MEASURES

- 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 (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.
- 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 the Institute 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 construction activities begin, 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.
    - If there is any possible fossil material found by the environmental officer/miners then the qualified palaeontologist must be sub-contracted in order for them to visit the site to inspect the selected material and check the dumps where feasible.
    - 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, permit must be obtained from the Institute. Annual reports must be submitted to the Institute as required by the relevant permits.

11. REFERENCES

Prins, F. 2014. *A first phase heritage impact assessment of the proposed Burbreeze pedestrian bridge near Tongaat, eThekwini Metro Municipality*. Unpublished report.

Prins, F. 2014. *A first phase heritage impact assessment of proposed expansion of Brake Village Shri Siva Soobramanair Alayam Temple, Erf 5478, Tongaat, extension 48, KwaZulu-Natal.* Unpublished report.

Urban-Econ. 2008. *Tongaat Local Economic Development Strategy 2008*. Unpublished report submitted to eThekwini Development Unit and KZN Department of Economic Development.