

**PERMIT APPLICATION FOR THE TRONOX  
PIPELINE AT THE FAIRBREEZE MINE, MTUNZINI,  
KWAZULU-NATAL**

**FOR TRONOX KZN SANDS**

**DATE: 19 AUGUST 2014**

**By Gavin Anderson**

**Umlando: Archaeological Surveys and Heritage  
Management**

**PO Box 102532, Meerensee, 3901**

**Phone/fax: 035-7531785 Fax: 0865445631**

**Cell: 0836585362**



## TABLE OF CONTENT

INTRODUCTION .....	3
<b>KWAZULU-NATAL HERITAGE ACT NO. 4 OF 2008</b> .....	7
METHOD .....	9
Defining significance.....	10
RESULTS .....	12
DESKTOP STUDY .....	12
FIELD SURVEY .....	14
Ethembeni's site .....	14
Early Iron Age site .....	15
2931DD 012 .....	15
Umlalazi Bridge .....	17
PD22A/B.....	19
TRAIN STATIONS AND RELATED BUILDINGS .....	22
PD41.....	23
GENERAL MANAGEMENT PLAN .....	25
CONCLUSION.....	26
REFERENCES .....	27

## TABLE OF FIGURES

FIG. 1 GENERAL LOCATION OF THE PIPELINE .....	4
FIG. 2: AERIAL OVERVIEW OF THE PIPELINE .....	5
FIG. 3: TOPOGRAPHICAL MAP OF THE PIPELINE .....	6
FIG. 4: LOCATION OF KNOWN HERITAGE SITES NEAR THE STUDY AREA .....	13
FIG. 5: GENERAL LOCATION OF 2831DD 012.....	16
FIG. 6: PLAQUE ON THE UMLALAZI RIVER BRIDGE .....	17
FIG. 7: GENERAL VIEW OF THE UMLALAZI RIVER BRIDGE .....	18
FIG. 8 EXISTING PIPELINE ON THE EASTERN SIDE OF THE BRIDGE .....	18
FIGURE 9: PD22a AND PD22b – OLD SAW MILL.....	20
FIG. 10: LOCATION OF PIPELINE .....	21
FIG. 11: PORT DURNFORD STATION PLATFORM.....	23
FIG. 12: GENERAL EXTENT OF PD41 .....	24
TABLE 1: SUMMARY OF RECORDED SITES AND MANAGEMENT PLAN.....	26

## INTRODUCTION

Tronox KZN Sands is currently building the infrastructure for the Fairbreeze Mine. This includes a pipeline that runs from the mining area south of Mtunzini to the Hillendale Mine on the outskirts of Esikhaweni. An HIA was done for the Fairbreeze mining lease (Anderson 2012) and a permit has been issued for the (partial) destruction of these sites. The HIA for the pipeline was undertaken in 2005 and re-assessed in 2011 (eThembeni), where one site was noted. Amafa KZN gave permission for the line to be built, and did not request a permit (2011/08/04-01).

In August 2014 Umlando undertook an ad hoc survey for the Fairbreeze Mine as per the agreed management plan. We noted that the pipeline will extend beyond the mining lease, and that it may impact on heritage sites. We noticed that the Umlalazi Bridge was to be affected but it had not been noted in the HIA for the pipeline. We were then requested to undertake a desktop study to see if more heritage sites occur along the pipeline and to obtain the required permits. This was important as construction had already begun on the understanding that the HIA for the pipeline was completed. Amafa KZN has already given permission for the pipeline to be built and did not request a permit for any of the sites. Tronox would prefer to apply for the permits to be legally compliant, instead of reporting the sites as required in Amafa KZNs conditions.

The desktop study indicates that there are heritage sites outside of the mining lease that may be affected by the pipeline, and some would require a permit for their (partial) destruction and/or alteration. There are four sites in the mining lease that will be affected; however, these already have permits.

This report is to describe those sites falling within 100m of the pipeline, design a management plan for each site, and request a permit for the affected sites.

Figures 1 – 3 show the location of the pipeline.

FIG. 1 GENERAL LOCATION OF THE PIPELINE

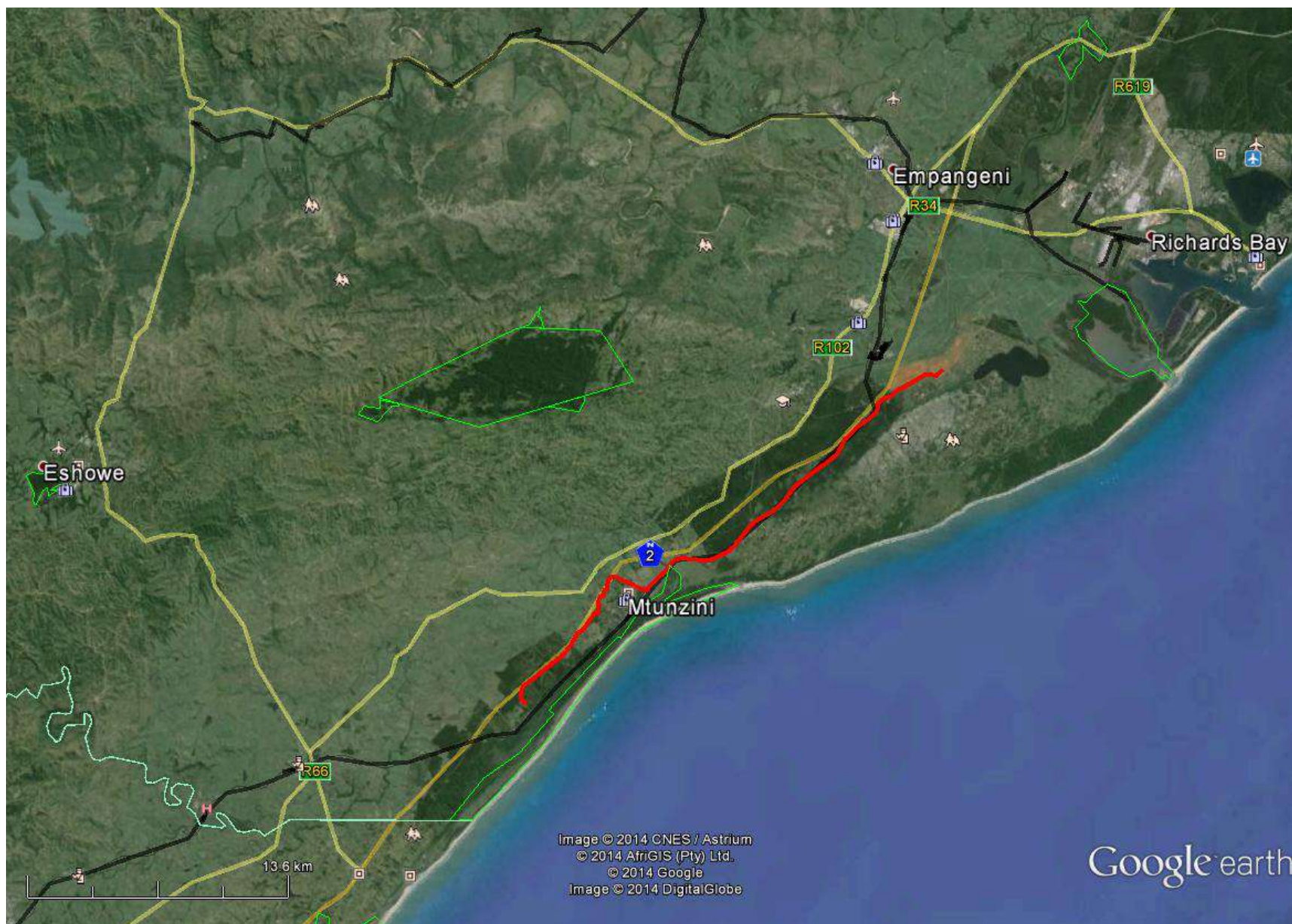




FIG. 2: AERIAL OVERVIEW OF THE PIPELINE

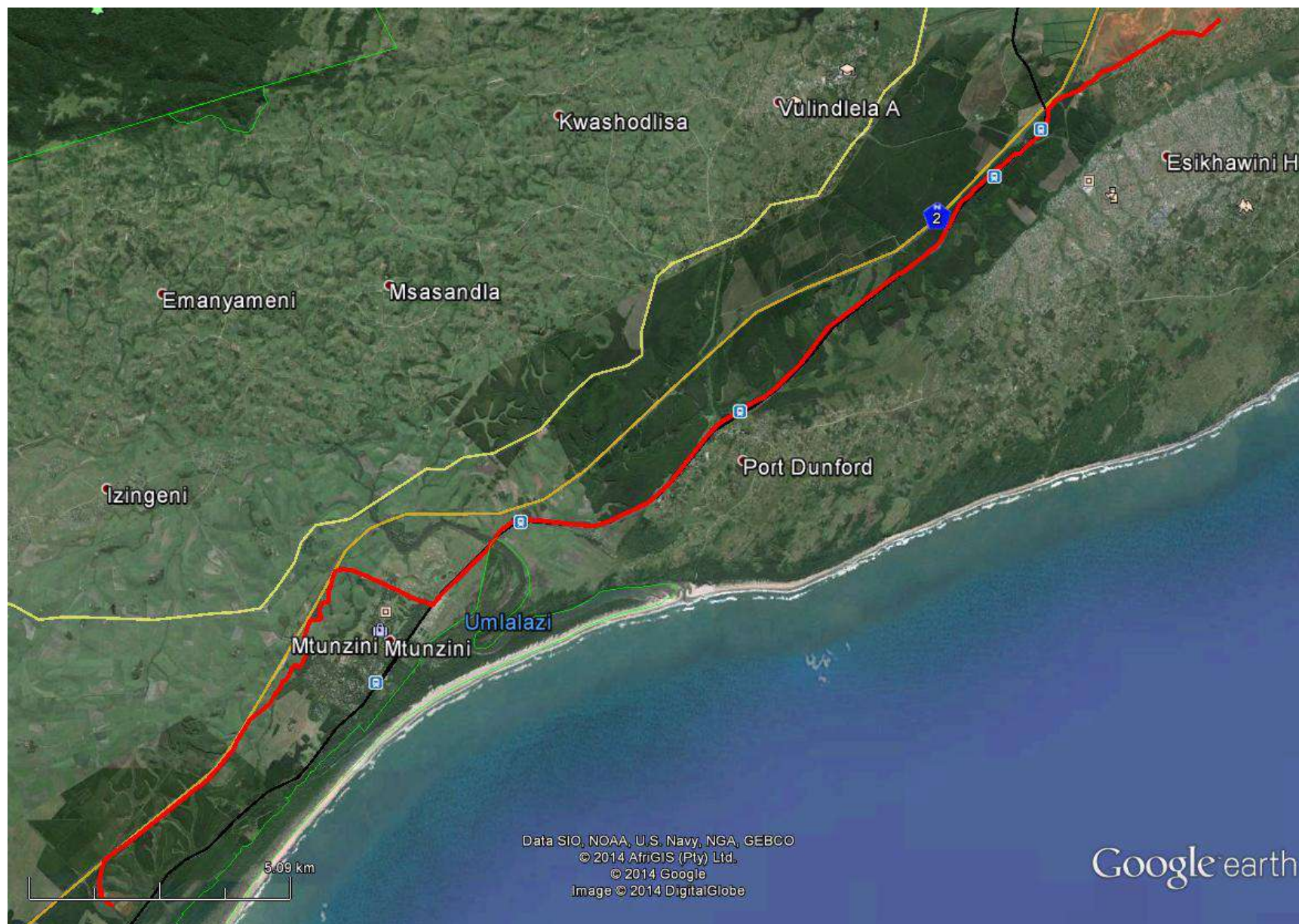
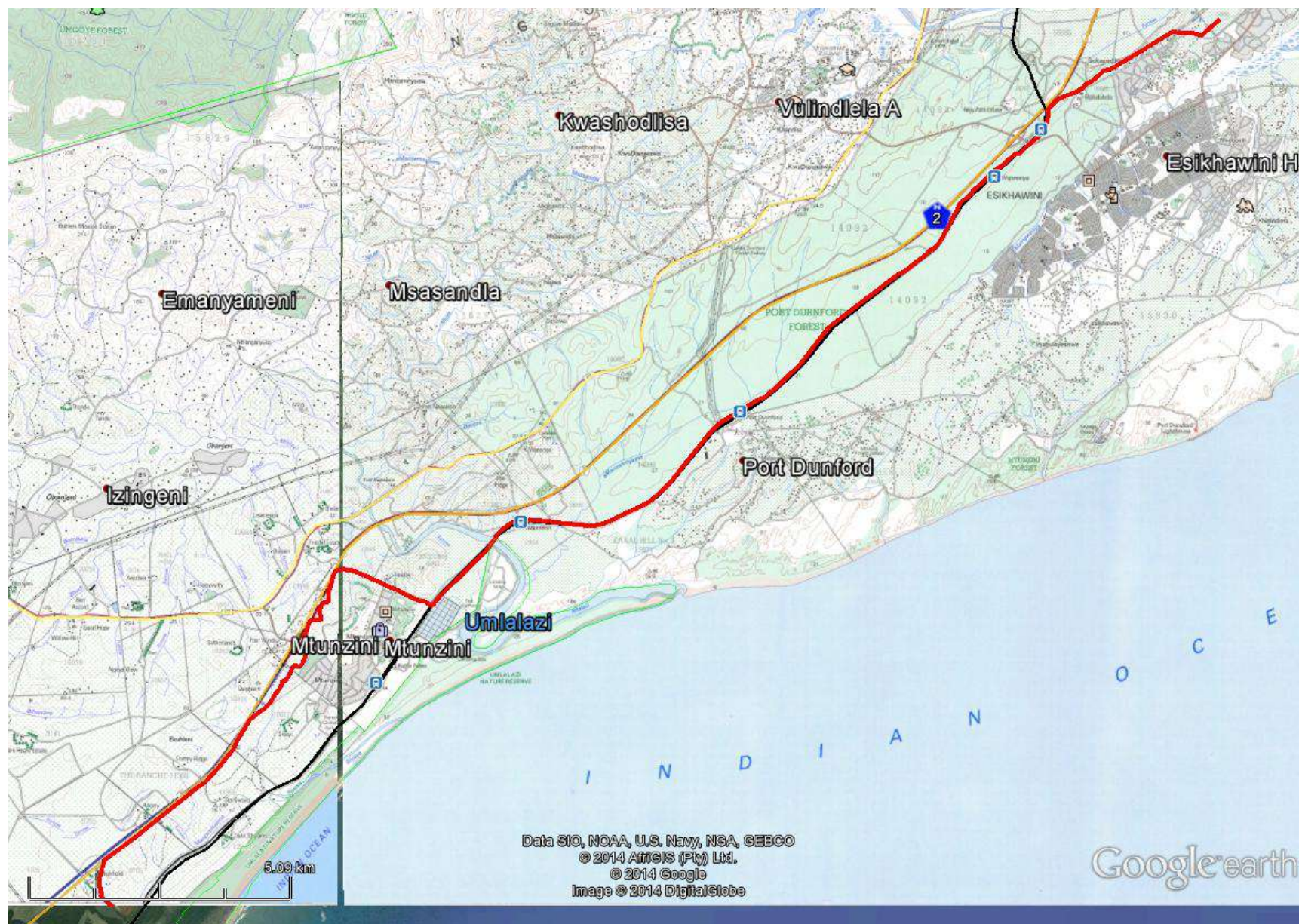




FIG. 3: TOPOGRAPHICAL MAP OF THE PIPELINE



## KWAZULU-NATAL HERITAGE ACT NO. 4 OF 2008

### “General protection: Structures.—

- No structure which is, or which may reasonably be expected to be older than 60 years, may be demolished, altered or added to without the prior written approval of the Council having been obtained on written application to the Council.
- Where the Council does not grant approval, the Council must consider special protection in terms of sections 38, 39, 40, 41 and 43 of Chapter 9.
- The Council may, by notice in the *Gazette*, exempt—
  - A defined geographical area; or
  - defined categories of sites within a defined geographical area, from the provisions of subsection where the Council is satisfied that heritage resources falling in the defined geographical area or category have been identified and are adequately protected in terms of sections 38, 39, 40, 41 and 43 of Chapter 9.
- A notice referred to in subsection (2) may, by notice in the *Gazette*, be amended or withdrawn by the Council.

### General protection: Graves of victims of conflict.—No person may damage, alter, exhume, or remove from its original position—

- the grave of a victim of conflict;
- a cemetery made up of such graves; or
- any part of a cemetery containing such graves, without the prior written approval of the Council having been obtained on written application to the Council.
- General protection: Traditional burial places.—
  - No grave—
    - not otherwise protected by this Act; and
    - not located in a formal cemetery managed or administered by a local authority, may be damaged, altered, exhumed, removed from its original position, or otherwise disturbed without the prior written approval of the Council having been obtained on written application to the Council.

The Council may only issue written approval once the Council is satisfied that—

- the applicant has made a concerted effort to consult with communities and individuals who by tradition may have an interest in the grave; and
- the applicant and the relevant communities or individuals have reached agreement regarding the grave.

General protection: Battlefield sites, archaeological sites, rock art sites, palaeontological sites, historic fortifications, meteorite or meteorite impact sites.—

- No person may destroy, damage, excavate, alter, write or draw upon, or otherwise disturb any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Council having been obtained on written application to the Council.
- Upon discovery of archaeological or palaeontological material or a meteorite by any person, all activity or operations in the general vicinity of such material or meteorite must cease forthwith and a person who made the discovery must submit a written report to the Council without delay.
- The Council may, after consultation with an owner or controlling authority, by way of written notice served on the owner or controlling authority, prohibit any activity considered by the Council to be inappropriate within 50 metres of a rock art site.
- No person may exhume, remove from its original position or otherwise disturb, damage, destroy, own or collect any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Council having been obtained on written application to the Council.
- No person may bring any equipment which assists in the detection of metals and archaeological and palaeontological objects and material, or excavation equipment onto any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, or meteorite impact site, or



- use similar detection or excavation equipment for the recovery of meteorites, without the prior written approval of the Council having been obtained on written application to the Council.
- The ownership of any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site, on discovery, vest in the Provincial Government and the Council is regarded as the custodian on behalf of the Provincial Government.” (KZN Heritage Act of 2008)

## METHOD

The method for Heritage assessment consists of several steps.

The first step forms part of the desktop assessment. Here we would consult the database that has been collated by Umlando. These databases contain archaeological site locations and basic information from several provinces (information from Umlando surveys and some colleagues), most of the national and provincial monuments and battlefields in Southern Africa (<http://www.vuvuzela.com/googleearth/monuments.html>) and cemeteries in southern Africa (information supplied by the Genealogical Society of Southern Africa). We use 1<sup>st</sup> and 2<sup>nd</sup> edition 1:50 000 topographical and 1937 aerial photographs where available, to assist in general location and dating of buildings and/or graves. The database is in Google Earth format and thus used as a quick reference when undertaking desktop studies. Where required we would consult with a local data recording centre, however these tend to be fragmented between different institutions and areas and thus difficult to access at times. We also consult with an historical architect, palaeontologist, and an historian where necessary.

The survey results will define the significance of each recorded site, as well as a management plan.

All sites are grouped according to low, medium, and high significance for the purpose of this report. Sites of low significance have no diagnostic artefacts or features. Sites of medium significance have diagnostic artefacts or features and these sites tend to be sampled. Sampling includes the collection of artefacts for future analysis. All diagnostic pottery, such as rims, lips, and decorated sherds are sampled, while bone, stone, and shell are mostly noted. Sampling usually occurs on most sites. Sites of high significance are excavated and/or extensively sampled. Those sites that are extensively sampled have high research potential, yet poor preservation of features.

### **Defining significance**

Heritage sites vary according to significance and several different criteria relate to each type of site. However, there are several criteria that allow for a general significance rating of archaeological sites.

These criteria are:

#### **1. State of preservation of:**

- 1.1. Organic remains:
  - 1.1.1. Faunal
  - 1.1.2. Botanical
- 1.2. Rock art
- 1.3. Walling
- 1.4. Presence of a cultural deposit
- 1.5. Features:
  - 1.5.1. Ash Features
  - 1.5.2. Graves
  - 1.5.3. Middens
  - 1.5.4. Cattle byres
  - 1.5.5. Bedding and ash complexes

**2. Spatial arrangements:**

- 2.1. Internal housing arrangements
- 2.2. Intra-site settlement patterns
- 2.3. Inter-site settlement patterns

**3. Features of the site:**

- 3.1. Are there any unusual, unique or rare artefacts or images at the site?
- 3.2. Is it a type site?
- 3.3. Does the site have a very good example of a specific time period, feature, or artefact?

**4. Research:**

- 4.1. Providing information on current research projects
- 4.2. Salvaging information for potential future research projects

**5. Inter- and intra-site variability**

- 5.1. Can this particular site yield information regarding intra-site variability, i.e. spatial relationships between various features and artefacts?
- 5.2. Can this particular site yield information about a community's social relationships within itself, or between other communities?

**6. Archaeological Experience:**

- 6.1. The personal experience and expertise of the CRM practitioner should not be ignored. Experience can indicate sites that have potentially significant aspects, but need to be tested prior to any conclusions.

**7. Educational:**

- 7.1. Does the site have the potential to be used as an educational instrument?
- 7.2. Does the site have the potential to become a tourist attraction?
- 7.3. The educational value of a site can only be fully determined after initial test-pit excavations and/or full excavations.

**8. Other Heritage Significance:**

- 8.1. Palaeontological sites
- 8.2. Historical buildings



- 8.3. Battlefields and general Anglo-Zulu and Anglo-Boer sites
- 8.4. Graves and/or community cemeteries
- 8.5. Living Heritage Sites
- 8.6. Cultural Landscapes, that includes old trees, hills, mountains, rivers, etc related to cultural or historical experiences.

The more a site can fulfill the above criteria, the more significant it becomes. Test-pit excavations are used to test the full potential of an archaeological deposit. This occurs in Phase 2. These test-pit excavations may require further excavations if the site is of significance (Phase 3). Sites may also be mapped and/or have artefacts sampled as a form of mitigation. Sampling normally occurs when the artefacts may be good examples of their type, but are not in a primary archaeological context. Mapping records the spatial relationship between features and artefacts.

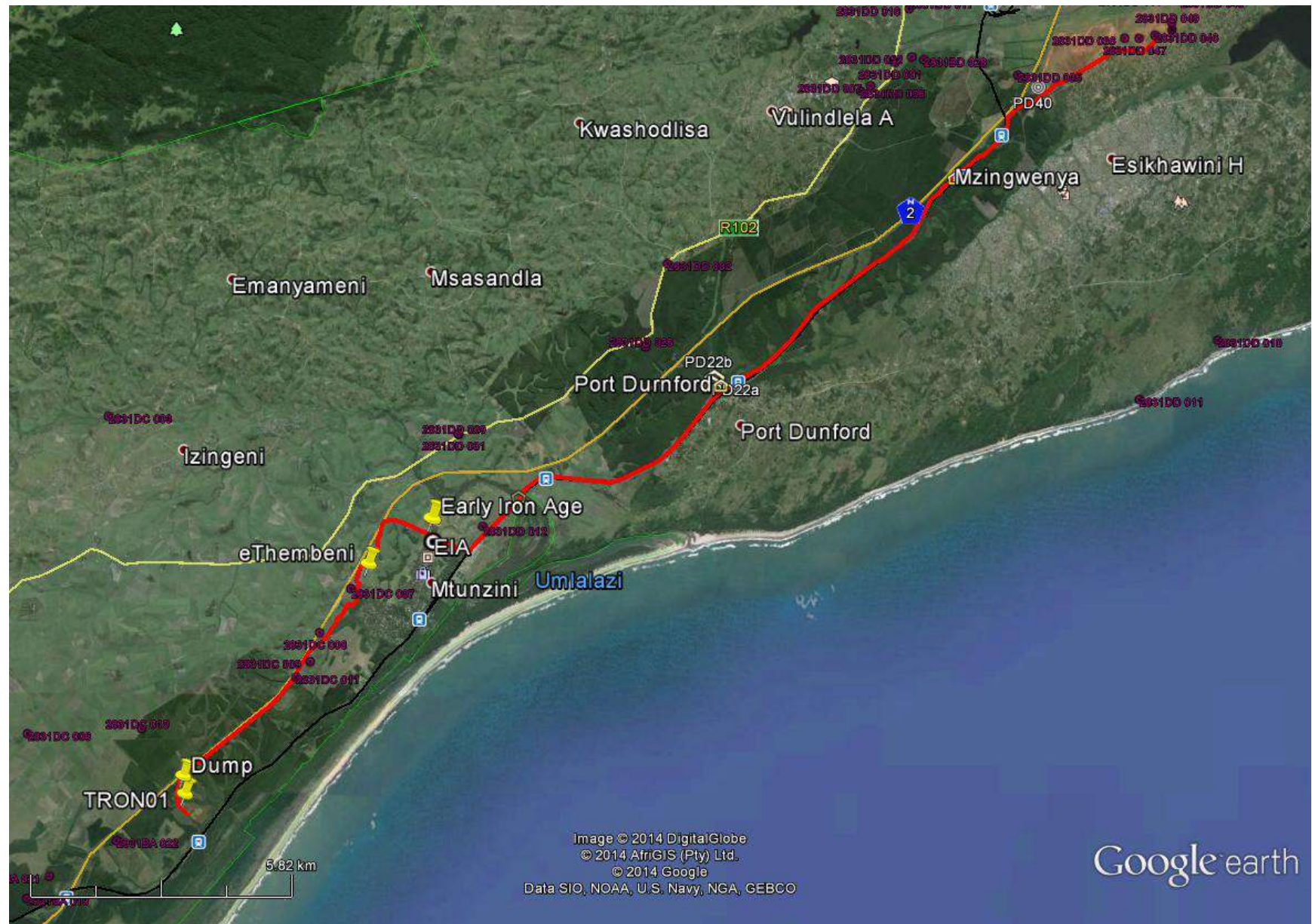
## **RESULTS**

### **DESKTOP STUDY**

The desktop study consisted of analysing various maps for evidence of prior habitation in the study area, as well as for previous archaeological surveys. The archaeological database indicates that there are archaeological sites in the general area (fig. 4). These sites include all types of Stone Age and Iron Age sites, as well as historical buildings and structures. Nine sites occur within 100m of the study area

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

FIG. 4: LOCATION OF KNOWN HERITAGE SITES NEAR THE STUDY AREA



## **FIELD SURVEY**

The field survey concentrated on the sites that occur within 100m of the pipeline and only on those sites recorded during the desktop study. The aim of the fieldtrip was not to redo the survey, but to note which sites would require a permit. An updated management plan is given for each site. The pipeline will have a footprint of 20m: 5m towards the uThungulu pipeline and 15m opposite while the trench is 5m wide at the top.

### **Ethembeni's site**

"The remains of a Late Iron Age site are located in cane lands on the hilltop ... at 28 57 06.7S; 31 44 39.1E. We observed undecorated ceramic sherds, iron ore, smelting debris (including slag and tuyere fragments) and calcined animal dung. These artefacts are dispersed, occur in very low concentrations and appear to be limited to the soil surface...

- Since the site has been altered irrevocably by decades of sugar cane farming it has low local and regional heritage significance and no permit from Amafa aKwaZulu-Natali is required for its destruction" (eThembeni 2005).

Management plan: A permit is required for all heritage sites, regardless of their significance, if they are to be affected by development. The pipeline would occur along the edge of the hills. The construction phase may expose more of the archaeological site as there is a possibility of human remains at these types of sites.

If any artefacts and/or human remains are noted during construction phase, then Tronox and the Heritage officer should be notified immediately.



### **Early Iron Age site**

I have noted (but never officially recorded) EIA sherds along the top of the hill near the golf course, and along the northern end of Hely Hutchinson Street, in 2000 - 2003. The sherds were undecorated but typical of EIA sherds of the area. The sherds are ephemeral and would barely make the definition of a site. The sherds are scattered over a wide area. The area is unlikely to have an intact archaeological deposit.

Significance: The site is of very low significance.

Mitigation: A general permit for the destruction of the site is required.

### **2931DD 012**

Oliver Davies recorded this site in 1979. The location is S28 56 30 E31 46 17 (Natal Museum data recording centre). Davies notes:

“This area must have formerly been a series of estuarine lagoons. So far as one can see in the overgrown railway-cutting, the upper terrace is composed of fine sand with some ilmenite and layers of small riverine gravel; no sign of shells. There is no exposure of the lower terrace....Content: 1 large unbroken quartzite pebble was found embedded near top of the upper terrace. It had probably been transported there”

Technically this is not a site; however, it is unlikely to have only one stone tool. The entire hill system from Mtunzini to Fairbreeze has a concentrations of of MSA and ESA artefacts that occur on the horizon between the topsoil and the ore bodies. Umlando has recorded these for the Fairbreeze mine (e.g. Tron01). Pipe jacking will occur near this site. The area where the pipe jacking occurs has been severely disturbed by railway and other pipeline construction (fig. 5).

Significance: The stone tool horizon is in a secondary context and would be ephemerally scattered along this lower section of the line. The tools would thus be of low significance.

Mitigation: A general permit for the partial destruction of the site is required.

**FIG. 5: GENERAL LOCATION OF 2831DD 012**



## **Umlalazi Bridge**

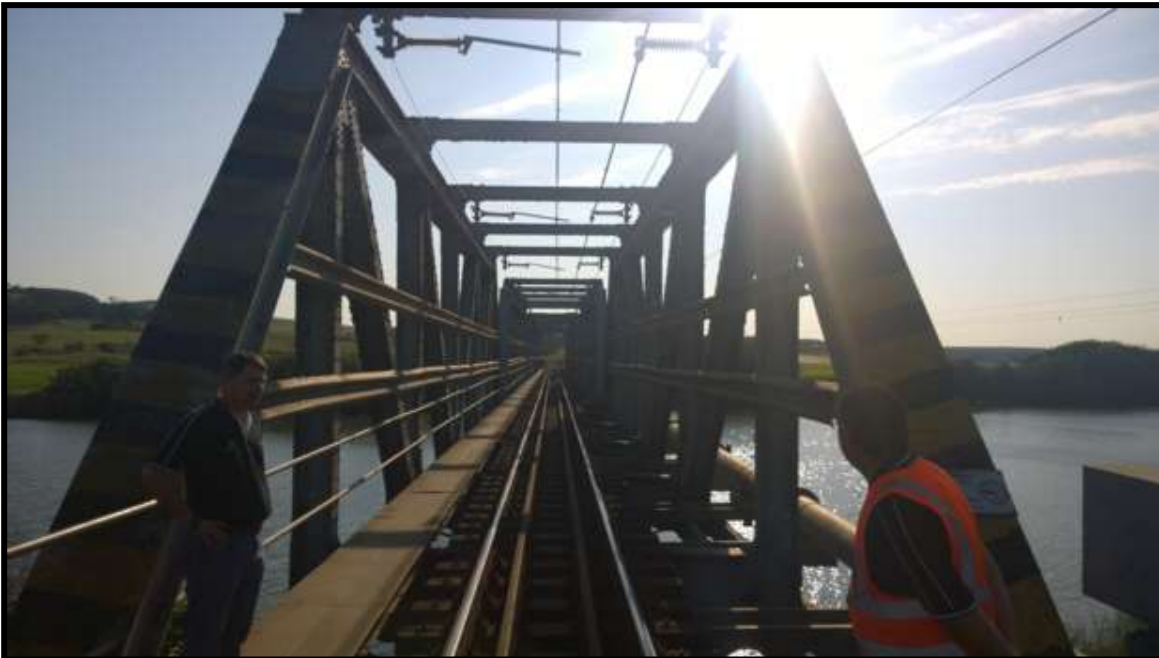
The railway bridge crossing the Umlalazi River was built in 1929 (fig. 6). It is an iron construction made by Shelton Bar and The Patent Shaft and Axeltree Company (1840 – 1980), Wednesbury, England. The plaque on the bridge dates to 1929 and the bridge is thus automatically protected in terms of the KZNHA from any destruction, alteration or modification. The bridge is a steel railway bridge structure (fig. 7). The bridge was originally used as part of the railway system to move wood from places like Port Durnford Forest that was established in 1925 (Marwick 1973). It currently has several pipes adjoining it.

**FIG. 6: PLAQUE ON THE UMLALAZI RIVER BRIDGE**





**FIG. 7: GENERAL VIEW OF THE UMLALAZI RIVER BRIDGE**



The pipeline will be attached to the western side of the bridge, in a similar manner to the pipeline along the eastern side (fig. 8).

**FIG. 8 EXISTING PIPELINE ON THE EASTERN SIDE OF THE BRIDGE**



Significance: The bridge was constructed in 1929 and thus post dates any historical battles. It was originally used for the transportation of wood (products) from the newly established afforested areas such as Port Durnford, where a sawmill also existed. The bridge forms part of the railways and transportation system of early KZN, and is thus of some significance. The full significance of the bridge may need to be assessed by an architect historian. However, since this is only an attachment to the bridge that already has several attachments, I do not believe this is necessary.

Mitigation: The pipeline intends to use the lower western side of the bridge as a support to cross the Umlalazi River. It will thus be visually and physically altering the bridge. The physical alteration is in the construction of the pipeline on the bridge. Minimal impact should be on the bridge, and its foundations should not be affected. The visual impact will be in the colour of the pipeline that is in contrast to the bridge. I suggest the pipeline is painted in a similar colour as the bridge.

A permit from Amafa KZN Built Environment will be required for the modification/alteration of the bridge.

## **PD22A/B**

The site was recorded in 2007 by Umlando. PD22a-b is in the area of the sawmill (fig. 9). The original sawmill occurred in the general area as early as 1915. It has relocated since then, and the current sawmill (ruins) are the remains of the last sawmill, dating to the 1950s. There are some old oak trees on the border of the saw mill area.

The pipeline will occur ~60m from PD22a and is unlikely to impact on the site. The field survey noted that there are no structures in the footprint of the pipeline (fig. 10).

**FIGURE 9: PD22a AND PD22b – OLD SAW MILL**





FIG. 10: LOCATION OF PIPELINE<sup>1</sup>



<sup>1</sup> A

Tran



Significance: The site is in ruin with only a few foundations remaining. It is of low significance.

Mitigation: The pipeline footprint will not affect the ruins. If any built structures are noted during construction activity, then this will need to be reported to the HIA officer and Amafa KZN.

No permit is required, as the site is not affected.

## **TRAIN STATIONS AND RELATED BUILDINGS**

Three structures related to the railway line occur within 50m of the pipeline footprint: Fort Napoleon, Port Durnford and Mzingwenya. Only Port Durnford station occurs on the pipeline side of the railway. The station platform is in ruin and falls outside of the pipeline footprint (fig. 11).

**FIG. 11: PORT DURNFORD STATION PLATFORM**



Significance: The station appears to be of low significance.

Mitigation: The pipeline will not affect the station platform. If any built structures are noted during construction activity, then this will need to be reported to the HIA officer and Amafa KZN.

No permit is required, as the site is not affected.

#### **PD41**

Umlando recorded the site in 2008. PD41 is located on along an afforested hill near the R103. The site consists of an ephemeral scatter LSA tools and

pottery probably dating to the HP. The British Military maps indicate settlements in this area. The stone tools are on quartz and consist of general flakes. The tools appear to be in a secondary context as the area has been under afforestation and sugar cane cultivation for many years. This is similar to the sites recorded by Umlando along the rest of this hill for the Hillendale mine from 2005 – 2011. The Late Stone Age sites from Hillendale mine have been sampled and discussed in the various Hillendale Mine reports.

Significance: The site is of low significance

Mitigation: No further mitigation is required. A permit will be required to partially impact on the site. Fig. 12 shows the general extent of the site

**FIG. 12: GENERAL EXTENT OF PD41**



## GENERAL MANAGEMENT PLAN

No built structures may be affected by the pipeline, and its construction, without a permit from Amafa KZN. This will include existing ruins and bridges. If any walling occurs in the way of the pipeline, then the heritage office should be notified immediately and all work in that section needs to stop.

The archaeological sites do not need monitoring as they are of low significance and are ephemeral scatters of artefacts. The construction teams should be aware that human remains might occur at some of these sites. If any human remains are unearthed during the course of construction, then all activity must stop and the heritage officer needs to be informed immediately. If human remains are exposed during construction, the all the excavated sand around that area may not be moved either.



Table 1 summarises the general management plan for the recorded sites that occur within 100m from the pipeline.

**TABLE 1: SUMMARY OF RECORDED SITES AND MANAGEMENT PLAN**

Site	Co-ordinates	Description	Requires A Permit
<b>TRON01</b>	28°59'40.08"S 31°42'5.52"E	MSA/LSA	Permit already issued
<b>2831DC 008</b>	28°57'47.00"S 31°44'2.00"E	ISA	Permit already issued
<b>2831DC 009</b>	28°58'19.20"S 31°43'42.10"E	LIA/HP settlement	Permit already issued
<b>2831DC 011</b>	28°58'8.00"S 31°43'54.00"E	IIA settlement	Permit already issued
<b>2831DC 007</b>	28°57'15.00"S 31°44'28.00"E	LIA settlement	Permit already issued
<b>eThembeni's site</b>	28°57'6.70"S 31°44'39.00"E	LIA settlement	Permit required
<b>EIA site</b>	28°56'34.90"S 31°45'30.98"E	EIA site (ephemeral)	Permit required
<b>2831DD 012</b>	28°56'30.00"S 31°46'17.00"E	ESA scatter	Permit required
<b>Umlalazi Bridge</b>	28°56'9.60"S 31°46'48.07"E	Historical Bridge	Permit required from Amafa KZN Built Environment
<b>Fort Napoleon Station/Siding</b>	28°55'57.91"S 31°47'35.31"E	Possible Historical railway sliding	Not affected, no permit required
<b>PD22a</b>	28°54'55.44"S 31°49'26.37"E	Historical saw mills	Not affected, no permit required
<b>Port Durnford station/sliding</b>	28°54'54.14"S 31°49'33.79"E	Historical station/sliding	Not affected, no permit required
<b>Mzingwenya station</b>	28°52'19.43"S 31°52'49.04"E		Not affected, no permit required
<b>PD41</b>	28°51'12.14"S 31°53'56.71"E	LSA and LIA/HP settlement	Permit required

## CONCLUSION

A desktop study and a limited field survey was undertaken of the pipeline for Tronox Fairbreeze mine to ensure that all heritage resources and structures had been assessed and that permits for the relevant sites and structures were in order. No permits had been issued for the recorded site, nor had several sites been assessed. This report briefly described these sites in terms of their significance and permit requirements. A management plan for each site was included.

## **REFERENCES**

Amafa KZN. 2001. Ref 2011/08/04-01

Ethembeni 2005. Heritage Impact Assessment Of Fairbreeze Mine Raw Water Supply Project, Mtunzini, Kwazulu-Natal, South Africa

Ethembeni 2011: letter of Verification

Marwick, C. 1973 Kwamahlati: The Story Of Forestry In Zululand' Pretoria: The Government Printer

Umlando. 2007. Heritage Survey Of The Port Durnford State Forest. For: Exxaro (Pty) Ltd

Umlando. 2008. Archaeological Survey Of Proposed Exxaro Port Durnford Mining Lease. For: Exxaro (Pty) Ltd