

**HERITAGE SURVEY OF THE NGQAMAKWE WATER
RETICULATION, EASTERN CAPE**

FOR AURECON

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EXECUTIVE SUMMARY

Umlando was contracted to undertake a heritage survey of the area to be affected by the Ngqamakwe water reticulation project. Twenty seven sites were recorded for the survey. These sites consists of possible palaeontological areas, Stone Age scatters and recent historical settlements with human remains. The current pipeline will impact on some of these sites, however the impact will be minimal if there are small deviations. These deviations were noted. There are no red flags to stop the project, however and ECO some areas will require monitoring during construction.

1.1.INTRODUCTION

Umlando cc was contracted by Aurecon to undertake a heritage survey of the water reticulation project for the Ngqamakwe-Tsomo area, Eastern Cape. The heritage survey covers archaeological, palaeontological, historical sites, as well as historical buildings, and graves (not in inhabited houses). I was assisted by Mr Kevin Cole (of the East London Museum) with the survey as he had knowledge of the terrain.

The water reticulation is for communities to the east and west of the R409 between Butterworth and Queenstown (fig's 1-3). The aim of the survey was to identify heritage sites and assess these sites in terms of the significance and sensitivity. A management plan in relation to the impact of the pipeline is required.

The trenches for the proposed pipeline will be ~1m wide and ~1.5m - 2m deep. The spoil heaps will add an additional 1m to the width. Most of the proposed pipeline runs adjacent to existing roads and tracks and thus in areas that have been partially disturbed.

Description Of The Study Area

The environment is mostly grasslands with subsistence-based agriculture. Some of the grasses were dense resulting in poor archaeological visibility. A few areas were also inaccessible via normal roads, or tracks, and these access roads did not always correlate with the maps (1:50 000 and Google Earth). I used Google Earth to view these areas and make assessments.

There is a distinct impression that most of the study area has only been inhabited from the late 19th century onwards. Of the 26 areas identified, only six predate the late 19th - 20th centuries – by several thousand years. Most of the

sites even appear to date to the last 60 years. Feeley (1987) notes that while there was farmer occupation in the area before 1865, there was a more recent Mfengu occupation post-dating 1865. He attributes the stone walling to the latter occupants. Feeley also notes that the grasslands are not a result of agropastoralists farming practices, but have existed in the area for some time.

1.1. Legislation pertaining to heritage sites

The National Heritage Resources Act (No. 25 of 1999) protects a variety of heritage sites. These include archaeological, palaeontological, meteorological and historical sites, as well as human graves and built structures older than 60 years.

In terms of the National Heritage Resources Act (No. 25 of 1999), graves older than 60 years (not in a municipal graveyard) are protected. Human remains younger than 60 years should be handled only by a registered undertaker or an institution declared under the Human Tissues Act. Anyone who wishes to develop an area where there are graves older than 60 years is required to follow the process described in the legislation (section 36 and associated regulations). The specialist will require a permit from the heritage resources authority. Permission must be obtained before exhumation takes place from the landowner where the graves are located, and from the owners/managers of the graveyard to which the remains will be relocated. Other relevant legislation must be complied with, including the Human Tissues Act (National Department of Health) and any ordinances of the Provincial Department of Health). The archaeologist can usually advise about this. The process for removing human remains can take up to six months or, depending on the social consultation process.

FIG. 1: LOCATION OF THE WATER RETICULATION AREA

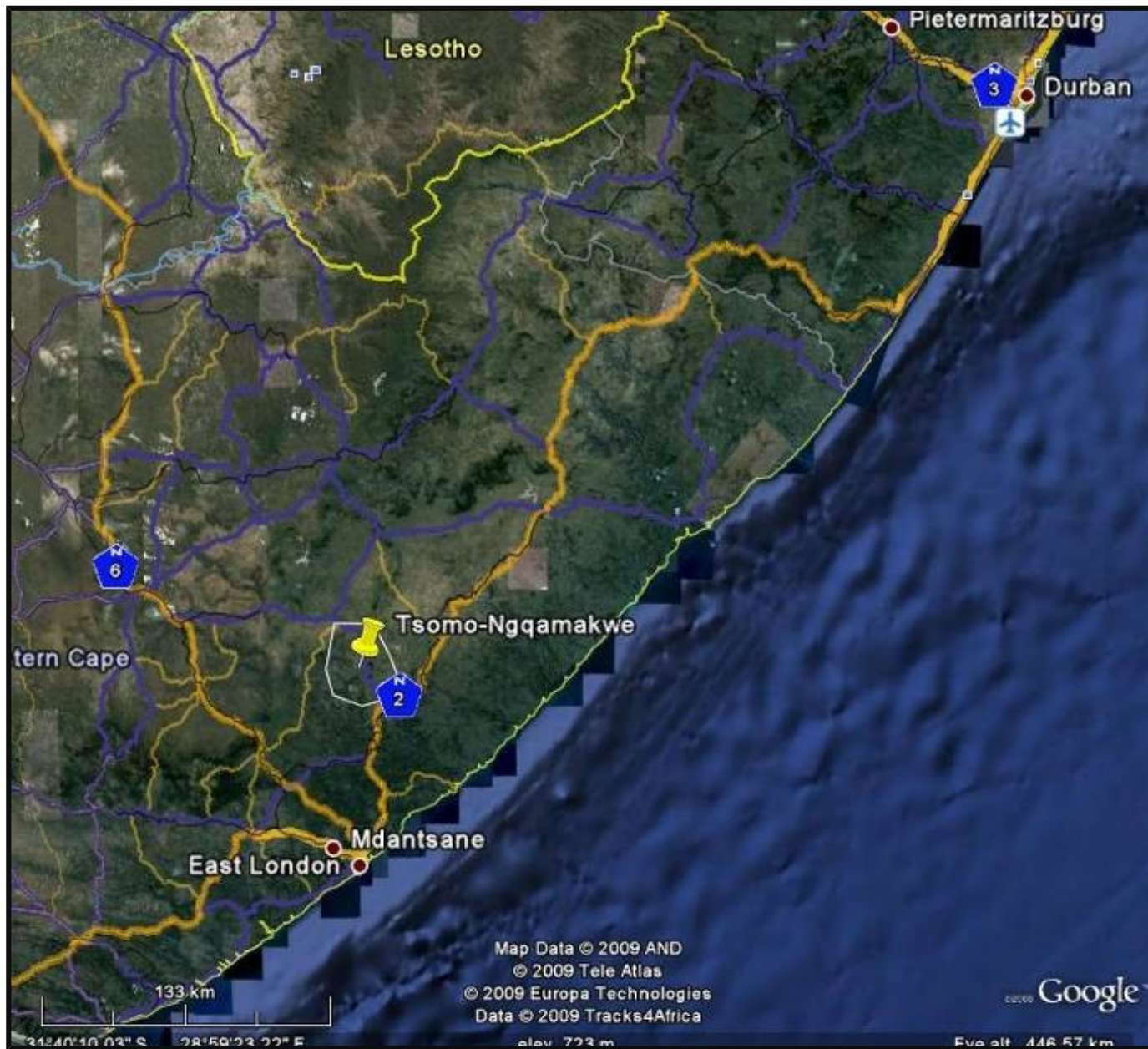
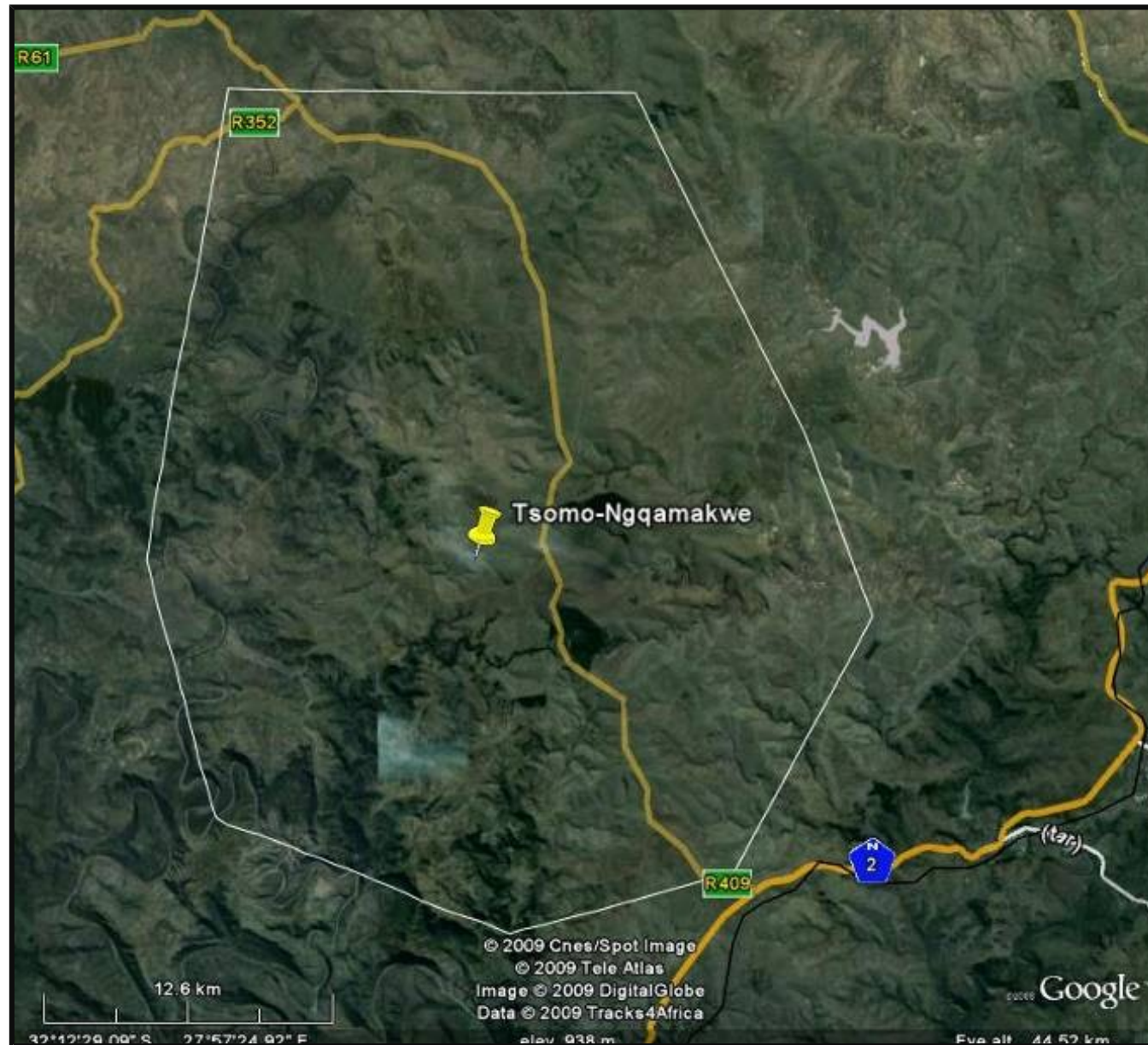


FIG. 2: THE STUDY AREA



1.1. Terms of reference

The terms of reference for the project are:

- Undertake a heritage survey of the affected area
- Assess heritage sites in terms of significance
- Provide a management plan for each site, and the project in general

1.2. METHOD

Umalndo's method for heritage assessment consists of several steps. The first step forms part of the desktop assessment. Here we would consult Umland's database for known heritage sites. This database does; however, tend to be restricted to archaeological and palaeontological sites. I would also use aerial photography (such as Google Earth) to note areas of stone walling, and make a general prediction of the types of sites that may occur in the area. Derricourt's (1977) work was also consulted. The survey did ignore houses or settlements that were currently occupied. The exceptions to this were the historical buildings in Ngqamakwe itself.

Consulting with the relevant authorities will also cover known battlefields and historical sites. We also consult with an historical architect, palaeontologist, and an historian where necessary. I was assisted by Mr Kevin Cole (of the East London Museum), who would have known of important historical sites of the area.

The initial survey (i.e. fieldwork) consists of a foot survey where the selected area was covered. The survey results will define the significance of each recorded site, as well as a management plan. The pipeline will probably occur within 20m of the road servitudes, if not closer, we did however attempt to record

sites within 50m – 100m of the road, or proposed servitude. This enables a heritage corridor to be formed.

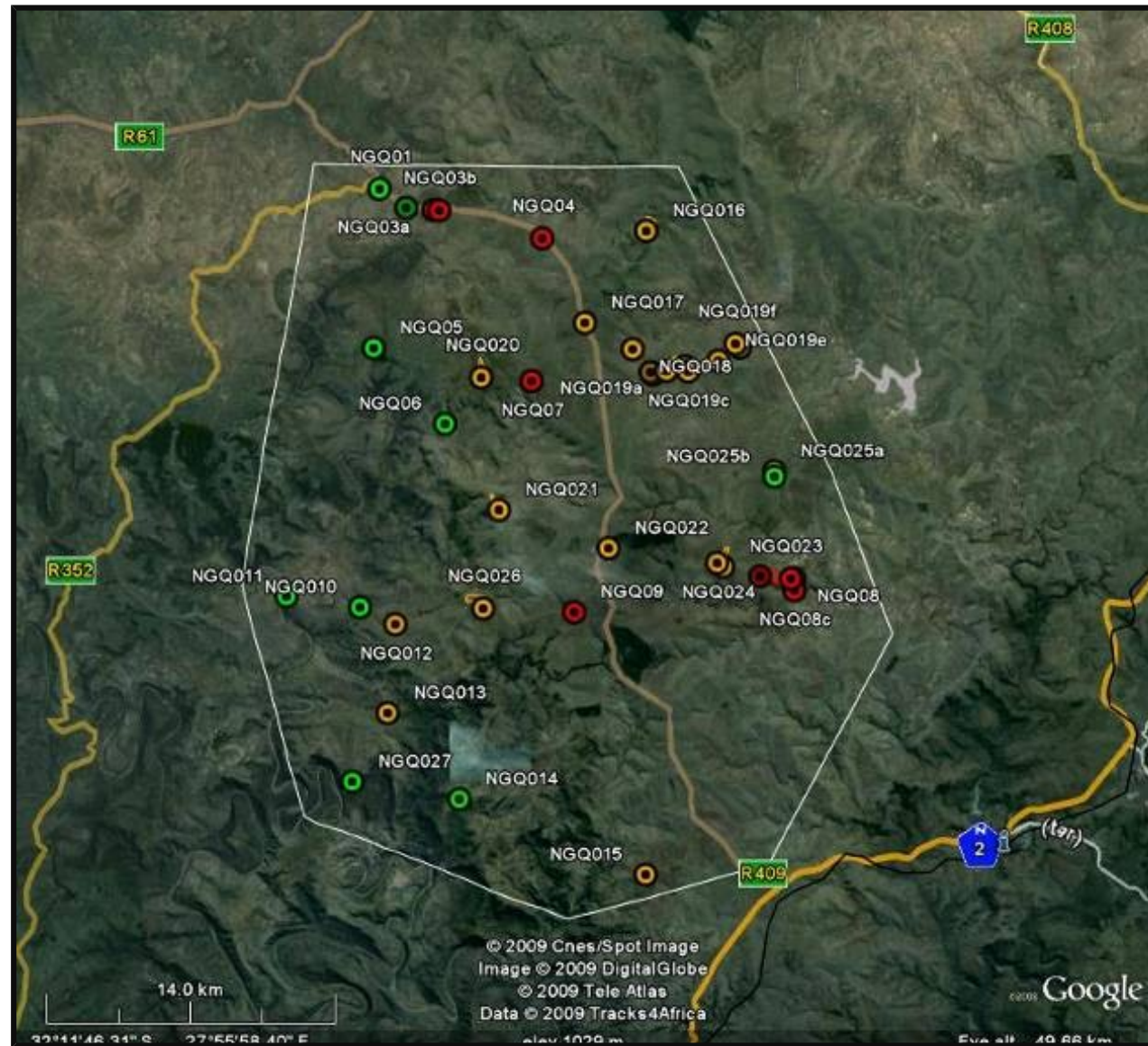
Table 1 summarises how sites are rates according to their significance.

TABLE 1: SUMMARY OF SITE SIGNIFICANCE

Significance	Types of artefacts	Type of mitigation
Low	No diagnostic artefacts	None
Medium	Diagnostic artefacts	Sampling, mapping and/or test-pit excavations
High	Diagnostic artefacts, well preserved deposit and/or features. Human remains	Sampling, mapping and/or excavations

Heritage sites vary according to type, context and content, and thus different types of sites have different types of significance. However, there are several factors that allow for a general significance assessment of heritage sites. These factors are related to:

- State of preservation
- Spatial arrangements
- Unique, rare or special features of the site
- Research value
- Inter- and intra-site variability
- Field experience of the practitioner
- Educational value
- Tourism value

FIG. 3: LOCATION OF RECORDED SITES IN THE STUDY AREA¹

¹ Red = high significance; Orange = medium significance; Green = low significance

1.3. FINDINGS

Twenty seven sites were recorded during the survey (fig. 3). These are mostly recent historical settlements that probably date no more than 100 years ago. A few Stone Age scatters and possible palaeontological sites were also recorded. The site information is summarised in Table 2.

There is a distinct pattern in the human agricultural settlement of this area. I first noticed a basic pattern during the survey, but then confirmed it with aerial photography. Feeley (1987) notes a similar pattern for settlements in the old Transkei, and has even more specific information relating to slant, geology/soil, etc. All recent historical settlements in the affected area have the following settlement pattern:

1. Row of three houses/huts at the top of the hill or slope – a few have 1-2 houses behind these, but this is rare.
2. A rectangular enclosed area in front of the houses. Stone walling, aloes, sisal or bushes can enclose this. This is either an agricultural field or a large kraal for domestic animals.
3. Attached to the main rectangular structure are 1 – 2 smaller structures that can be rectangular or circular in shape. While these do vary in location, they tend to be located at the bottom-right (facing downhill).
4. Graves tend to be located below the structure mentioned in point 2. I did however locate too few graves to make this a trend. The graves tend to be low stone cairns without discernable features. Very few graves had headstones or other means of physically identifying the person.

TABLE 2: SUMMARY OF HERITAGE SITES

Site Name	Type of site	Significance	Required Mitigation	Will be affected ²
NGQ01	MSA & LSA scatter	Low	None	Yes
NGQ02	stone walling.	Low	None	No
NGQ03	2 old settlements & 18 human graves	Low - High	The graves should not be disturbed	No
NGQ04	Recent grave	High	The grave should not be disturbed	No
NGQ05	MSA scatter	Low	None	Yes
NGQ06	Stone walling	Low	None	No
NGQ07	Historical building	Unknown	On site monitoring by ECO for artefacts	No
NGQ08	~43 family households for 2.5km possible graves	Medium - high	Final route to be rechecked. On site monitoring by ECO for artefacts Stay within 5m of the road reserve	Possible
NGQ09	Possible settlement and grave	Grave = high	None	No
NGQ010	MSA & LSA scatter	Low	None	Yes
NGQ011	MSA scatter	Low	None	Yes
NGQ012	St Benfort mission	Unknown	On site monitoring by ECO for artefacts	Possible
NGQ013	MSA scatter	Low	None	Yes
NGQ014	ESA scatter	Low.	None	Yes
NGQ015	Historical building	Unknown	On site monitoring by ECO for artefacts	Possible
NGQ016	~12 settlements	medium - high	The pipeline should run along the southern part of this road	Possible
NGQ017	~12 settlements	Low	None	No
NGQ018	7 settlements	medium - high	Reservoir is moved to 32° 7' 13.71"S, 27° 56' 56.68"E or 32° 06' 52.46"S, 27° 57' 15.24"E	Yes
NGQ019	Series of settlements ~5km with potential graves	medium - high.	Western reservoir moved slightly east to 32° 07' 27.70"S, 27° 59' 10.71"E.	Yes
NGQ020	Several recent historical settlements over 600m long	Medium	The pipeline must stay along the southern part of the road	No
NGQ021	17 settlements	Medium	The pipeline stays within 10m of the dirt road	Possible
NGQ022	Various historical buildings	Unknown	On site monitoring by ECO for artefacts	Possible
NGQ023	~21 settlements	Low-medium	Pipeline must not extend beyond 15m north or south from the road.	No
NGQ024	2 settlements	Low	None	No
NGQ025	10 settlements	Low-medium	The pipeline should stay along the northern and western side of the road & not extend beyond 20m from the road. The proposed reservoir should be located along the eastern or northern side of the hill	Possible
NGQ026	~25 settlements	low	None	No
NGQ027	2 rock shelters	medium - high	None	No
Palaeontology	Ecca & Beaufort Formations	Unknown	On Site monitoring	yes

²Site is more than 20m from the road

The term settlement refers to a living area that has the first three or four of the above criteria, and generally to a single family, or household, whereas a site may be comprised of several settlements.

This settlement pattern allows for an assessment of sites in relation to the pipeline. That is if a few buildings, or structures, can be located one can then make an assumption on where other structures would occur in that settlement. If the 'missing' structures cannot be located, one can still state where they should occur, and thus demarcate the sensitive areas in relation to the pipeline. **For example, if the pipeline occurs behind the row of three houses then it is unlikely to have an impact on that specific settlement. However, if the pipeline was to occur in front of the houses, or main kraal, then it is likely to affect graves.**

Each site is given a site number for future reference. I normally use the first three letters of the nearest town. Sites are numbered in the order they were recorded.

NGQ01

This site is located on the hill southeast of the current Tsomo Weir. The site consists of a scatter of Middle Stone Age (MSA) and Late Stone Age (LSA) flakes and cores. These appear to be in a secondary context.

Significance: The site is of low significance.

Mitigation: No further mitigation is required.

NGQ02

The site is located to the north of the R409 and consists of a series of stone walling.

Significance: The site is of low significance.

Mitigation: No further mitigation is required.

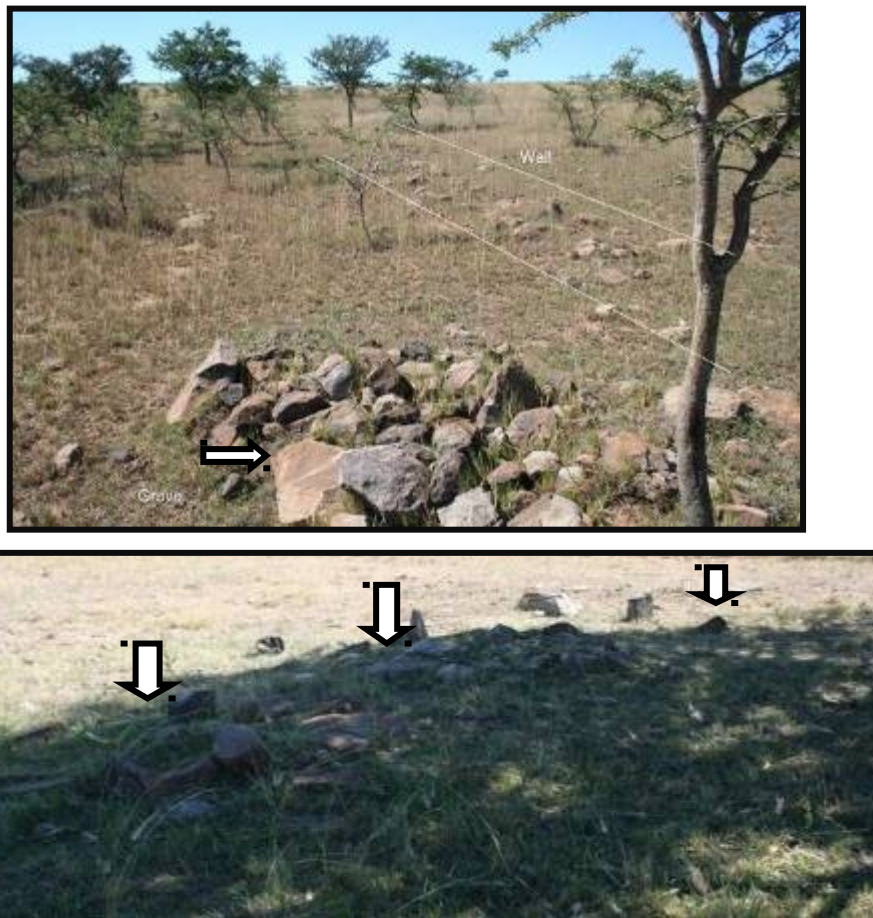
NGQ03

The site consists of two old settlements and ~ 18 human graves. The western part of the site consists of rows of 15 human graves. The graves vary in size and do not appear to have headstones. There is a low stone wall near these graves. The area has not been used for a while as acacia trees have grown on some of the graves. The eastern part of the site consists of ~3 graves with headstones, two house foundations and a kraal. He graves appear to have headstones and postdate the western part of the site.

Significance: The graves are of high significance, while the rest of the site appears to be of low significance.

Mitigation: The graves should not be disturbed as the pipeline can be realigned.

FIG. 4: HUMAN GRAVES & STONE WALLING AT NGQ03



NGQ04

The site consists of a recent grave ~50m west of the road. The grave is less than 60 years old and has a headstone.

Significance: The grave is of high significance.

Mitigation: The grave should not be disturbed as the pipeline can be realigned.

FIG. 5: RECENT HUMAN GRAVE AT NGQ04



NGQ05

The site is located near the top of a hill and consists of a scatter of MSA flakes.

Significance: The site is of low significance.

Mitigation: No further mitigation is required.

NGQ06

The site is located near the end of long and narrow spur, and walling occurs on both sides of the road (fig. 6). The main part of the site occurs on the western

side of the road. It consists of four house foundations and a large rectangular kraal with a middle wall. There is a large sisal plant growing on top of the one wall. Several smaller stone walled kraals occur on the eastern part of the road. We did not locate any graves. All stone walling occurs more than 20m from the road.

Significance: The site is of low significance.

Mitigation: No further mitigation is required.

FIG. 6: STONE WALLING ON EACH SIDE FO THE ROAD AT NGQ05



NGQ07

This site is located on one of the main dirt roads leading off the R409. The site is a building complex of apparent late 19th century or early 20th century colonial buildings. It is currently referred to as the Mnyibashe Store and may be one of the original trader's posts. There are several other buildings in this complex that is 100m x 160m in size. Fig. 7 illustrates dome of the buildings.

Significance: the buildings will need to be assessed by a historical architect if they are to be damaged in any manner. This is unlikely to occur for this project.

Mitigation: While the buildings are unlikely to be damaged, the pipeline may unearth old rubbish dumps. An ECO should be on site when this area is excavated and report ANY artefacts. These then should be reported to SAHRA and or the heritage practitioner for comment. If historical artefacts, such as bottles and plates, were located, the excavations would need to stop and continue further along the line, until the artefacts have been assessed. Any rubbish dump exposed in this area will need a heritage assessment as well.

FIG. 7: MNYIBASHE STORE AT NGQ07



NGQ08

This site is a series of sites on the top of a hill. The main part of the site is approx. 1.5km long, with additional settlements making the entire area 2.5km in length (fig. 8a). The site consists of a series at least 43 family households, each confirming to the basic settlement pattern.

FIG. 8A: EXTENT OF THE SETTLEMENTS AT NGQ08



The site became too large to record on the existing timetable and thus we recorded the site as a whole. This pattern is the norm for settlements in this area and thus assists in identifying the various settlements (see fig. 8b). Unfortunately, the norm is also for graves to occur in these settlements and is often not easily discernable (see fig. 8c). This specific grave (in fig. 8c) occurs within 5m of the road.

Significance: The area is of high significance because of the graves. The occurrence of visible spatial patterns in an (recent) historical settlement is of some significance, as I do not believe there are archaeological records of these sites.

Mitigation: The impact of the pipeline tends to be within 5m servitude. There is no reason for the pipelines to affect the settlements and especially the graves.

The final route would need to be re-assessed in terms of these settlements. I would suggest that the pipeline remains as close to the existing dirt road as possible, and that excavated material is placed on the road. The dirt road is minimally used and in disrepair, especially when it reaches these sites and would thus not inconvenience traffic. The Google Earth image makes the dirt road appear bigger than what it actually is.

FIG. 8b: EXAMPLE OF A SERIES OF HOUSEHOLDS AT NGQ08



FIG. 8c: EXAMPLE OF A GRAVE AND STONE WALLING AT NGQ08³



³ Grave outlined in white with walling directly behind

The final route should also be reassessed in one of two ways:

1. A site inspection to ensure that the graves and structures will not be affected by the pipeline; or,
2. High-resolution aerial photographs can be used where the pipeline is overlaid on the photographs. Any 'problem areas' can thus be easily seen, their location noted, and the pipeline can be deviated. This would minimise costs for actual fieldwork. **An ECO will need to be on site for this area.**

NGQ09

The site is located near two large wattle trees. While I did not observe any obvious signs of human habitation, there was a distinct appearance that there was a settlement. The aerial imagery clearly shows that there was a square agricultural field in the area (fig. 9a). Any houses would have been destroyed by ploughing the fields; however, graves would occur near the trees (in fig. 9a). The occurrence of rocks not immediately local to the area, in the shape of a 'cairn', thus warrants further attention. I believe these rocks may be part of a grave.

Significance: The site is of high significance until the potential graves is proved to be a grave or not. The rest of the site is of low significance.

Mitigation: The site will probably not be affected by the pipeline, as it is ~ 40m far from the road.

FIG. 9a: PARTIAL OUTLINE OF OLDER SETTLEMENT AT NGQ09⁴



FIG. 9b: POSSIBLE GRAVE AT NGQ09



⁴ Settlement outlined in white

NGQ010

The site occurs along the slopes of a ploughed field. There are several cairns on the field, but these are a result of field clearance. The site consists of an ephemeral surface scatter MSA and LSA stone tools. There are possible Early Stone Age artefacts, although these may also date to the early MSA, e.g. one large flake is either a cleaver, or a large MSA flake.

Significance: The site is of low significance as the artefacts are in a secondary context.

Mitigation: No further mitigation is required.

NGQ011

The site consists of a scatter of MSA flakes on a small hill. A proposed reservoir will occur on this hill.

Significance: The site is of low significance as the artefacts are in a secondary context.

Mitigation: No further mitigation is required.

NGQ012

The site consists of a mission: the St Benfort mission (fig. 10). The buildings are probably older than 60 years, thus making it historical. A Deeds search and/or oral history would obtain a more precise date for the buildings.

Significance: The site cannot be assessed now, as it would require specialist investigation. The buildings will need to be assessed by a historical architect if they are to be damaged in any manner. This is unlikely to occur for this project.

Mitigation: While the buildings are unlikely to be damaged, the pipeline may unearth old rubbish dumps. An ECO should be on site when this area is excavated and report ANY artefacts. These then should be reported to SAHRA

and or the heritage practitioner for comment. If historical artefacts, such as bottles and plates, were located, the excavations would need to stop and continue further along the line, until the artefacts have been assessed. Any rubbish dump exposed in this area will need a heritage assessment as well.

FIG. 10: ST BENFORT MISSION AT NGQ012



NGQ013

The site is located near the top of a hill overlooking one of the main gorges. The site consists MSA flakes on the surface.

Significance: The MSA aspect is of low significance.

Mitigation: No further mitigation is required for the MSA aspect.

NGQ014

The site is located on the top of a small hill where a small dam has been excavated. A single ESA hand-axe was observed on the surface of the dam, suggesting that others would occur in the area. The site will be affected by a reservoir.

Significance: The site is of low significance.

Mitigation: No further mitigation is required.

NGQ015

The site consists of a series of old buildings ~4km away from the R409. The 1:50 000 map labels this site as: Tyinira. The buildings appear to be a farm complex and/or trading store (fig. 11). The buildings appear to be a series off add-on structures of which some have wooden window frames. There are several large willow trees on the periphery of the buildings. The main, and original, buildings may be older than 60 years.

FIG. 11: HISTORICAL BUILDINGS AT NGQ015



Significance: The site cannot be assessed now, as it would require specialist investigation. The buildings will need to be assessed by a historical architect if they are to be damaged in any manner. This is unlikely to occur for this project.

Mitigation: While the buildings are unlikely to be damaged, the pipeline may unearth old rubbish dumps. An ECO should be on site when this area is excavated and report ANY artefacts. These then should be reported to SAHRA and or the heritage practitioner for comment. If historical artefacts, such as bottles and plates, were located, the excavations would need to stop and

continue further along the line, until the artefacts have been assessed. Any rubbish dump exposed in this area will need a heritage assessment as well.

NGQ016

This site is located on the top of a hill. The site was recorded via aerial photography, as this part of the pipeline was inaccessible and ~5km from the R409. The site consists of ~12 settlements spanning over the top of the hill. The pipeline is located to the rear or south of these settlements, and behind the houses of the settlements closest to the road, and will thus not be an impact.

Significance: The site is of medium significance, unless human graves occur, where it will be of high significance.

Mitigation: the pipeline should run along the southern part of this road to avoid any features related to the settlement.

NGQ017

This site is located along the eastern side of the R409 and was recorded as it falls within the 50m 'boundary'. It consists of a series of ~12 settlements, of which the nearest is ~30m from the road. The area is 700m x 350m in size and was briefly surveyed as it was on the fringes of the 'boundary'. The settlements conform to the standard settlement pattern of the area, but we did not observe any graves.

Significance: The site is of low significance provided that graves do not occur.

Mitigation: The pipeline does not affect this site as it is on the opposite of the road.

NGQ018

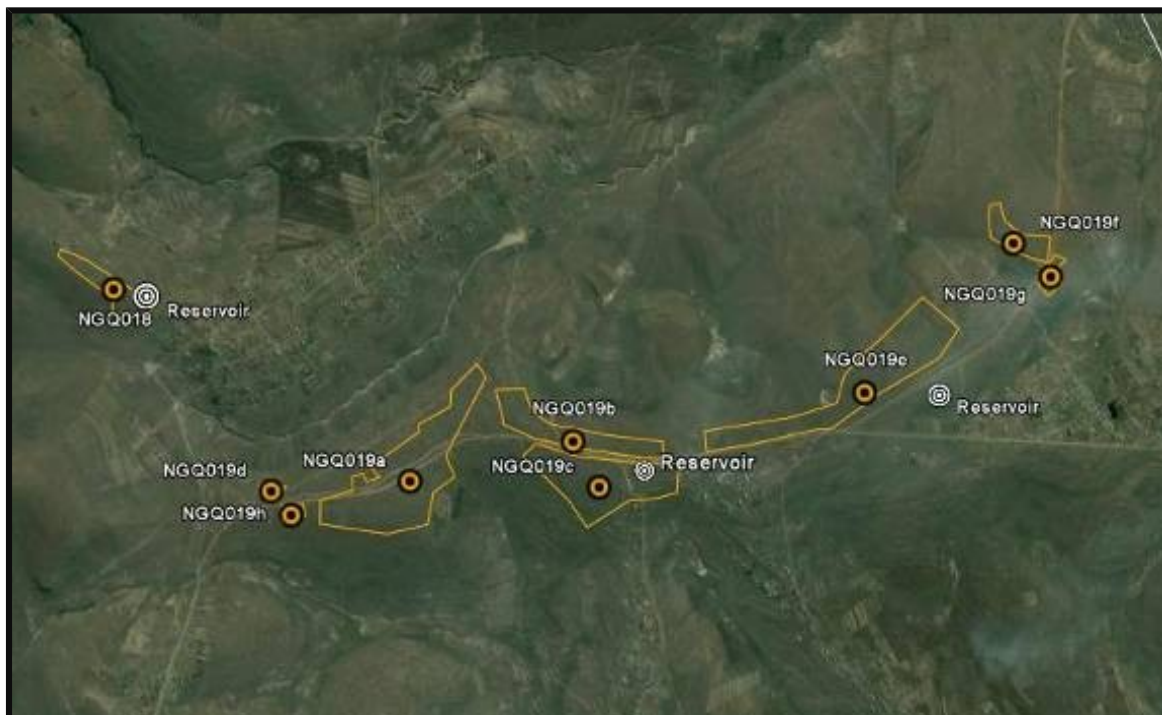
The site is located on a small hill northwest of a current village. The site consists of seven settlements with the basic settlement pattern that are placed

along a narrow ridge (fig. 12). There are more recent historical settlements on the hills to the northwest and west. As with the other settlements in the study area, graves may occur that we did not observe. There are good examples of the settlement pattern (with slight variations) at this site.

Significance: the site is of medium significance in terms of its settlement patterns, but may be high if graves do occur.

Mitigation: I suggest that the proposed reservoir is moved to one of two alternative locations (32° 7' 13.71"S, 27° 56' 56.68"E or 32° 06' 52.46"S, 27° 57' 15.24"E) so that it does not affect NGQ018. The alternative areas are at similar altitudes, have no obvious evidence of human occupation, and are in ploughed fields. It would be preferable not to damage heritage sites even if they are not directly protected by heritage legislation.

FIG. 12: SETTLEMENTS AT NGQ018 AND NGQ019



NGQ019

This site is a series of settlements that run along the entire ridge for 5km (fig. 12). I recorded the site as one large site and did not have time to record each settlement in detail: the aerial photography clearly outlines the various recent historical settlements. Each settlement conforms to the standard pattern of household settlements observe throughout the area. However, some these settlements differ in that the houses are surrounded by a wall that connects to the main rectangular kraal: other settlements did not have this wall.

The series of settlements occur on both sides of the dirt road, but the southern settlements occur further away from the road. There are also two proposed reservoirs for the area, of which one will be in a cluster of settlements.

Significance: The settlements are of medium significance in that they differ slightly in their spatial pattern of houses in the study area. Graves are also likely at the various settlements thus making the site highly significant.

Mitigation: The pipeline will have minimum (if any) impact if it keeps to the southern side of the road and then within 10m of that road. The houses of each settlement occur closest to the road, and thus any potential graves would occur even further from the road.

The more western reservoir (approx. 32° 07' 28.10"S, 27° 59' 07.06"E) should be moved slightly east to 32° 07' 27.70"S, 27° 59' 10.71"E. In this way it will avoid a settlement.

NGQ020

This site is located near the edge of a ridge before the valley drops into the Tsomo River Valley. The site consists of several recent historical settlements that conform to the general settlement pattern (Fig. 13). The site is over 600m long (north-south). There are eleven of the settlements that are clustered near each other and some have secondary wattle woodlots. Some of the settlements use

natural rock outcrops as a “wall”. We did not observe any graves at the southern settlements, and did not survey the northern half of the site as it was well beyond the 50m buffer zone.

Significance: The site is of medium significance as it has well preserved features that clearly show the spatial patterns of each settlement.

Mitigation: The pipeline will occur on the southern part of the road and thus avoid the site.

FIG. 13: SETTLEMENTS AT NGQ020



NGQ021

The site is located at the base of one of the higher hills in the study area. The site consists of seventeen settlements conforming to the standard settlement pattern. The current dirt road (fig. 14) bisects the site. This road has affected some of the settlements in that it has been placed through walling and/or kraal

demarcations. The southern side of the road is an agricultural field that has been ploughed, however, the settlements appear to have minimally affected by ploughing activity.

Significance: The site is of medium significance. It has preserved spatial features and most of the houses occur in batches of four. There is thus a variation to the general settlement pattern. Unfortunately, the dirt road has partially damaged a few settlements.

Mitigation: If the pipeline stays within 10m of the dirt road then it would not affect any potentially sensitive area. The grading of the dirt road has already damaged this 10m boundary, for each side of the road.

FIG. 14: SETTLEMENTS AT NGQ021



NGQ022

This site is located in the town of Ngqamakwe. The 'site' is not a site per se, rather a grouping of historical buildings located in the eastern part of the town. The buildings are located near the current police station and presumed magistrates court. Most of the buildings are in various states of (poor) preservation and appear to be older than 60 years. I assume these buildings date back to the beginnings of Ngamakwe town.

The pipeline will not affect the buildings, but secondary features such as rubbish dumps may occur.

Significance: the pipeline will not directly affect the buildings.

Mitigation: No mitigation is required for the buildings; however, if rubbish dumps are located during the excavation of the pipeline, then they need to be assessed.

NGQ023

This site consists of a series of settlements on the top of a small hill. There are two sub-sites ('a' and 'b') that are separated by the road and ~100m. There are ~21 settlements in various states of preservation. Each settlement conforms to the standard settlement pattern of the area. The settlements range from 30m to 800m away from the road, and we only concentrated on the ones closest to the road.

Significance: the site is of low-medium significance in that the features are poorly preserved and do not appear to be as old as some of the other settlements in the affected area.

Mitigation: The road will not affect the various settlements so long as it does not go beyond 15m north or south from the road.

NGQ024

The site is located along the more western side of the affected area. I recorded the site via aerial photography, as access to this area was very difficult and ~1.5km from the nearest road. The site overlooks the Tsomo River Valley and is rather isolated in comparison to other settlements. The site consists of two settlements that appear to be poorly preserved.

Significance: the site is of low significance

Mitigation: no further mitigation is required.

NGQ025

The site is located along the eastern side of the affected area. It consists of a series of settlements near the base of a hill. The site consists of nine settlements close to each other (NGQ025a) and one settlement ~ 130m away and near the hill. All settlements conform to the standard settlement pattern of the area. A reservoir is proposed for the hill.

Significance: The site is of low-medium significance in terms of its preservation.

Mitigation: The pipeline should stay along the northern and western side of the road so as not to disturb possible graves. The pipeline should not extend for more than 20m from the dirt road. The proposed reservoir should be located along the eastern or northern side of the hill to avoid the settlements.

NGQ026

The site is located along a ridge and to the north of the road. The site is ~1000m x 500m in size and the southeastern part of the site is ~20m from the road. The site consists of ~25 settlements in various states of preservation and all conforming to the general settlement plan of the area.

Significance: The site is of low significance

Mitigation: No further mitigation is needed, as the pipeline is unlikely to affect the site.

NGQ027

Derricourt (1977) recorded two rock shelters in the study area called Blythwood A & B. 'A' is a shelter with deposit and artefacts, while 'B' has no deposit and poorly preserved.

Significance: Both shelters have of medium to high significance due to well preserved deposit or the rock art itself. While the art is poorly preserved it does have 'recent' elements in it such as the finger smears.

Mitigation: The pipeline does not affect the site.

GENERAL COMMENTS

The pipeline will impact the geological formations that are palaeontologically sensitive. According to Dr Gideon Groenewald these are:

- "Ecca Group – it is known that this group of rocks represent a deep water deposit and that the most important palaeontological information is present as "trace fossils" or the remains of the tracks of animals and plants that lived in relatively deep water environments, with an important transition to shallow water environments where the resulting rocks reveal information about the shallow water living creatures of the time.
- Beaufort Group – it is well known that this group of rocks presents us with a unique opportunity to discover some of the oldest terrestrial (land-living) animals on earth. Fossils from the Lower Beaufort or Adelaide Subgroup include the formidable Gorgonopsian predators and the large plant eaters (Dicynodonts) that lived with them, albeit being their food. The site of the development falls in an area with rugged topography and might dissect all the important Lower Beaufort (Adelaide Subgroup)

strata and it is possible that severe faulting in the region could have resulted in the down-faulting of younger geology such as the Triassic aged Middle Beaufort (Tarkastad Subgroup) rocks. The Tarkastad Subgroup is well-known for the Lystosaurus and related animals with the important discovery of casts of vertebrate burrows, possibly made by the Lystrosaurus animals.

- Younger travertine and other geological formations – due to the uplift of this part of South Africa in more recent times, the present river systems show clear indications of very fast incision into the old flows of the river channels. In situations like this it is possible to find small remnants of more recent geological deposits with remains of related aged animals (and possibly humans) in these small outcrops of very young rock on the sides of mountains and even on the top of some of the hills in the area.” (see Appendix B for full report)

Significance: A palaeontological survey will be required for those areas that are to be affected.

Mitigation: Dr. Groenewald suggested that he spends one day looking at the formations to obtain a sense of their significance. If these appear to be significant then he would be on site during the excavation phase to monitor and salvage any fossils. This will not result in the line being rerouted or stopped.

1.4. MANAGEMENT PLAN

A total of 27 heritage sites were recorded during the course of the survey. Of these 27 sites, only six are older than 100 years, while the majority probably less than 60 years. The former are Stone Age and palaeontological sites, while the latter are recent historical settlements and one are of historical buildings.

The National Heritage Act (NHA) provides instructions on the requirements for archaeological sites, built structures older than 60 years. However, sites such

as the settlements recorded in this survey, are not directly protected by the NHA unless they fall into one of the sub-divisions relating to recent historical occurrences. Even if these sites have human remains, then they are not protected by the NHA as they may be less than 60 years in age. The human remains are, however, protected by various other forms of legislation that make it illegal to damage or disturb the graves. The social impact assessment should also request the community to note the occurrence and location of recent human remains along the pipeline route.

These recent historical sites make it difficult to provide a management plan for sites that are not necessarily protected by the NHA. I have adopted the view that if a site has potential heritage status, then it should have some form of mitigation, as it probably would be protected within 10-15 years. That is, there is no need to damage potential heritage sites. The general theme of mitigation is to avoid any damage and reroute the line where necessary. Fortunately, the pipeline runs along existing dirt roads or tracks and should not deviate further than 20m from the road. This allows for minimum impact on sites adjacent to the road.

I suggest that once the final route has been planned, then high-resolution aerial photographs be analysed for potential impacts on the recent historical sites. These photographs can have the various pipelines as overlays on the maps, and then sensitive areas can be demarcated for a final time. This would be a desktop exercise.

A palaeontological survey may be required for parts of the site, especially those areas where the pipeline will go through the Beaufort and Ecca formations.

All of the Stone Age material is in secondary contexts, that is, they have been moved from their original position. They thus have little contextual information apart from adding to a database. The stone tools were standard stone tools commonly associated with their respective periods. No mitigation would be

required for these sites; however, a permit from SAHRA will be required, as the pipeline will partially damage these sites.

Four areas have potential historical buildings. The buildings are unlikely to be affected by the pipeline; however, historical rubbish dumps may occur near the buildings. An ECO should be on site to monitor for any artefacts during the construction phase of the site. If artefacts are located they can be photographed and emailed (or MMS) for a fast assessment. This would minimise site visit expenditures and downtime. If the electronic assessment indicates that the site is of value, then downtime may occur. Contractors should note the potential for downtime at the four sites.

1.5. CONCLUSION

A heritage survey of the proposed water reticulation for the Ngqamakwe and Tsomo area was undertaken. Very few heritage sites older than 60 years were recorded during the survey. The National Heritage Act does not protect these sites; however, they can be referred to as recent historical sites and I suggested that these be minimally impact, if at all. In most cases, the proposed pipeline is too small to have any direct impact on the recent historical sites. It is only two few reservoirs that should be relocated.

SAHRA will need to issue a permit for the partial damage to the Stone Age and palaeontological sites. SAHRA will need a palaeontological report for this area as well, and thus the next Phase of the project should be a palaeontological survey.

There are no fatal flaws that will stop construction. However, an ECO will need to be appointed to monitor certain sites, and a palaeontologist will need to

monitor certain areas. The ECO should have basic training in artefact identification and report any artefact to an archaeologist.

1.6. REFERENCES

Derricourt, R.M. 1977. **Prehistoric Man in the Ciskei and Transkei**. Cape Town: C. Struik (Pty) Ltd

Feeley, J.M. 1987 **The Early Farmers of Transkei, Southern Africa, Before AD 1870**. Cambridge Monographs in African Archaeology 24. BAR International Series 378. Cambridge.

1.7. APPENDIX A

SITE RECORD FORMS

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age: x

Early Iron Age:

Late Iron Age

Historical Period:

Recorder's Site No.: NGQ 05

Official Name:

Local Name: Ngqamakwe Ngqamakwe

Map Sheet:

GPS Reading: S: 32 06' 54.2" E: 27 49' 13.0" Alt; 1110m



DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

The site is located near the top of a hill.

SITE DESCRIPTION:

Type of Site: Stonetool scatter

Merits conservation: No

Threats: Yes

What threats: Ngqamakwe Water Reticulation

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 15 April 2009

Owner: State

References:

Description of site and artefactual content.

The site consists of a scatter of MSA flakes.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age
Early Iron Age:
Late Iron Age
Historical Period: x

Recorder's Site No.: NGQ 06
Official Name:
Local Name: Ngqamakwe Ngqamakwe
Map Sheet:
GPS Reading: S: 32 08' 53.1'' E; 27 51' 24.5'' Alt: 917m



DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

The site is located near the end of long and narrow spur.

SITE DESCRIPTION:

Type of Site: Stonewalling
Merits conservation: No
Threats: Yes
What threats: Ngqamakwe Water Reticulation

RECORDING:

Graphic record: Yes
Digital pictures: x Tracings : Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole
Address: PO Box 102532, Meerensee, 3901
Date: 15 April 2009
Owner: State
References:

Description of site and artefactual content.

Site consists of walling both sides of the road. The main part of the site occurs on the western side of the road. It consists of four house foundations and a large rectangular kraal with a middle wall. There is a large sisal plant growing on top of the one wall. Several smaller stone walled kraals occur on the eastern part of the road. We did not locate any graves. All stone walling occurs more than 20m from the road.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age
Early Iron Age:
Late Iron Age
Historical Period: x

Recorder's Site No.: NGQ 08
Official Name:
Local Name: Ngqamakwe
Map Sheet:
GPS Reading: S: 32 12' 53.82" E: 28 01' 12.7" (Left)
 S: 32 12' 56.7" E: 28 02' 51.81" (Top End)
 S: 32 13' 16.25" E: 28 02' 12.16" (Bottom End)

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

The site is on the top of a hill.

SITE DESCRIPTION:

Type of Site: Kraals and graves
Merits conservation: Yes
Threats: Yes
What threats: Ngqamakwe Water Reticulation

RECORDING:

Graphic record: Yes
Digital pictures: x Tracings : Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole
Address: PO Box 102532, Meerensee, 3901
Date: 15 April 2008
Owner: State
References:

Description of site and artefactual content.

The main part of the site is approx. 1.5km long, with additional settlements making the entire area 2.5km in length. The site consists of a series at least 43 family households , each conforming to the basic settlement pattern.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age: x
Early Iron Age:
Late Iron Age
Historical Period:

Recorder's Site No.: NGQ 10
Official Name:
Local Name: Ngqamakwe
Map Sheet:
GPS Reading: S: 32 13' 42.8" E; 27 48' 43.8" Alt: 731m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

He site occurs along the slopes of a ploughed field.

SITE DESCRIPTION:

Type of Site: Stone tools
Merits conservation: No
Threats: Yes
What threats: Ngqamakwe Water Reticulation

RECORDING:

Graphic record: Yes
Digital pictures: x Tracings : Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole
Address: PO Box 102532, Meerensee, 3901
Date: 15 April 2008
Owner: State
References:

Description of site and artefactual content.

There are several cairns on the field, but these are a result of field clearance. The site consists of an ephemeral surface scatter MSA and LSA stone tools. There are possible Early Stone Age artefacts, although these may also date to the early MSA, e.g. one large flake is either a cleaver, or a large MSA flake.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age: x

Early Iron Age:

Late Iron Age

Historical Period:

Recorder's Site No.: NGQ 11

Official Name:

Local Name: Ngqamakwe

Map Sheet:

GPS Reading: S; 32 13' 25.6" E: 27 46' 25.2" Alt:

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

Near a proposed reservoir on the top of the hill.

SITE DESCRIPTION:

Type of Site: Stonetools

Merits conservation: No

Threats: Yes

What threats: Ngqamakwe Water Reticulation

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 15 April 2008

Owner: State

References:

Description of site and artefactual content.

The site consists of a scatter of MSA flakes.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: NGQ 12

Official Name:

Local Name: Ngqamakwe

Map Sheet:

GPS Reading: S: 32 14' 09.6" E: 27 49' 30.5"

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

SITE DESCRIPTION:

Type of Site: Old Mission

Merits conservation: Yes

Threats: Yes

What threats: Ngqamakwe Water Reticulation

RECORDING:

Graphic record: Yes

Digital pictures: x Tracings : Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 15 April 2008

Owner: State

References:

Description of site and artefactual content.

The site consists of a mission: the St Benfort mission. The buildings are probably older than 60 years, thus making it historical.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age: x
Early Iron Age:
Late Iron Age
Historical Period:

Recorder's Site No.: NGQ 13
Official Name:
Local Name: Ngqamakwe
Map Sheet:
GPS Reading: S: 32 16' 30.12" E: 27 49' 35.9" Alt: 858m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

The site is located near the top of a hill overlooking one of the main gorges.

SITE DESCRIPTION:

Type of Site: Fossil trees and stone tools
Merits conservation: No
Threats: Yes
What threats: Ngqamakwe Water Reticulation

RECORDING:

Graphic record: Yes
Digital pictures: x Tracings : Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole
Address: PO Box 102532, Meerensee, 3901
Date: 15 April 2008
Owner: State
References:

Description of site and artefactual content.

The site consists of two levels: the oldest dates to the palaeontological period and consists of petrified trees. The more recent dates to the MSA and consists of MSA flakes.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age: x

Early Iron Age:

Late Iron Age

Historical Period:

Recorder's Site No.: NGQ 14

Official Name:

Local Name: Ngqamakwe

Map Sheet:

GPS Reading: S: 32 18' 46.8" E: 27 51' 49.9" Alt:

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

The site is located on the top of a small hill where a small dam has been excavated.

SITE DESCRIPTION:

Type of Site: Stonetool

Merits conservation: No

Threats: Yes

What threats: Ngqamakwe Water Reticulation

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 15 April 2008

Owner: State

References:

Description of site and artefactual content.

A single ESA hand-axe was observed on the surface of the dam, suggesting that others would occur in the area. The site will be affected by a reservoir.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: NGQ 15

Official Name:

Local Name: Ngqamakwe

Map Sheet:

GPS Reading: S: 32 20' 46.6" E: 27 51' 38.9" Alt: 756m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

The site is ~4km away from the R409.

SITE DESCRIPTION:

Type of Site: Old trade post

Merits conservation: Yes

Threats: Yes

What threats: Ngqamakwe Water Reticulation

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 15 April 2008

Owner: State

References:

Description of site and artefactual content.

The site consists of a series of old buildings. 1:50 000 map labels this site as: Tyinira. The buildings appear to be a farm complex and/or trading store. The buildings appear to be a series of add-on structures of which some have wooden window frames. There are several large willow trees on the periphery of the buildings. The main, and original, buildings may be older than 60 years.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: NGQ 16

Official Name:

Local Name: Ngqamakwe

Map Sheet:

GPS Reading: S: 32 03' 47.5" E: 27 57' 33.1" Alt:

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

This site is located on the top of a hill. The site was recorded via aerial photography as this part of the pipeline was inaccessible and ~5km from the R409.

SITE DESCRIPTION:

Type of Site: Settlement

Merits conservation: Yes

Threats: Yes

What threats: Ngqamakwe Water Reticulation

RECORDING:

Graphic record: None

Digital pictures:

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 15 April 2009

Owner: State

References:

Description of site and artefactual content.

The site consists of ~12 settlements spanning over the top of the hill. The pipeline is located to the rear, or south of these settlements, and behind the houses of the settlements closest to the road, and will thus not be an impact.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: NGQ 17

Official Name:

Local Name: Ngqamakwe

Map Sheet:

GPS Reading: S: 32 06' 14.2'' E: 27 55' 46.2'' Alt:

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

This site is located along the eastern side of the R409 and was recorded as it falls within the 50m 'boundary'.

SITE DESCRIPTION:

Type of Site: Settlements

Merits conservation: No

Threats: Yes

What threats: Ngqamakwe Water Reticulation

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 15 April 2008

Owner: State

References:

Description of site and artefactual content.

. It consists of a series of ~12 settlements, of which the nearest is ~30m from the road. The area is 700m x 350m in size and was briefly surveyed as it was on the fringes of the 'boundary'. The settlements conform to the standard settlement pattern of the area, but we did not observe any graves.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: NGQ 18

Official Name:

Local Name: Ngqamakwe

Map Sheet:

GPS Reading: S: 32 06' 58.9" E: 27 57' 06.6"

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

The site is located on a small hill northwest of a current village.

SITE DESCRIPTION:

Type of Site: Settlements

Merits conservation: Yes

Threats: Yes

What threats: Ngqamakwe Water Reticulation

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 15 April 2009

Owner: State

References:

Description of site and artefactual content.

The site consists of seven settlements with the basic settlement pattern that are placed along a narrow ridge. There are more recent historical settlements on the hills to the northwest and west. As with the other settlements in the study area, graves may occur that we did not observe. There are good examples of the settlement pattern (with slight variations) at this site.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age
Early Iron Age:
Late Iron Age
Historical Period: x

Recorder's Site No.: NGQ 19

Official Name:

Local Name: Ngqamakwe

Map Sheet:

GPS Reading: S: 32 07' 31.7" E: 27 57' 47.0" (Start)

S: 32 07' 02.6" E: 28 00' 13.8" (End)

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

This site is a series of settlements that run along the entire ridge for 5km.

SITE DESCRIPTION:

Type of Site: Settlements

Merits conservation: Yes

Threats: Yes

What threats: Ngqamakwe Water Reticulation

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 15 April 2009

Owner: State

References:

Description of site and artefactual content.

I recorded the site as one large site and did not have time to record each settlement in detail: the aerial photography clearly outlines the various recent historical settlements. Each settlement conforms to the standard pattern of household settlements observe throughout the area. However, some these settlements differ in that the houses are surrounded by a wall that connects to the main rectangular kraal: other settlements did not have this wall.

The series of settlements occur on both sides of the dirt road, but the southern settlements occur further away from the road. There are also two proposed reservoirs for the area, of which one will be in a cluster of settlements.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age
Early Iron Age:
Late Iron Age
Historical Period: x

Recorder's Site No.: NGQ 20

Official Name:

Local Name: Ngqamakwe

Map Sheet:

GPS Reading: S: 32 07' 40.9'' E: 27 52' 33.1''

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

This site is located near the edge of a ridge before the valley drops into the Tsomo River Valley.

SITE DESCRIPTION:

Type of Site: Settlements
Merits conservation: Yes
Threats: Yes
What threats: Ngqamakwe Water Reticulation

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 15 April 2009

Owner: State

References:

Description of site and artefactual content.

The site consists of several recent historical settlements that conform to the general settlement pattern. The site is over 600m long (north-south). There are eleven of the settlements that are clustered near each other and some have secondary wattle woodlots. Some of the settlements use natural rock outcrops as a "wall". We did not observe any graves at the southern settlements, and did not survey the northern half of the site as it was well beyond the 50m buffer zone.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: NGQ 21

Official Name:

Local Name: Ngqamakwe

Map Sheet:

GPS Reading: S: 32 11' 09.4" E: 27 53' 05.4"

S: 32 10' 48.3" E: 27 52' 47.8"

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

The site is located at the base of one of the higher hills in the study area

SITE DESCRIPTION:

Type of Site: Settlement

Merits conservation: Yes

Threats: Yes

What threats: Ngqamakwe Water Reticulation

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 15 April 2009

Owner: State

References:

Description of site and artefactual content.

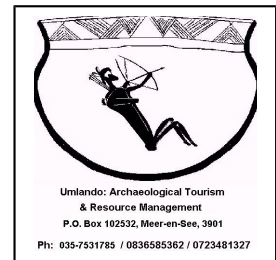
The site consists of seventeen settlements conforming to the standard settlement pattern. The site is bisected by the current dirt road. This road has affected some of the settlements in that it has been placed through walling and/or kraal demarcators. The southern side of the road is an agricultural field that has been ploughed, however, the settlements appear to have minimally affected by ploughing activity.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age:
Early Iron Age:
Late Iron Age
Historical Period: x

Recorder's Site No.: NGQ 24
Official Name:
Local Name: Ngqamakwe
Map Sheet:
GPS reading: S: 32 18' 19.5" E: 27 48' 28.27"



DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

The site is located along the more western side of the affected area.

SITE DESCRIPTION:

Type of Site: Settlement
Merits conservation: No
Threats: Yes
What threats: Ngqamakwe Water Reticulation

RECORDING:

Graphic record: None
Digital pictures: Tracings : Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole
Address: PO Box 102532, Meerensee, 3901
Date: 15 April 2009
Owner: State
References:

Description of site and artefactual content.

I recorded the site via aerial photography as access to this area was very difficult and ~1.5km from the nearest road. The site overlooks the Tsomo River Valley and is rather isolated in comparison to other settlements. The site consists of two settlements that appear to be poorly preserved.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:
Early Iron Age:
Late Iron Age
Historical Period: x

Recorder's Site No.: NGQ 25

Official Name:

Local Name: Ngqamakwe

Map Sheet:

GPS reading: S: 32 10' 18.8" E: 28 01' 38.8"
S: 32 10' 07.9 E: 28 01' 38.5"

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

The site is located along the eastern side of the affected area.

SITE DESCRIPTION:

Type of Site: Settlement
Merits conservation: Yes
Threats: Yes
What threats: Ngqamakwe Water Reticulation

RECORDING:

Graphic record: Yes
Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole
Address: PO Box 102532, Meerensee, 3901
Date: 15 April 2009
Owner: State
References:

Description of site and artefactual content.

It consists of a series of settlements near the base of a hill. The site consists of nine settlements close to each other (NGQ025a), and one settlement ~130m away and near the hill. All settlements conform to the standard settlement pattern of the area. A reservoir is proposed for the hill.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age:
Early Iron Age:
Late Iron Age
Historical Period: x

Recorder's Site No.: NGQ 26

Official Name:

Local Name: Ngqamakwe

Map Sheet:

GPS reading: S: 32 13' 44.6" E: 27 52' 35.4"



DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

The site is located along a ridge and to the north of the road.

SITE DESCRIPTION:

Type of Site: Settlements
Merits conservation: No
Threats: Yes
What threats: Ngqamakwe Water Reticulation

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 15 April 2009

Owner: State

References:

Description of site and artefactual content.

The site is ~1000m x 500m in size and the southeastern part of the site is ~20m from the road. The site consists of ~25 settlements in various states of preservation and all conforming to the general settlement plan of the area.

1.8. APPENDIX B

PALAEONTOLOGICAL REPORT



Clarens Dinosaur Hunting Expeditions CC

Dr Gideon Groenewald (PhD; Nat Dip Nat Con; Pr Sci Nat Earth Scientist)

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30 April 2009

Mr Gavin Anderson

POTENTIAL PALAEOLOGY OF THE PROPOSED NGQAMAKWE PROJECT

From this information a desktop study indicates the following regarding possible palaeontological finds at the site.

1. Geology

The desk top study indicates that the development of the dam falls in an area underlain by geology ranging from Ecca Age sedimentary rocks to possibly lower Beaufort Group sediments in the higher areas. The site of the dam wall will probably be associated with a prominent Dolerite sill or dyke structure that is very prominently visible on the remote images of this region. From the information on the borrow pits provided it is also clear that extensive dolerite sill and dolerite dyke igneous rocks are abundantly present in the area. This geological setting is well-known for this part of South Africa.

It is also a known fact that several very important “trap-door” faults as well as some “horst and graben” fault structures are present in this part of the Eastern Cape. These faults can lead to displacement of younger geology to very low altitudes in the region, making it essential for any responsible developer, Public or Private, to ensure that the specific geological formation that occurs at a site is properly recorded and examined for Palaeontological content.

2. Palaeontology and its potential importance in the this area

- 2.1 Ecca Group – it is known that this group of rocks represent a deep water deposit and that the most important palaeontological information is present as “trace fossils” or the remains of the tracks of animals and plants that lived in relatively deep water environments, with an important transition to shallow water environments where the resulting rocks reveal information about the shallow water living creatures of the time.
- 2.2 Beaufort Group – it is well known that this group of rocks presents us with a unique opportunity to discover some of the oldest terrestrial (land-living) animals on earth. Fossils from the Lower Beaufort or Adelaide Subgroup include the formidable Gorgonopsian predators and the large plant eaters (Dicynodonts) that lived with them, albeit being their food. The site of the development falls in an area with rugged topography and might dissect all the important Lower Beaufort

- (Adelaide Subgroup) strata and it is possible that severe faulting in the region could have resulted in the down-faulting of younger geology such as the Triassic aged Middle Beaufort (Tarkastad Subgroup) rocks. The Tarkastad Subgroup is well-known for the Lystosaurus and related animals with the important discovery of casts of vertebrate burrows, possibly made by the Lystrosaurus animals.
- 2.3 Younger travertine and other geological formations – due to the uplift of this part of South Africa in more recent times, the present river systems show clear indications of very fast incision into the old flows of the river channels. In situations like this it is possible to find small remnants of more recent geological deposits with remains of related aged animals (and possibly humans) in these small outcrops of very young rock on the sides of mountains and even on the top of some of the hills in the area.
- 2.4 Older rocks predating the Karoo Age - It is known that much older rock formations, dating to the same age as the rocks building Table Mountain near Cape Town, occur in the area as a result of Gondwana Faulting. These rocks do contain fossils of marine animals that lived about 450 million years ago and it is always good practise to be on the lookout for these important remains of life in the rocks of South Africa.
- 2.5 Dolerite Intrusions - dolerite sills and dykes are obviously not important for palaeontology and will not contain any fossils.

I trust that this information is useful for the initial phase of the study. It will obviously be necessary for a trained palaeontologist to inspect the site of the development to confirm (ground proof) these desktop survey results. It is important to ensure that the developer of this project obtains a permit from SAHRA for the disturbance of palaeontological remains during the construction phase of this project.

**GIDEON GROENEWALD (PhD; Pr Sci Nat Earth Scientist)
Geologist**