PROPOSED ESTABLISHMENT OF A NEW WATER SUPPLY SCHEME FOR WARD 15 OF THE MATATIELE LOCAL MUNICIPALITY, ALFRED NZO DISTRICT MUNICIPALITY IN THE EASTERN CAPE PROVINCE

Phase 1 – Heritage Impact Assessment

Issue Date: 6 November 2014

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Declaration of Independence

The report has been compiled by PGS Heritage, an appointed Heritage Specialist for Beacon Consulting Engineers on behalf of the Alfred Nzo District Municipality. The views stipulated in this report are purely objective and no other interests are displayed during the decision making processes discussed in the Heritage Impact Assessment Process.

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ACKNOWLEDGEMENT OF RECEIPT

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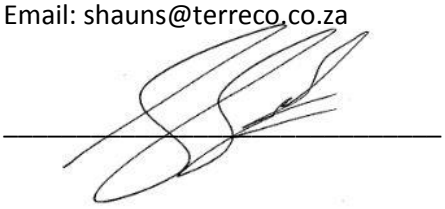
SIGNATURE: 

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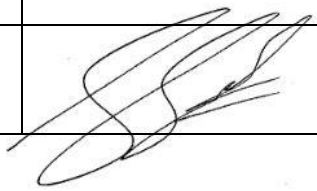
Reviewed	S Saker		Terreco Environmental cc

EXECUTIVE SUMMARY

PGS Heritage (PGS) was appointed by Beacon Consulting Engineers on behalf of the Alfred Nzo District Municipality to undertake a Heritage Impact Assessment (HIA) that forms part of the Basic Environmental Impact Report (BAR) for the proposed development of a new water supply scheme for Ward 15, Matatiele Municipality, Alfred Nzo District Municipality in the Eastern Cape Province.

During the heritage study a total of 8 heritage sites were identified to be close or within the proposed alignment of the pipeline routes or reservoir sites. Seven of these identified sites are historic/recent homesteads and stone walled enclosures and one grave or burial site found to be close or within the proposed alignment of the pipeline routes or reservoir sites.

A single grave was identied at site **M15 007** and the following is recommended:

The identified grave fall within or nearby the proposed area of the development and could possibly be affected by the proposed development. The developer should take note of the location of these graves and also of the recommendations as outlined in this report regarding it.

Graves older than 60 years (or presumed older) and/or not in a municipal graveyard are protected in terms of the National Heritage Act (No. 25 of 1999). Human remains (graves) younger than 60 years may only be handled by a registered undertaker or institution declared under the Human Tissues Act.

The developer is required to follow the process described in the legislation (section 36 of Act No. 25 and its associated regulations) if he wants to develop in or near an area where there are graves present.

It is therefore recommended that the areas with the graves should be avoided.

If the developer decides to plan the development around the identified grave and leave it undisturbed, adequate arrangements should be made to protect the graves from the impact of the development. These should include the following:

- It is important to understand that the identified graves could have significant heritage value to the relevant families (if identified) and should therefore be preserved.
- The relevant families should be identified (if possible) and should be informed about the proposed activities which could possibly affect their graves.

- It is recommended that the identified graves should be clearly marked with danger tape during the entire duration of the project and especially during earth-moving/bush clearing activities and a 10m buffer zone must be allowed around the graves.

- A watching brief performed by a suitable qualified person is recommended during the bush clearing and construction phases of the project. This person should see to it that the graves are safe and protected during these phases.

- It is advisable to fence the graves to prevent future mistakes. A buffer zone of at least 10m around the grave is recommended.

- The proposed earth-moving/bush clearing activities should be altered and should be planned around the graves in order to protect it from any damage or other negative impacts.

- Bush clearing crews should be made aware of the graves in order that the grave will not be accidentally damaged during the earth-moving activities.

- The planning team should **ensure that access to the graves is not limited in any way**. A small management plan should be set up to ensure the future safety, access and maintenance of the graves next to the proposed development.

If the above recommendations can't be adhered to, further steps and measures should be taken to move the graves and relocate them to an official graveyard in the area. This should only be done as last resort if no other options deem to be possible. The following process is then required:

- A process of consultation with the affected families and communities, if identified, should then be initiated to start the relocation of the graves.

- Various applications to various Departments should be put into motion to obtain the necessary permissions and permits to perform the relocation of the graves. These applications and permits are required by law.

Only after all the required permissions and permits have been obtained, can the relocation of the graves continue as performed by professionals.

Seven sites with historic/recent homesteads, stone walled enclosures and buildings were identified to be close or within the proposed alignment of the pipeline routes or reservoir sites. The following mitigation measures are recommended for the identified structures at sites **M15 001** to **M15 006** and **M15 008**:

- The structures are most probably older than 60 years and has heritage significance and/or value and is also protected under the Heritage Act (Act 25 of 1999).

- It must also be noted that the possibility of infant and stillborn burials does exist in and around the homesteads of tradional communities and therefore such burials can be expected at this site.

- An application for the total destruction of these structure should be filed at the South African Heritage Resources Agency (SAHRA).

- SAHRA will dictate the extent and the standard of recording of the structures. This could include the appointment of a qualified/approved historical architect to document the structures.

- Only after the requirements of SAHRA have been fulfilled can the destruction of the structures continue.

The development site for the proposed Matatiele Ward 15, Water Supply Scheme, Alfred Nzo District Municipality in the Eastern Cape is underlain by Triassic aged, predominantly mudstone rich, Elliot frmation sediments that is in most area covered in a relatively deep soil, with few outcrops along road cuttings.

Due to the lack of outcrops in the lower lying areas and the fact that most of the excavations for the pipelines will be in either deep soil or partly weathered mudstone of the Elliot Formation, a Low Palaeontological sensitivity is allocated to a large part of the development site that falls on gentler slopes, with a High Palaeontological Sensitivity allocated to steeper sloped areas.

It is recommended that:

- The EAP and ECO be informed of the fact that a Low Palaeontological sensitivity is allocated on the ground of deep soil cover in the development area. If fresh bedrock is exposed, the possibility of finding fossils is high and any fossils observed must be reported and rescued be a qualified palaeontologist.

- A qualified Palaeontologist must be on site during excavations into fresh bedrock of the Burgersdorp Formation where a Moderate Palaeontological sensitivity is allocated to the site or where the Palaeontological sensitivity allocation increases to a High Palaeontological sensitivity when fresh bedrock is exposed during construction.

Further to these recommendations the general Heritage Management Guidelines in Section 8 need to be incorporated into the EMP for the project.

The overall impact of the development on heritage resources is seen as acceptably low and impacts can be mitigated to acceptable levels.

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1 INTRODUCTION

PGS Heritage (PGS) was appointed by Beacon Consulting Engineers on behalf of the Alfred Nzo District Municipality to undertake a Heritage Impact Assessment (HIA) that forms part of the Basic Environmental Impact Report (BAR) for the proposed development of a new water supply scheme for Ward 15, Matatiele Municipality, Alfred Nzo District Municipality in the Eastern Cape Province.

1.1 Scope of the Study

The aim of the study is to identify possible heritage sites and finds that may occur in the proposed development area. The Heritage Impact Assessment aims to inform the Basic Environmental Impact Assessment Report (BAR) in the development of a comprehensive EMP to assist the developer in managing the discovered heritage resources in a responsible manner, in order to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999) (NHRA).

1.2 Specialist Qualifications

This Heritage Impact Assessment (HIA) was compiled by PGS Heritage (PGS).

The staff at PGS has a combined experience of nearly 70 years in the heritage consulting industry. PGS and its staff have extensive experience in managing HIA processes and will only undertake heritage assessment work where they have the relevant expertise and experience to undertake that work competently.

Wouter Fourie, Principal Heritage Specialist for this project, is registered as a Professional Archaeologist with the Association of Southern African Professional Archaeologists (ASAPA) and has CRM accreditation within the said organisation, as well as being accredited as a Professional Heritage Practitioner with the Association of Professional Heritage Practitioners – Western Cape (APHP).

Marko Hutten, heritage specialist and project archaeologist, has 15 years of experience in the industry and is registered with the Association of Southern African Professional Archaeologists (ASAPA) as a Professional Archaeologist and is accredited as a Field Director.

Jennifer Kitto, Heritage Specialist for this project, has 16 years' experience in the heritage sector, a large part of which involved working for a government department responsible for administering the National Heritage Resources Act, No 25 of 1999. She is therefore well-versed in the legislative

requirements of heritage management. She holds a BA in Archaeology and Social Anthropology and a BA (Hons) in Social Anthropology.

1.3 Assumptions and Limitations

Not detracting in any way from the comprehensiveness of the fieldwork undertaken, it is necessary to realise that the heritage resources located during the fieldwork do not necessarily represent all the possible heritage resources present within the development area. Various factors account for this, including the subterranean nature of some archaeological sites. As such, should any heritage features and/or objects not included in the present inventory be located or observed, a heritage specialist must immediately be contacted.

Such observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that the heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. This applies to graves and cemeteries as well. In the event that any graves or burial places are located during the development, the procedures and requirements pertaining to graves and burials will apply as set out below.

1.4 Legislative Context

The identification, evaluation and assessment of any cultural heritage site, artefact or find in the South African context is required and governed by the following legislation:

i. National Environmental Management Act (NEMA) Act 107 of 1998
ii. National Heritage Resources Act (NHRA) Act 25 of 1999
iii. Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
iv. Development Facilitation Act (DFA) Act 67 of 1995

The following sections in each Act refer directly to the identification, evaluation and assessment of cultural heritage resources.

i. National Environmental Management Act (NEMA) Act 107 of 1998
    a. Basic Environmental Assessment (BEA) – Section (23)(2)(d)
    b. Environmental Scoping Report (ESR) – Section (29)(1)(d)
    c. Environmental Impacts Assessment (EIA) – Section (32)(2)(d)
    d. Environmental Management Plan (EMP) – Section (34)(b)
ii. National Heritage Resources Act (NHRA) Act 25 of 1999

a. Protection of Heritage Resources – Sections 34 to 36; and
b. Heritage Resources Management – Section 38

iii. Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
a. Section 39(3)

The NHRA stipulates that cultural heritage resources may not be disturbed without authorization from the relevant heritage authority. Section 34 (1) of the NHRA states that, "no person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority…". The NEMA (Act No 107 of 1998) states that an integrated EMP should, (23:2 (b)) "…identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage". In accordance with legislative requirements and EIA rating criteria, the regulations of SAHRA and ASAPA have also been incorporated to ensure that a comprehensive legally compatible AIA report is compiled.

1.5 Terminology and Abbreviations

Archaeological resources

This includes:

i. material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years including artefacts, human and hominid remains and artificial features and structures;

ii. rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;

iii. wrecks, being any vessel or aircraft, or any part thereof which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation;

iv. features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

Cultural significance

This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance

Development

This means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of the heritage authority in any way result in a change to the nature, appearance or physical nature of a place or influence its stability and future well-being, including:

i. construction, alteration, demolition, removal or change in use of a place or a structure at a place;

ii. carrying out any works on or over or under a place;

iii. subdivision or consolidation of land comprising a place, including the structures or airspace of a place;

iv. constructing or putting up for display signs or boards;

v. any change to the natural or existing condition or topography of land; and

vi. any removal or destruction of trees, or removal of vegetation or topsoil

Early Stone Age

The archaeology of the Stone Age, between 400 000 and 2500 000 years ago.

Fossil

Mineralised bones of animals, shellfish, plants and marine animals. A trace fossil is the track or footprint of a fossil animal that is preserved in stone or consolidated sediment.

Heritage

That which is inherited and forms part of the National Estate (Historical places, objects, fossils as defined by the National Heritage Resources Act 25 of 1999).

Heritage resources

This means any place or object of cultural significance.

Holocene

The most recent geological time period which commenced 10 000 years ago.

Late Stone Age

The archaeology of the last 30 000 years, associated with fully modern people.

Late Iron Age (Early Farming Communities)

The archaeology of the last 1000 years up to the 1800s, associated with people who carried out iron working and farming activities such as herding and agriculture.

Middle Stone Age

The archaeology of the Stone Age between 30-300 000 years ago, associated with early modern humans.

Palaeontology

Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.

Abbreviations	*Description*
AIA	**Archaeological Impact Assessment**
ASAPA	**Association of Southern African Professional Archaeologists**
CRM	**Cultural Resource Management**
DEA	**Department of Environmental Affairs**
EIA practitioner	**Environmental Impact Assessment Practitioner**
EIA	**Environmental Impact Assessment**
ESA	**Early Stone Age**
GPS	**Global Positioning System**
HIA	**Heritage Impact Assessment**
I&AP	**Interested & Affected Party**
LSA	**Late Stone Age**
LIA	**Late Iron Age**
MSA	**Middle Stone Age**
MIA	**Middle Iron Age**
NEMA	**National Environmental Management Act**
NHRA	**National Heritage Resources Act**
PHRA	**Provincial Heritage Resources Authority**
ROD	**Record of Decision**
SADC	**Southern African Development Community**
SAHRA	**South African Heritage Resources Agency**

Refer to **Appendix A** for further discussions on heritage management and legislative frameworks.

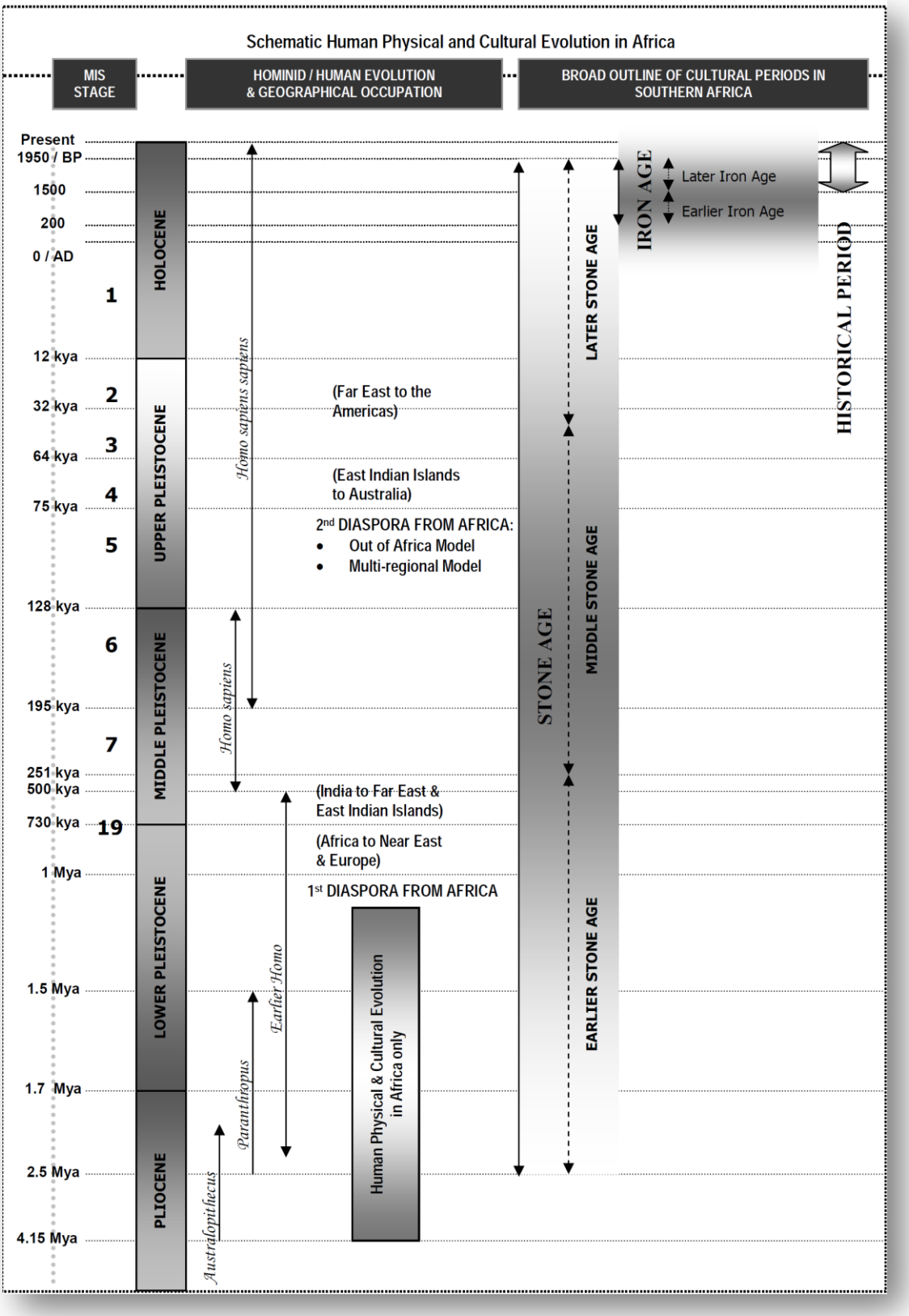

Figure 1 - Human and Cultural Time line in Africa (Morris, 2009).

2 TECHNICAL DETAILS OF THE PROJECT

2.1 Site Location

The Matatiele Local Municipality is part of the Alfred Nzo District Municipality, which is situated in the northern part of the Eastern Cape Province, and is bordered by Lesotho in the north, the Free State in the east and the Northern Cape in the west. The Alfred Nzo District Municipality consists of four local municipalities: Gariep, Maletswai, Elundini, and Senqu (Nortje, 2006;).

Within the Alfred Nzo District Municipality, Ward 15 is located in the Matatiele Local Municipality, approximately 20km to the south-west of the town of Matatiele. The town of Matatiele is an historic town which was established in 1891 and is associated with the migration of the Griqua people. The project involves the establishment of a new Water supply Scheme by the Matatiele Local Municipality, Alfred Nzo District Municipality in the Eastern Cape Province (**Figure 2)**.

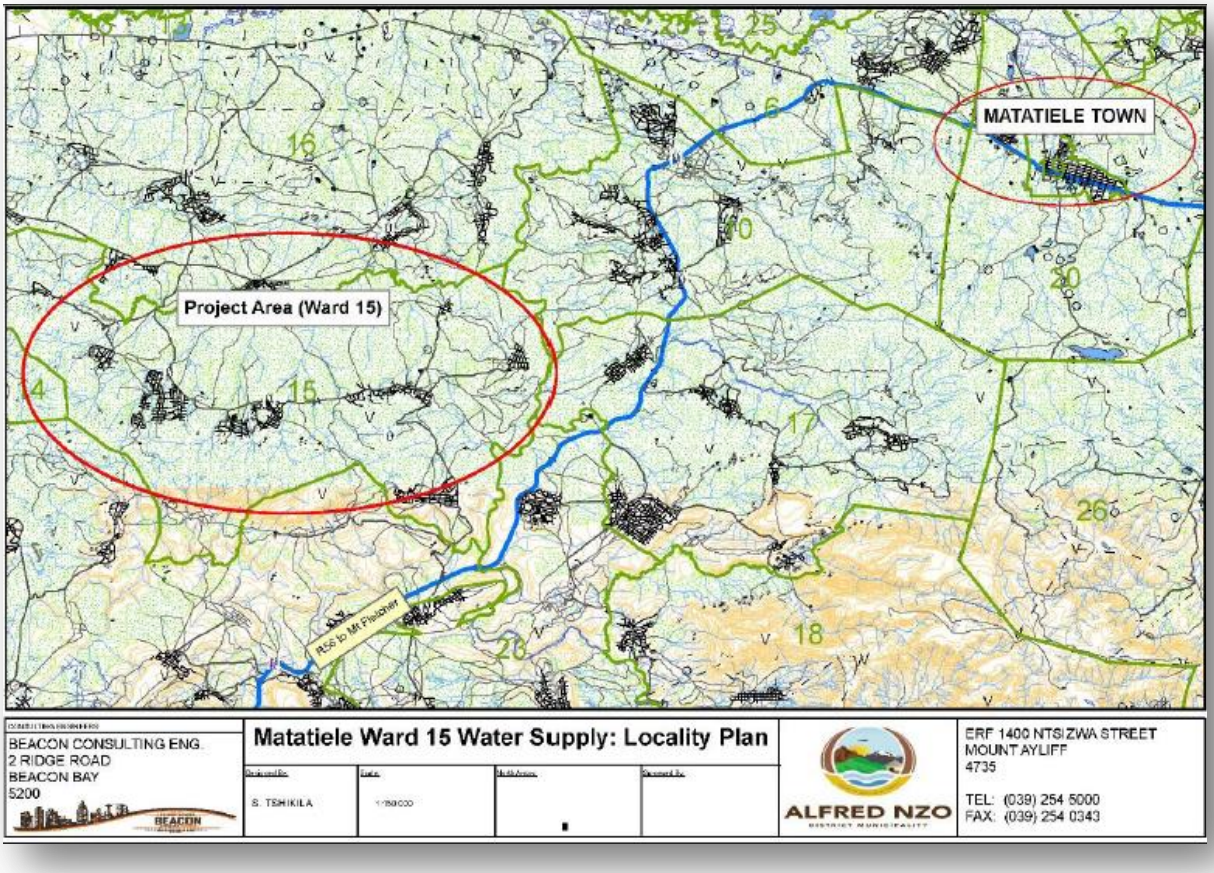

Figure 2 – Study area locality (provided by Terreco Environmental cc)

2.2 Site Description

The proposed alignment of the pipelines and reservoir sites will be situated within ward 15 of the Matatiele Municipality. The proposed pipelines and reservoir sites will be situated within the Komalihare/Paballong River valley (Figure 3). Several villages are situated within these two valleys (see map: *Figure 10*). The water supply project will provide water for the villages of Pontseng, Qhobosheaneng, Semongkeng, Paballong and Metshatshaneng.

The pipelines will mostly follow routes along existing roads within the villages (Figure 4) as well as the connecting roads (Figure 5) in between the villages. Some sections will be along new routes along open grassland to connect the proposed water supply system to existing infrastructure (Figure 6). The area consist mostly of undulating grassland within the River valley, as well as the slopes of the surrounding hills and mountains which will host the required reservoirs. Existing boreholes (Figure 7) will be utilised and existing derelict water supply infrastructure (Figure 8) will be upgraded.

Figure 3 – View of Komalihare/Paballong River Valley.

Figure 4 – View of the proposed pipeline route through one of the villages.

Figure 5 – View of the proposed pipeline along the existing village connecting roads.

Figure 6 – View of the proposed pipeline route along open grassland.

Figure 7 – View of one of the existing boreholes in the proposed project area.

Figure 8 – View of the existing infra-structure to be upgraded.

2.3 Project Description

The Alfred Nzo District Municipality are proposing the implementation of a water supply scheme for Ward 15 of the Matatiele Municipality. Terreco Environmental cc has been appointed by Beacon Consulting Engineers, on behalf of the Alfred Nzo District Municipality, to undertake the legally required application process for Environmental Authorisation (EA) including the environmental impact assessment and report which must be provided in support of the application.

The projects involve the implementation of a water supply scheme for Ward 15 of the Matatiele Municipality, and comprises of the establishment of a borehole water supply from six existing boreholes and the construction of a weir and silt box, primary bulk main pipeline (±40km), one command reservoir, one booster pump station, one high lift pump station and nine village storage reservoirs. (**Figure 9**).

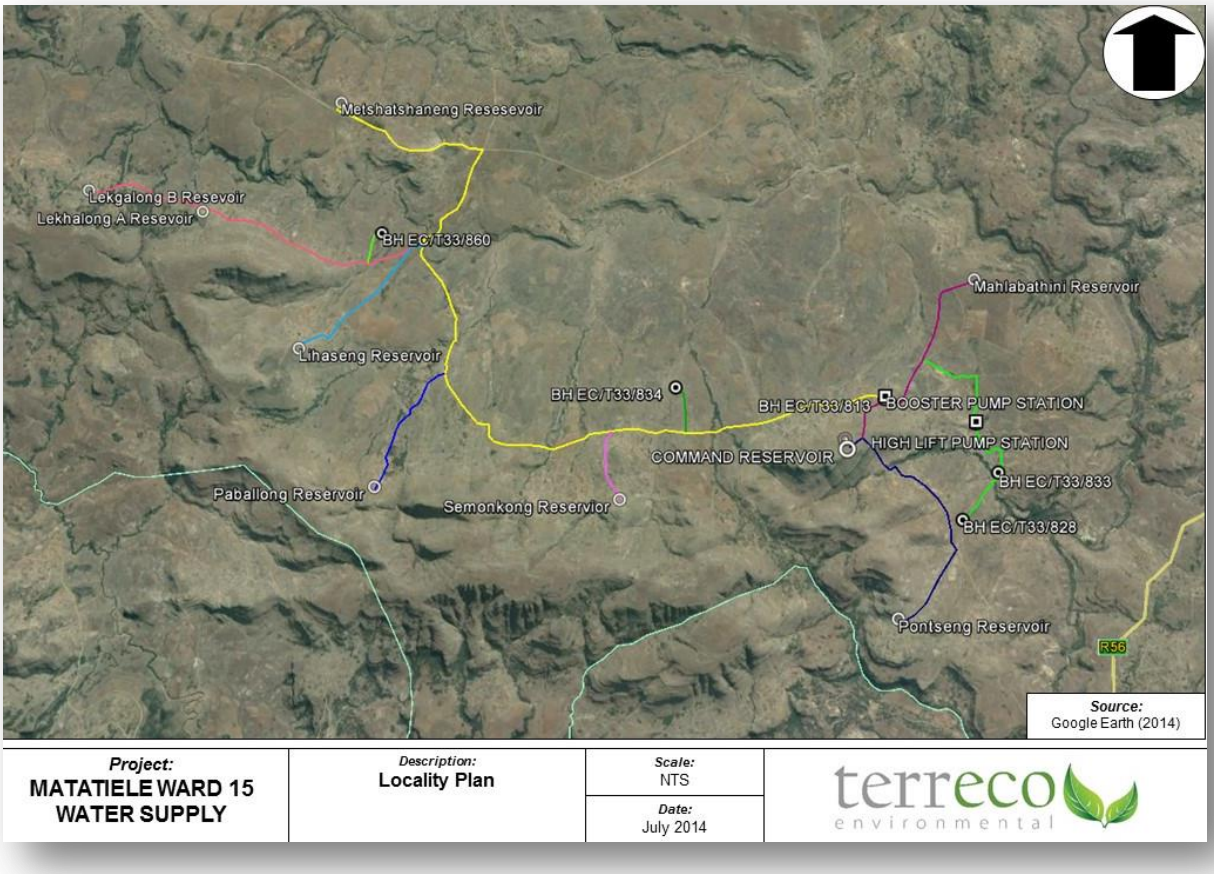

Figure 9 - Proposed site layout (from Terreco Environmental)

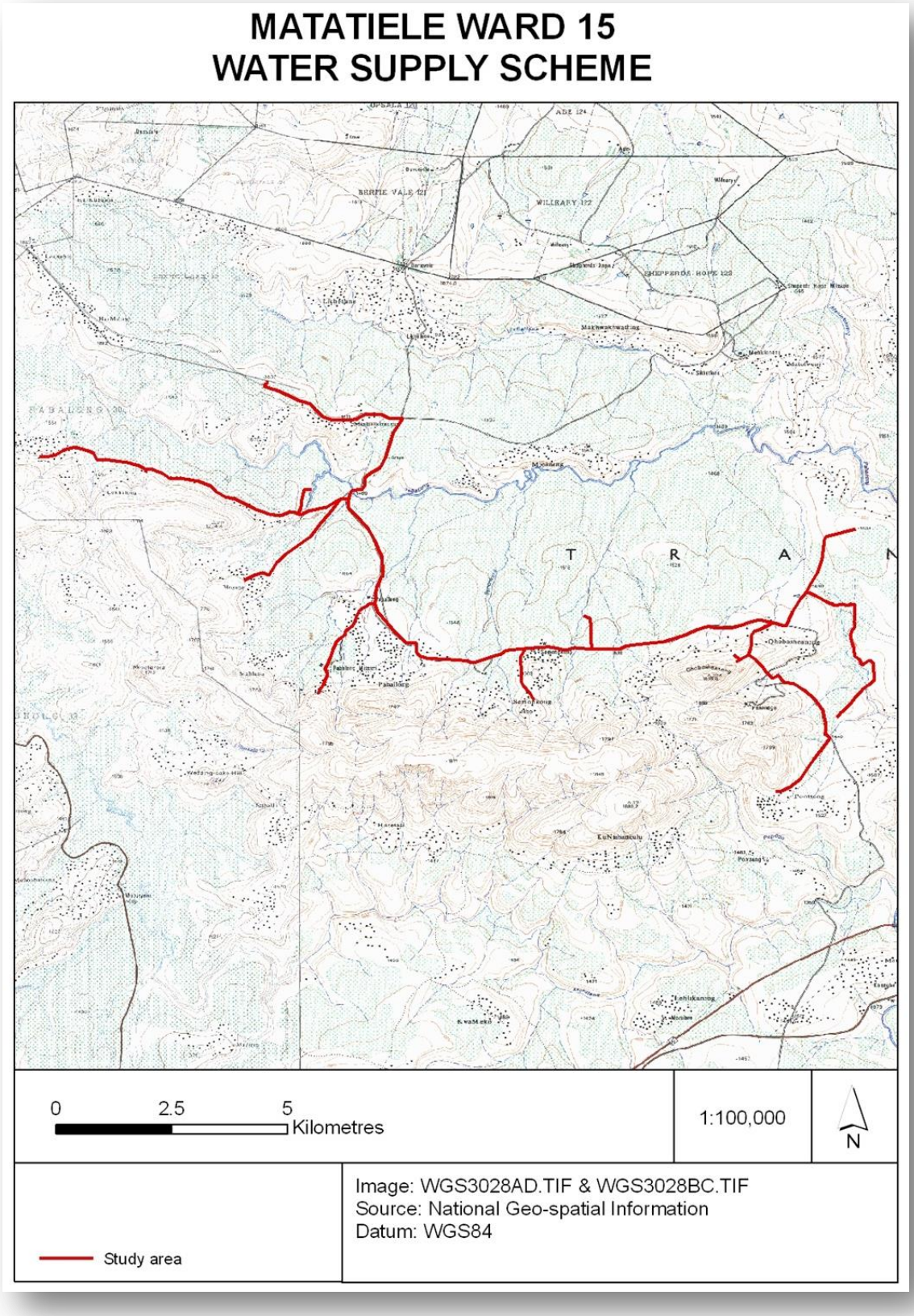

Figure 10 – Topographical map of the proposed project layout.

3 ASSESSMENT METHODOLOGY

The section below outlines the assessment methodologies utilised in the study.

3.1 Methodology for Assessing Heritage Site Significance

This Heritage Impact Assessment (HIA) report was compiled by PGS Heritage (PGS) for the proposed establishment of a new water supply scheme at Ward 15, Matatiele Muncipality by the Alfred Nzo District Municipality. The applicable maps, tables and figures are included, as stipulated in the NHRA (no 25 of 1999) and the National Environmental Management Act (NEMA) (no 107 of 1998). The HIA process consisted of three steps:

Step I – Literature Review: The background information to the field survey relies greatly on the Heritage Background Research.

Step II – Physical Survey: A physical survey was conducted on foot through the proposed project area by a qualified archaeologist, which aimed at locating and documenting sites falling within and adjacent to the proposed development footprint.

Step III – The final step involved the recording and documentation of relevant archaeological resources, the assessment of resources in terms of the HIA criteria and report writing, as well as mapping and constructive recommendations.

The significance of identified heritage sites was based on four main criteria:

- Site integrity (i.e. primary vs. secondary context),
- Amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures),
- Density of scatter (dispersed scatter)
    - Low - <10/50m2
    - Medium - 10-50/50m2
    - High - >50/50m2
- Uniqueness; and
- Potential to answer present research questions.

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be expressed as follows:

A - No further action necessary;

B - Mapping of the site and controlled sampling required;

C - No-go or relocate development activity position;

D - Preserve site, or extensive data collection and mapping of the site; and

E - Preserve site.

Impacts on these sites by the development will be evaluated as follows:

Site Significance

Site significance classification standards prescribed by the SAHRA (2006) and approved by the ASAPA for the Southern African Development Community (SADC) region, were used for the purpose of this report.

Table 1: Site significance classification standards as prescribed by SAHRA.

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
National Significance (NS)	Grade 1		Conservation; National Site nomination
Provincial Significance (PS)	Grade 2		Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected A (GP.A)	Grade 4A	High / Medium Significance	Mitigation before destruction
Generally Protected B (GP.B)	Grade 4B	Medium Significance	Recording before destruction
Generally Protected C (GP.A)	Grade 4C	Low Significance	Destruction

3.2 Methodology for Impact Assessment

In order to ensure uniformity, a standard impact assessment methodology has been utilised so that a wide range of impacts can be compared. The impact assessment methodology makes provision for the assessment of impacts against the following criteria:

- Significance;
- Spatial scale;
- Temporal scale;
- Probability; and
- Degree of certainty.

A combined quantitative and qualitative methodology was used to describe impacts for each of the aforementioned assessment criteria. A summarised explanation of each of the qualitative descriptors along with the equivalent quantitative rating scale for each of the aforementioned criteria is given in **Table 2**.

Table 2: Impact Assessment Criteria

CRITERIA	CATEGORIES	EXPLANATION
Overall nature	**Negative**	Negative impact on affected biophysical or human environment.
	Positive	Benefit to the affected biophysical or human environment.
Spatial Extent over which impact may be experienced	**Site**	Immediate area of activity incorporating the 20m zone which extends from the edge of the afforestation area.
	Local	Area up to and/or within 10km of the 'Site' as defined above.
	Regional	Entire community, drainage basin, landscape etc.
	National	South Africa
Duration of impact	**Short-term**	Impact would last for the duration of the activity – e.g. activities: Land clearing, . Quickly reversible.
	Medium-term	Impact would dissipate after the Project activity. E.g. activity: harvesting. Reversible over time.
	Long-term	Impact would persist. E.g. operational period the growth periods between each 'short term' activity.
	Permanent	Impact would continue beyond proposed development activity harvesting/ extraction of the trees.
Probability of occurrence	**Unlikely**	<40% probability.
	Possible	40% - 70% probability.
	Probable	>70% probability.
	Definite	>90% probability.
Mitigation Potential [i.e. the ability to manage or mitigate an impact given the necessary resources and feasibility of application]	**High**	Relatively easy and cheap to manage. Specialist expertise or equipment is generally not required. The nature of the impact is understood and may be mitigated through the implementation of a management plan or through 'good housekeeping'. Regular monitoring needs to be undertaken to ensure that any negative consequences remain within acceptable limits. The significance of the impact after mitigation is likely to be low or negligible.
	Moderate	Management of this impact requires a higher level of expertise and resources to maintain impacts within acceptable levels. Such mitigation can be tied up in the design of the Project. The significance of the impacts after mitigation is likely to be low to moderate. May not be possible to mitigate the impact entirely, with a residual impact(s) resulting.
	Low	Will not be possible to mitigate this impact entirely regardless of the expertise and resources applied. The potential to manage the impact may be beyond the scope of the Project.

		Management of this impact is not likely to result in a measurable change in the level of significance.
Significance of Impact (preliminary only)	**Slight**	Largely of HIGH mitigation potential.
	Moderate	Largely of MODERATE mitigation potential.
	Substantial	Largely of LOW mitigation potential.

4 ARCHIVAL AND DESKTOP RESEARCH FINDINGS

The aim of the archival and desktop background research is to identify possible heritage resources that could be encountered during the field work. The archival and desktop research focused on available information sources, which were used to compile a background history of the study area and surrounds, as summarised in **Table 3**. This data then informed the possible heritage resources to be expected during field surveying.

Table 3: Summary of History of Matatiele Town and Surrounding Area

DATE	DESCRIPTION
2.5 million to 250 000 years ago	**Early Stone Age:** The Early Stone Age (ESA) dates between 2.5 million to 250 000 years BP, and refers to the earliest occurrences of stone tool manufacturing associated with Homo Sapiens' predecessors. Technological industries associated with the ESA are the Oldowan (2.0-1.7 mya), characterised by large stone tools with minimal retouch, large flakes and hammer stones, followed by the Acheulean (1.5mya-250 000 mya), characterised by large cutting tools such as hand axes and cleavers (Mitchell, 2002). The Early Stone Age occupation of the Eastern Cape dates to a minimum age of 300,000 B.P. predating the known origins of modern human lineages (Fisher et. al. 2013). Three Early Stone Age sites are recorded in the KwaZulu-Natal Museum heritage data-base in the greater Matatiele area. Stone tools in the form of hand axes and cleavers have been recorded on these sites (Prins & Hall, 2012).
250 000 to 20 000 years ago	**Middle Stone Age:** The Middle Stone Age (MSA) dates between 250 000 to 20 000 years BP. The MSA dates from around 250 000 BP originate from sites such as Leopards Kopje in Zambia, while the late Pleistocene (125 000 BP) yields a number of important dated sites associated with modern humans (Deacon & Deacon, 1999). The MSA is characterised

by flakes and blade industries, the first use of grindstones, wood and bone artefacts, personal ornaments, use of red ochre, circular hearths and a hunting and gathering lifestyle.

Middle Stone Age sites in the Drakensberg region occur in both Lesotho and South Africa. Sites occur as surface scatters as well as deep cave deposits. Prime archaeological deposits, however, occur in the Eastern Cape and Free State sections of the region. Archaeological excavations at Strathalan Cave in the Eastern Cape Province indicate that the Middle Stone Age persisted in the Cape Drakensberg, to the immediate south west of the study area, until around 22 000 years ago (Mitchell 2002). Eleven Middle Stone Age sites, all surface scatters, are known from the greater Matatiele area, although none occur in the project area (Prins & Hall, 2012).

Significant sites in the study area are Strathalan Cave B (

Figure 11) to the south-east of Matatiele, (Opperman and Heydenrych, 1990), a site known to be one of the youngest MSA sites in Southern Africa, dating to 22 000 BP (Deacon & Deacon, 1999).

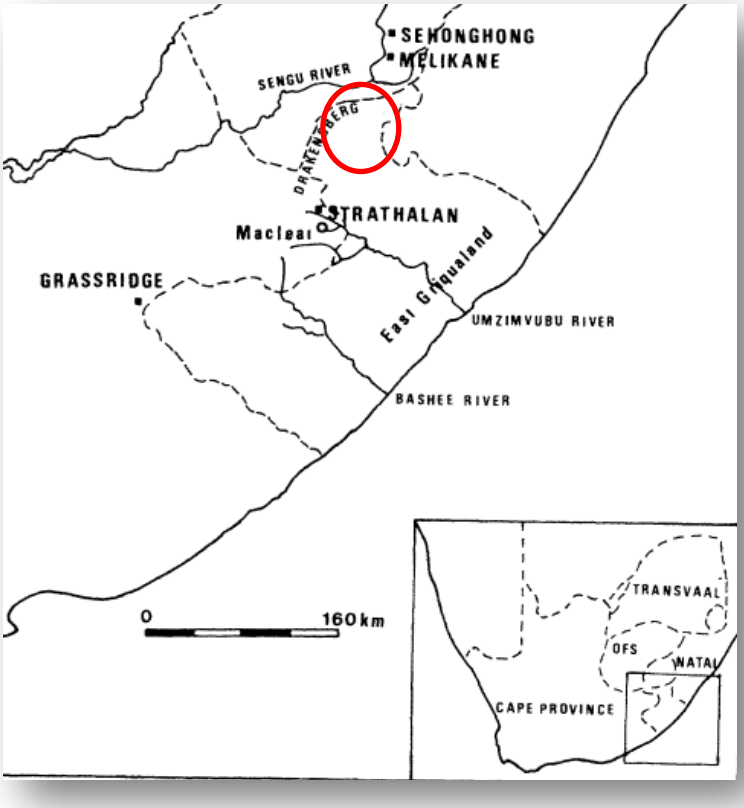

Figure 11 – Locality of Strathalan in relation to Maclear (Opperman and Heydenrych, 1990) (Study area in red)

40 000 years ago - to the historic past	**Late Stone Age:** The Late Stone Age (LSA) of the study area is significant and characterised by the significant density of rock art sites. Excavations at Strathalan indicate that the LSA occupations date from 10 000 BP (Opperman and Heydenrych, 1990). This site is associated with the San and with the contact between them and the new settlers in the form of the Thembu people. A very large number of LSA sites occur in the greater Matatiele area. Most of these are San rock art sites but four LSA surface scatters have also been recorded in the past (Prins & Hall, 2012).
Rock Art	The Matatiele area has very significant rock art resources and the preliminary desktop study, consulting SAHRIS, the Bloemfontein Museum, the Woodhouse Collection, the Matatiele Archaeology and Rock Art project and the SARADA database identified a very large number of recorded sites. Patricia Vinnicombe recorded a large number of sites around the Matatiele area in the 1960s-70s. A high density of rock art was documented in the Tsoelike River valley

	in the Qacha's Nek district, an area which, according to oral traditions (Jolly 2006: Kruger 2011), was occupied by San people into the twentieth century. These rock art images are composed of very finely drawn polychromatic images with narrow lines, small dots and gradated colouring. The images usually depict eland, rhebok, or humans in various states, activities, or postures. Occasionally, lions, other carnivores, other antelope, baboons, cattle, horses, horseback riders, snakes, and extraordinary creatures with human and animal features (known as therianthropes) are depicted (Kruger, 2011). In spite of this previous research, the Matatiele region was identified as under-researched in a doctoral study in 2005-2008. The Matatiele Archaeology and Rock Art (MARA, Rock Art Research Institute, University of the Witwatersrand) project was therefore established to redress the imbalance in the history of research in this region of the former apartheid homeland of the 'Transkei', and aiming to further investigate the phenomenon of raiding cultures in the nineteenth century within the context of the heritage of all the regional cultures. Initial fieldwork led to the discovery of more than fifteen rock art shelters in previously unexplored valleys in the Maloti-Drakensberg around Matatiele. Some of these rock art sites contributed to the hypothesis that, in the nineteenth-century this region was home to creolised 'Bushman' raiding bands of mixed cultures who made paintings of their religious beliefs in the sandstone shelters. The first systematic archaeological survey has yielded over 200 sites, 168 containing rock art. Analysis of finds from excavated shelters is on-going, and has produced material (chiefly lithics, macrobotanicals, and metals) pertaining especially to the period of forager/farmer interaction (Matatiele Archaeology And Rock Art Project, 2014).
AD 900 - AD 1300 – 1800s	**Iron Age:** Almost 2 000 Iron-Age sites have been identified in the Maloti Drakensberg region, and most occur at altitudes lower than the 1 800 m contour. Stone walled Iron Age settlements have been recorded in the greater Matatiele area and were most probably built by southern Sotho immigrants who settled here after 1870. However, none are known from the project area (Prins & Hall, 2012) although excavations at Strathalan Cave A, close to Maclear, have yielded the remains of sorghum grain and calabash fragments on the living floor, indicating that Nguni farmers were in the area

	before the 1800's (Opperman, 1996).
AD 1300-AD 1800s	**Stone Age / Iron Age Contact:** **The San:** The first inhabitants of the study area were the San people (associated with the largest number of rock art sites). The earliest indications of the San date to around 29 000 BP (Opperman, 1999), with their descendants living in the area up to the 1900's. During the more recent past, between 1837 and 1990, detailed historical information has shown that the three major San groups were the Thola, another group united under Mdwebo, and a group under Nqabayo (Mallen, 2009). San groups in the north eastern Cape interacted closely with Bantu-speaking groups in a number of ways, including trade, intermarriage, stock herding and raiding–both raiding partnerships and raiding of one another (Henry 2011). San groups entered into alliances with Bantu-speaking groups and gave them a share of the stock they had raided in return for a certain extent of protection from these chiefs. With increasing pressure on San groups in the north-eastern Cape during the nineteenth century, such alliances often resulted in Bantu-speakers joining San groups for periods of time (Henry 2011). **The Nguni and Sotho:** Early Nguni people arrived in the region between 1100 and 1300 A.D (Feely 1986, cited in Fischer et al. 2013; Feely 1987) and by the beginning of the nineteenth century the main Cape Nguni-speaking agro-pastoralist groups inhabiting the Eastern Cape were the Mpondo, Mpondomise and Thembu (Soga 1930, cited in Henry 2011). By the 1820s, the conflicts of the Mfecane had significantly affected the region, causing disruption amongst these groups (Derricourt 1974, cited in Henry 2011). The effects of the Mfecane were wide-reaching and people were displaced as far as the Zambezi River (Mitchell 2002). Jackson (1975) conducted a survey in the early 1970's of the ethnic composition of the previous homelands of the Ciskei and the Transkei. The survey included a short and broad history of the settlement of tribes across the Ciskei and the Transkei. He concluded that the Ciskei and the Transkei were occupied largely by the Cape Nguni (to differentiate them from the KwaZulu Natal Nguni groups) and included groups such as the Xhosa, Thembu, Mpondo, Fingo, Hlangwini and even some Sotho groups.

These groups can be divided into various smaller groups and tribes who settled across the region. Jackson identified the people who settled in the study area as mostly belonging to the Hlangwini group of tribes as well as some tribes of the Sotho group of tribes. The abaseHlangwini tribe made up for most of the Nguni in this area and the BaHlakwana tribe made up for most of the Sotho in the area (Jackson, 1975).

The Hlangwini group of tribes are related to the main groups of the Fingo such as the amaHlubi, amaZizi and amaBhele tribes. The Hlangwini claim that they originate from Zwaziland. They also entered the Transkei as fugitives during the turmoil of the Shaka Zulu wars. They settled in the Umzimkulu area after an understanding with the Griekwa Chief Adam Kok. Jackson also mentioned that some Hlangwini were moved from Kokstad (Umzimkulu area) to the Matatiel District in 1946. These are most probably the abaseHlangwini that we find in the study area (Jackson, 1975).

The Sotho in the Ciskei and Transkei are mostly made up by the BaKwena, BaTlokwa, BaHlakwana and the BaRolong tribes. The BaHlakwana originate from Lesotho and arrived in the Matatiele area after the arrival of the Griqua Chief Adam Kok in 1862. Two rival brothers supported different sides during the Mponomise Rebellion of 1880/81. Sibi supported the Colonial Government and his brother, Ramohlakwana supported the rebels. Ramohlakwana was forced to flee to Lesotho during or after the rebellion, but later returned to the Matatiele area. Sibi's descendants have consequently been recognised as chiefs, but Ramohlakwana's descendants did not receive the same recognition. These Bahlakwana descendants are most probably the Sotho people that we find in the study area (Jackson, 1975).

The Griqua:

The Griqua people originate from descendants of the Khoikhoi freed slaves and other mixed blood people. The Griqua Nation was formally established at the beginning of the 1800s in the area now known as Griquatown in the Northern Cape Province (Legassick, 2010). By the end of the 1800's, with the discovery of diamonds at Kimberley, the Griqua became involved in a territorial dispute between the British and the Transvaal Republic.

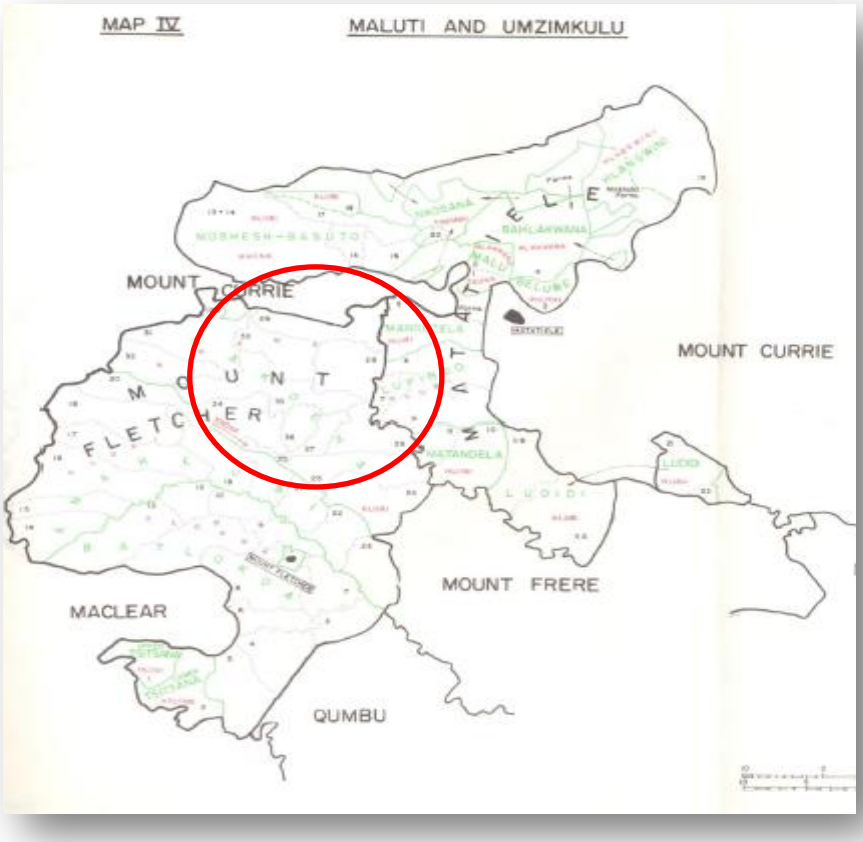

Figure 12 – Map of the Tribal Divisions per District (Jackson, 1975) with the study area encircled.

The movement of the Mpondomise out of the Maclear district opened up the opportunity for the British to offer the now vacant area to the Griqua in exchange for the country north west of Kimberley. In 1861 Adam Kok commissioned a party to investigate the proposed area and subsequently accepted the offer. This move lead to the establishment of Kokstad in 1862 (Nel, 1997). The consistent quarrelling amongst the Griqua led to a group settling away from Kokstad in the Maclear area. Their settlements were concentrated around the two river crossings at Ugie (Inxu Drift) and Maclear (Nqanqaru Drift) (Nel, 1997).

1820-90's	**Historical Period:**

Matatiele Town is located 27 km south of Qacha's Nek and 29 km west-north-west of Cedarville. It was established in 1874 and attained municipal status in 1904. The name is derived from Sotho, mada-i-yila or matato-a-ile, meaning, 'the ducks have flown'

	(Raper, 2004) Various historical mission stations founded in the mid to late 1800s such as those at Morija and St James in Lesotho and Emmaus, Reichenau, and Mariazell in South Africa, are still in active use. The Mariazell Mission Station, which dates back to the 1860's, is situated to the north west of Matatiele (Prins & Hall, 2012).
1899-1902	**The South African War:** At the outbreak of the South African War in 1899, the Cape Colony prepared to stay out of the conflict with the Republican Boer forces. However the need to be prepared for aggression from the Boer forces also required them to plan adequately for the eventuality of war. The uncertainty of the republican intention towards the Transkei Territories, as well as the Eastern Cape regions, pushed the British Army to develop an African volunteer corps, since the Settler volunteers were not regarded as reliable (Nasson, 1999). From December 1899, the African volunteers were developed and consisted predominantly of Bhaca, Thembu and Mfengu tribal groupings. Eventually over 4 000 men were taken up in the Thembuland Field Force and the East Griqualand Field Force. By March of 1900 most of the Transkei force was disbanded as the fear of invasion died down. Smaller contingents were revived from time to time as various scares and plots of invasion were uncovered (Nasson, 1999). **Matatiele District Defence Force (MDDF), 1901-1902**. It is presumed it is the same unit as the one to which Queens medals South Africa were issued, the Matatiele European Reserve. This was a special service mounted corps raised at Matatiele, East Griqualand, early in 1901. Their role was the protection of that part of the country against raids by the Boer forces then operating in the northern part of the Cape Colony, especially given the absence of the East Griqualand Mounted Rifles on war service elsewhere. The unit was raised and commanded by Major Charles Tod, other officers being Captains W. Harley and D. Johnstone, with Lieutenants A. McDonald and Dan B. Menne. The European strength of the corps was about 100, with headquarters at Matatiele. A native troop of about, 50 under Capt. H. Davis, formed part of the unit. They were known by the nick-name of "The Matatiele Lambs," an appellation not always descriptive of the regiment.

	The MDDF operated in East Griqualand, parts of the Barkly East district of the Cape and parts of Basutoland and the corps performed very valuable services. The regiment was armed and equipped by the Cape Government, but each member provided his own horse, saddlery and other field necessities. The corps was armed with the .303 Martini-Henry single loader rifle and no regular uniform was worn, each man turning out in his own clothing and gear. The unit was organised along the lines of the commando system, economical, mobile and efficient. The members drew pay on the scale of other mounted units of the Cape Colony, which also covered home allowance. The MDDF was disbanded in 1902 upon the cessation of hostilities, their services being no longer needed with the regular regiment of East Griqualand having returned. The corps sustained no casualties during its short life, despite numerous brushes with the enemy and no individual distinctions were conferred on members (angloboerwar.com, 2014).
Liberation Struggle History	Mariazell Mission and High School is associated with Albertina Sisulu, Thabo Mbeki, his mother Epainette Mbeki and Mosiuoa Lekota, who were all educated at the High School and each of whom played a significant role in the liberation struggle of South Africa (Sisulu, 2002; Presidency, Republic of South Africa, 2014).

4.1 SAHRIS Database – Previous Heritage Impact Assessment Reports

A search of the South African Heritage Resources Information System (http://www.sahra.org.za/sahris) database identified previous HIA's undertaken within the wider area:

- Prins, F. and Hall, S. 2012. Cultural Heritage Impact Assessment of the Proposed Umzimvubu Ward 14 Water Supply Scheme, Alfred Nzo District Municipality. Active Heritage. This report identified four modern grave sites directly adjacent to the proposed pipeline route. The study area was located in Ward 14, to the south of Matatiele.
- Anderson, G. 2002. Archaeological Survey of the Harry Gwala Housing Development, Matatiele. For Udidi and KwaZulu-Natal Heritage. Institute for Cultural Resource Management, Natal Museum. Several sites were noted in the areas adjacent to, or nearby, the development project. The first site is a Middle Stone Age quarry and stone knapping area. This site is of low

archaeological significance, and no further mitigation is required. Furthermore, Patricia Vinnicombe had previously recorded many rock art sites in the immediate vicinity of Matatiele. Specifically one site is ±1km from the proposed development, in an apparently disused Nature Reserve. This site is a shelter with an archaeological deposit and several rock art images.

- Prins, FE and Hall, SM. 2012. Cultural Heritage Impact Assessment of the Proposed Fobane Water Supply Scheme, Alfred Nzo District Municipality. This study identified twenty modern grave sites directly adjacent to the proposed pipeline route. Eight San rock art sites were also located in the near vicinity of the proposed pipeline route.
- Kruger, N. 2011. Archaeological Impact Assessment (AIA) Of Demarcated Surface Areas at Mafube, Matatiele Municipality, Eastern Cape Province. No Stone Age, no Iron Age (Farmer Period) and no Historical/Colonial Period remains were observed in the survey area.
- Schalkwyk, L. and Wahl, B. 2011. Heritage Impact Assessment of Borrow Pits In Alfred Nzo District Municipality, Eastern Cape Province, South Africa. This study, limited to the impact of quarrying some 30 km west of Matatiele, located a large number of graves including a group of 16 stone-packed graves.
- eThembeni Cultural Heritage Heritage. 2009. Impact Assessment Of Upgrading Of District Road Dr 08012 from Maluti to Qachas Nek, Matatiele, Eastern Cape Province, South Africa. This study in the Matatiele area also located a large number of graves, mostly fairly recent.

A number of other cases were identified from the SAHRIS database including a large number of permit applications for excavations of rock shelters as part of the Matatiele Rock Art and Archaeology Project (e.g. SAHRIS case numbers 1608, 1618 & 1620). One, part of the same project, was for a rescue permit requesting permission from SAHRA to remove a human skeleton, eroding out of deposit at the Vleidraai 1 rock shelter, for preservation, conservation and analysis (SAHRIS case number 342).

In addition a number of other cases in the wider vicinity were examined which had no supporting HIA or AIA studies (e.g. SAHRIS case number 259 for the Umzimvubu Water Supply Scheme: SAHRIS case number 1178 for a proposed road upgrade between Mount Frere and Cedarville and SAHRIScase number 2455 for the development of a borrow pit at Komkulu).

4.2 Palaeontology of the area

4.2.1 Geological setting

The geology of the proposed project area is underlain by rocks of the Triassic aged Molteno, Elliot and Clarens formations of the Karoo Supergroup (**Figure 13**) (Groenewald, 2014).

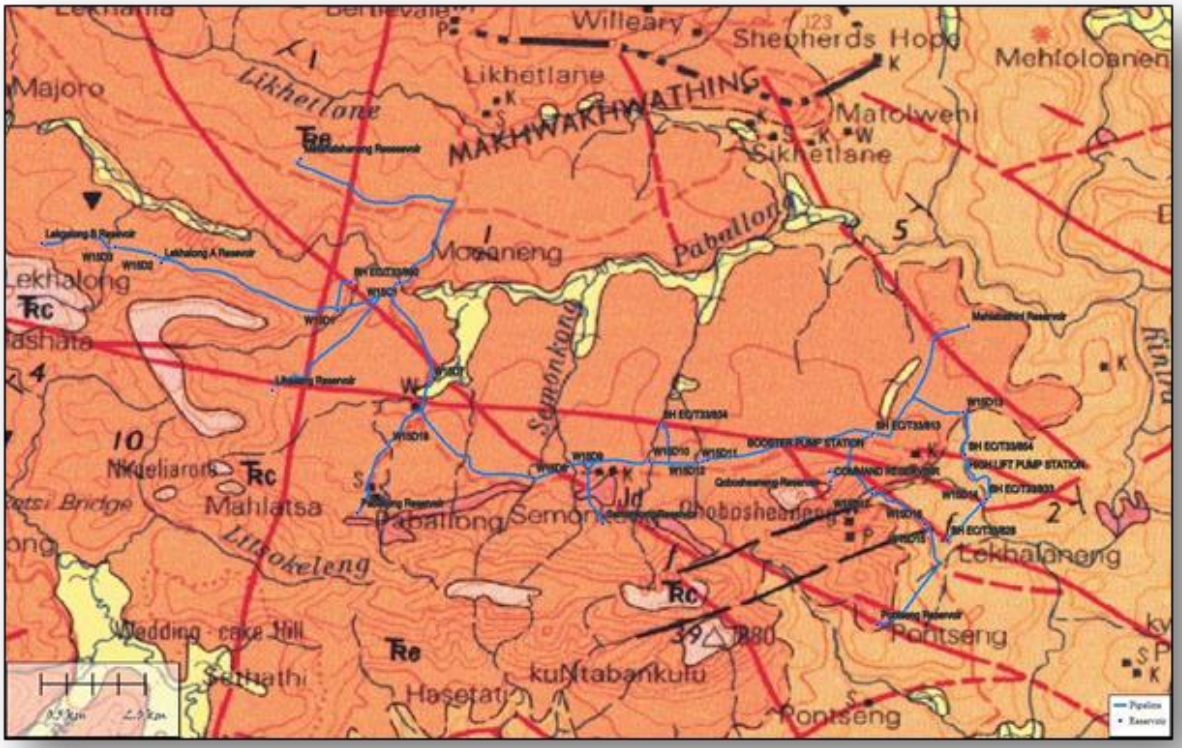

Figure 13 - Geology of the study area, Trm – Molteno Formation. Tre – Elliot Formation. Jd - Dolerite (Groenewald, 2014)

4.2.2 Palaeontology of the area

Groenewald (2014) indicates that the Triassic Molteno Formation is globally known for the presence of plant fossils belonging to the Dicroiidium Assemblage. Very few vertebrate remains have been recorded from the formation, but trace fossils, including well-defined dinosaur trackways have been described from different localities in the Karoo Basin.

The Triassic aged Elliot Formation is well-known for the abundance of prehistoric life forms that it contains. Reptilian (mainly dinosaur) fossils and fish fossils. Lower Euskelosaurus Range zone and upper Massospondylus Range zone. The Tritylodon Acme zone also occurs in the Massospondylus

Range zone. Apart from dinosaur orders Ornithischia and Saurischia, Thecodontia and Crocodilia are also well represented.

5 FIELD WORK FINDINGS

Due to the nature of cultural remains, with the majority of artefacts occurring below the surface, a controlled-exclusive surface survey was conducted over a period of 2 days by vehicle and on foot by an archaeologist and field technician from PGS. The field work was conducted in the week of 29 September 2014.

The survey focussed directly on the proposed pipeline routes and reservoir sites for the establishment of the new water supply scheme. The general area was documented by means of various photographs (**Figure 3** to **Figure 8**) and, where sites of heritage significance were identified, a GPS coordinate was taken as well as a more detailed site recording.

The study area is situated approximately 30km to the south-west of the town of Matatiele. Vegetation is sparse and consists mostly of low grassland. Overall visibility is good.

During the survey a total of 8 heritage sites were identified of which 7 are historic/recent structures and buildings and 1 site with a single grave are found to be close or within the proposed alignment of the pipeline routes or reservoir sites. The sites are given an abbreviated name of **M15** (Matatiele Ward 15) and are numbered from **M15 001** to **M15 008** respectively. Each identified heritage site will be discussed below.

The identified heritage sites and the track logs (in black) for the survey are indicated on the map below (**Figure 14**).

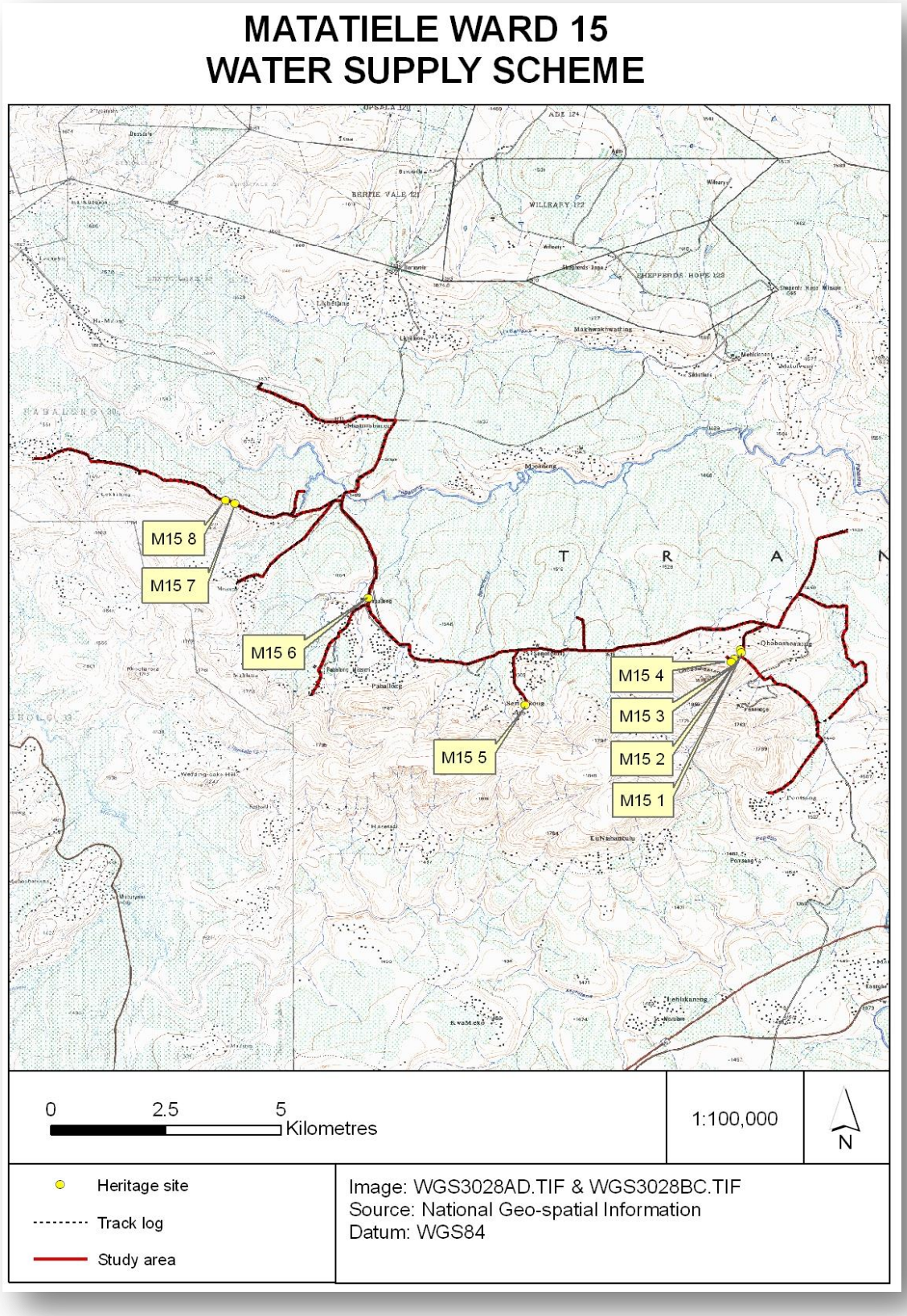

Figure 14 – Map of the study area with identified heritage sites and track logs indicated.

5.1 Heritage Findings

5.1.1 Site M15 001:

GPS: S30,41702° E28,58705°

The remains of two historical/recent circular stone walled enclosures were identified at this location (Figure 15). The stone walled structures are situated right next to and on the western side of the proposed route alignment of the pipeline. The two structures are linked together and are situated on a little terrace on the northern slope of the mountain. The first circular enclosure measures approximately 12m in diameter and the second, smaller enclosure measures approximately 5m in diameter. This smaller enclosure was used to keep calves from drinking from their mothers when the cattle were placed in the enclosures at night (Figure 16). The walls of the two structures measures approximately 1m high and approximately 0.5m wide. The natural rocks of the mountain slope are also used to form part of the walls of the two structures.

Figure 15 – View of the identified two enclosures on the mountain slope.

Figure 16 – View of the smaller enclosure attached to the larger enclosure.

The site is of medium heritage significance and graded asGrade 4 B, and protected under Sections 34 and 35 of the NHRA.

Impact rating

IMPACT	Overall nature	Spatial extent Over which impact may be experienced	Duration of impact	Probability of occurrence	Mitigation Potential	Significance of Impact
Impact on graves	Negative	Site	Permanent	Probable1	Moderate	Moderate

Mitigation:

- Demarcate the site as a no-go area during the construction phase.;
- The monitoring of the structures must be included in the HMP of the proposed project, and
- If at any stage the site is disturbed, a qualified archaeologist must be contracted to evaluate the damage and make recommendations on the appropriate mitigation measures.
- Destruction of the site will require a permit issued under Section 34 of the NHRA and will only be issued with the backing of research documentation.

5.1.2 Site M15 002:

GPS: S30,41758° E28,58710°

The remains of a historical/recent homestead were identified at this location (Figure 17). The remains of the homestead are situated right next to and on the western side of the proposed route alignment of the pipeline. The homestead consists of three separate structures which were placed in a line next to each other on a flat terrace on the northern slope of the mountain. The structures include a circular hut (Figure 18) which measures approximately 8m in diameter and two square structures which measures approximately 4m x 4m in size each. Only the stone built foundations of these stuctures are left (Figure 19). The site measures approximately 15m x 20m in size.

Figure 17 – View of the remains of the identified homestead on the mountain slope.

Figure 18 – View of the remains of the circular hut structure.

Figure 19 – View of the remains of the stone built foundations of one of the structures.

The site is of medium heritage significance and graded as Grade 4B and protected under Sections 34 and 35 of the NHRA. It must also be noted that the possibility of infant and stillborn burials does exist in and around the homesteads of traditional communities and therefore such burials can be expected at this site (Cocks; Bangay; Wiersum & Dold, 2006).

Impact rating

IMPACT	Overall nature	Spatial extent Over which impact may be experienced	Duration of impact	Probability of occurrence	Mitigation Potential	Significance of Impact
Impact on still born graves	Negative	Site	Permanent	Possible	Moderate	Moderate

Mitigation:

- Demarcate the site as a no-go area during the construction phase.;
- The monitoring of the structures must be included in the HMP of the proposed project, and
- If at any stage the site is disturbed, and it is found that human remains were present, a qualified archaeologist must be contracted to evaluate the damage and make recommendations on the appropriate mitigation measures.
- Destruction of the site will require a permit issued under Section 34 of the NHRA and will only be issued with the backing of research documentation.

5.1.3 Site M15 003:

GPS: S30,41877° E28,58580°

The remains of a historical/recent homestead and its associated small stock enclosures were identified at this location (Figure 20). The remains of the homestead are situated right next to and on the western side of the proposed route alignment of the pipeline. The homestead consists of three separate hut structures which were placed in a line next to each other on a flat terrace on the northern slope of the mountain. The three hut structures measures approximately 6m in diameter. Only the stone built foundations of these stuctures are left (Figure 21).

The stone walled stock enclosures consist of three square shaped structures which were linked to each other (Figure 22). Each of these enclosures measures approximately 5m x 5m in size. The walls of these enclosures do not have any foundations and they measure approximately 1m high and approximately 0.75m wide (Figure 23). The enclosures were most probably used to keep small stock such as sheep and goats. The whole site measures approximately 20m x 30m in size.

Figure 20 – View of the remains of the identified homestead on the mountain slope.

Figure 21 – View of the remains of one of the identified hut structures.

Figure 22 – View of the remains of the identified stone built enclosures.

Figure 23 – Another view of the remains of the identified stone built enclosures.

The site is of medium heritage significance and graded as Grade 4B, and protected under Sections 34 and 35 of the NHRA. It must also be noted that the possibility of infant and stillborn burials does exist in and around the homesteads of traditional communities and therefore such burials can be expected at this site (Cocks; Bangay; Wiersum & Dold, 2006).

Impact rating

IMPACT	Overall nature	Spatial extent Over which impact may be experienced	Duration of impact	Probability of occurrence	Mitigation Potential	Significance of Impact
Impact on still born graves	Negative	Site	Permanent	Possible	Moderate	Moderate

Mitigation:

- Demarcate the site as a no-go area during the construction phase.;
- The monitoring of the structures must be included in the HMP of the proposed project, and
- If at any stage the site is disturbed, and it is found that human remains were present, a qualified archaeologist must be contracted to evaluate the damage and make recommendations on the appropriate mitigation measures.
- Destruction of the site will require a permit issued under Section 34 of the NHRA and will only be issued with the backing of research documentation.

5.1.4 Site M15 004:

GPS: S30,41940° E28,58511°

The remains of another historical/recent homestead and its associated stock enclosure were identified at this location (Figure 24). The remains of the homestead are situated right next to and on the eastern side of the proposed route alignment of the pipeline. The extended homestead consists of three separate units. Each unit has the remains of several hut structures as well as square shaped rooms (Figure 25). The three units are in close proximity of each other and they form a large extended family settlement. The structures were placed in a line next to each other on a flat terrace on the northern slope of the mountain. Some parts of the walls and the stone built foundations of these stuctures are left (Figure 26 & Figure 27).

The stone walled stock enclosure is situated next to the extended family settlement. It is square shaped and measures approximately 25m x 25m in size (Figure 28). The walls of these enclosures do not have any foundations and they measure approximately 1m high and approximately 0.75m wide (**Figure 29**). The enclosure was used to keep cattle. The whole site measures approximately 40m x 60m in size.

Figure 24 – View of the remains of the identified homestead on the mountain slope.

Figure 25 – View of the remains of one of the identified structures.

Figure 26 – View of the remains of another identified structure.

Figure 27 – View of the remains of another one of the identified structures.

Figure 28 – View of the remains of the identified stone built enclosure.

Figure 29 – Another view of the remains of the identified stone built enclosure.

The site is of medium heritage significance and graded as Grade 4B, and protected under Sections 34 and 35 of the NHRA. It must also be noted that the possibility of infant and stillborn burials does exist in and around the homesteads of traditional communities and therefore such burials can be expected at this site (Cocks; Bangay; Wiersum & Dold, 2006).

Impact rating

IMPACT	Overall nature	Spatial extent Over which impact may be experienced	Duration of impact	Probability of occurrence	Mitigation Potential	Significance of Impact
Impact on still born graves	Negative	Site	Permanent	Possible	Moderate	Moderate

Mitigation:

- Demarcate the site as a no-go area during the construction phase.;
- The monitoring of the structures must be included in the HMP of the proposed project, and
- If at any stage the site is disturbed, and it is found that human remains were present, a qualified archaeologist must be contracted to evaluate the damage and make recommendations on the appropriate mitigation measures.
- Destruction of the site will require a permit issued under Section 34 of the NHRA and will only be issued with the backing of research documentation.

5.1.5 Site M15 005:

GPS: S30,42779° E28,54495°

The remains of another historical/recent homestead and its associated cattle enclosure were identified at this location (Figure 30). The remains of the homestead are situated right next to and on the western side of the proposed location of the Semonkong reservoir. The homestead consists of three separate hut structures which were placed in a line next to each other on the northern slope of the mountain. Two of the hut structures measures approximately 5m in diameter and the third hut measures approximately 8m in diameter (Figure 31). Some parts of the walls and the stone built foundations of these stuctures are left (Figure 32).

The cattle enclosure is situated next to the homestead. It is square shaped and measures approximately 25m x 25m in size (Figure 33). Branches and Sisal plants were used to demarcate the enclosure. The whole site measures approximately 40m x 40m in size.

Figure 30 – View of the remains of the identified homestead on the mountain slope.

Figure 31 – View of the remains of one of the identified hut structures.

Figure 32 – View of the remains of another identified hut structure.

Figure 33 – View of the identified cattle enclosure.

The site is of medium heritage significance and graded as Grade 4B, and protected under Sections 34 and 35 of the NHRA. It must also be noted that the possibility of infant and stillborn burials does exist in and around the homesteads of traditional communities and therefore such burials can be expected at this site (Cocks; Bangay; Wiersum & Dold, 2006).

Impact rating

IMPACT	Overall nature	Spatial extent Over which impact may be experienced	Duration of impact	Probability of occurrence	Mitigation Potential	Significance of Impact
Impact on still born graves	Negative	Site	Permanent	Possible	Moderate	Moderate

Mitigation:

- Demarcate the site as a no-go area during the construction phase.;
- The monitoring of the structures must be included in the HMP of the proposed project, and
- If at any stage the site is disturbed, and it is found that human remains were present, a qualified archaeologist must be contracted to evaluate the damage and make recommendations on the appropriate mitigation measures.
- Destruction of the site will require a permit issued under Section 34 of the NHRA and will only be issued with the backing of research documentation.

5.1.6 Site M5 006:

GPS: S30,40701° E28,51440°

An old shop and its associated structures were identified at this location (Figure 34). The shop and associated structures are situated right next to and on the northern side of the propose alignment of the proposed pipeline. The shop and its associated structres are abandonded. The original shop is a sandstone-built building with a pitched corrugated iron roof (Figure 35). It has wooden rafters (Figure 36) and a partial wooden floor (Figure 37). The shop also has wooden door frames (Figure 38), but the doors were removed. It has metal window frames and several other additions and amendments were made over the years (Figure 39). The additional structures and “improvements” are all brick and cement built and were of the recent past. Passersby knew the shop as “XDC” and no other reference could be obtained. The shop and its associated structures covers an area of approximately 100m x 100m. The exact age of this shop and its associated structures is not known as yet, but it was most probably constructed during the 1940’s and 1950’s when bricks were not regularly available in rural areas.

Figure 34 – View of the sand stone built old shop.

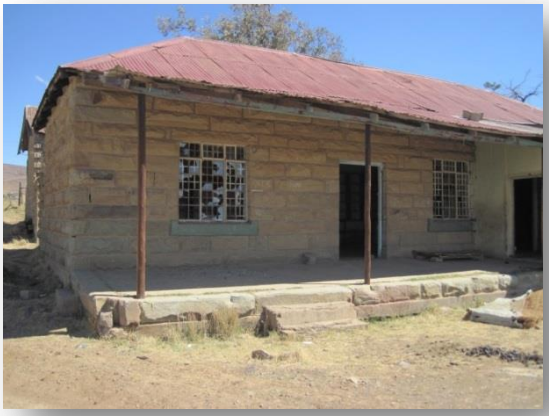

Figure 35 – View of the pitched corrugated iron roof of the old shop.

Figure 36 – View of the internal rafters of the old shop.

Figure 37 – A view of the remains of the wooden floors of the shop.

Figure 38 – View of the wooden door frames of the shop.

Figure 39 – View of the more recent associated structures with the old shop.

The site is of medium heritage significance and graded Grade 4A, and protected under Sections 34 and 35 of the NHRA.

Impact rating

IMPACT	Overall nature	Spatial extent Over which impact may be experienced	Duration of impact	Probability of occurrence	Mitigation Potential	Significance of Impact
Impact on historical strutcure	Negative	Site	Permanent	Possible	Moderate	Moderate

Mitigation:

- Demarcate the site as a no-go area during the construction phase.;
- The monitoring of the structures must be included in the HMP of the proposed project, and
- If at any stage the site is disturbed, a heritage specialist must be contracted to evaluate the damage and make recommendations on the appropriate mitigation measures.

5.1.7 Site M15 007:

GPS: S30,38860° E28,48840°

A single grave was identified at this location (Error! Reference source not found.). The grave is situated right next to and on the south-western side of the road of which the proposed pipeline will follow (**Figure 41)**. The grave is situated within 4 meters of the road. The grave has a oval shaped mound of soil and packed stone as dressing and is orientated from west to east.

Figure 40 – View of the identified grave next to the road.

Figure 41 – Another view of the identified grave next to the road.

The site is graded as Grade 3A with high heritage significance and should be mitigated and recorded before it may be destructed.

Impact rating

IMPACT	Overall nature	Spatial extent Over which impact may be experienced	Duration of impact	Probability of occurrence	Mitigation Potential	Significance of Impact
Impact on graves	Negative	Site	Permanent	Probable	Moderate	Moderate

Mitigation:

- Adjust the pipeline alignment to avoid the identified graves; and
- Demarcate the grave site with at least a 10 meter buffer.

- In the event that the site cannot be excluded from the pipeline foot print, a grave relocation process as described in Section 5 of this report needs to be implemented.
- The consultation with regards to construction close to graves and cemeteries needs to be done before construction starts, in order to agree on the process to be followed with the community in case graves are damaged or work needs to be done very close to graves.

5.1.8 Site M15 008:

GPS: S30,38794° E28,48655°

The remains of another historical/recent homestead and its associated cattle enclosure were identified at this location (**Figure 42**). The remains of the homestead are situated right next to and on the southern side of the proposed route alignment of the pipeline. The homestead consists of three separate hut/room structures which were placed in a line next to each other in line with the road. A cattle enclosure is situated approximately 25 m from the identified homestead (**Figure 43**).

Several other structures, which include homesteads and live stock enclosures were identified in this area. These other structures were, however, far enough of the proposed development not to be influenced by the development.

Figure 42 – View of the remains of the identified homestead.

Figure 43 – View of the remains of the cattle enclosure.

The site is of medium heritage significance and graded as Grade 4B, and protected under Sections 34 and 35 of the NHRA. It must also be noted that the possibility of infant and stillborn burials does exist in and around the homesteads of traditional communities and therefore such burials can be expected at this site (Cocks; Bangay; Wiersum & Dold, 2006).

Impact rating

IMPACT	Overall nature	Spatial extent Over which impact may be experienced	Duration of impact	Probability of occurrence	Mitigation Potential	Significance of Impact
Impact on still born graves	Negative	Site	Permanent	Possible	Moderate	Moderate

Mitigation:

- Demarcate the site as a no-go area during the construction phase.;
- The monitoring of the structures must be included in the HMP of the proposed project, and
- If at any stage the site is disturbed, and it is found that human remains were present, a qualified archaeologist must be contracted to evaluate the damage and make recommendations on the appropriate mitigation measures.
- Destruction of the site will require a permit issued under Section 34 of the NHRA and will only be issued with the backing of research documentation.

5.2 Palaeontology

During the field work for the PIA, Groenewald (2014) found that the study area was mostly underlain by deep soils and/or deeply weathered mudstone of the Elliot Formation. The soil cover is very thick and exposure of Elliot Formation mudstone is restricted to erosion patches on the steeper mountain slopes. Due to the lack of outcrops and the fact that most of the excavations for the pipelines will be in either deep soil or partly weathered mudstone of the Elliot Formation, a Low Palaeontological sensitivity is allocated to a large part of the development site that falls on gentler slopes, with a High Palaeontological Sensitivity allocated to steeper sloped areas.

The following colour coding method is used to classify a development area's palaeontological impact, as illustrated in **Figure 44**:

- **Red colouration** indicates a very high possibility of finding fossils of a specific assemblage zone. Fossils will most probably be present in all outcrops on the site/route and the chances of finding fossils during the construction phase are very high.
- **Orange colouration** indicates a possibility of finding fossils of a specific assemblage zone either in outcrops or in bedrock on the site/route. Fossils will probably be present on the site/route and the chances of finding fossils during the excavation phase are high.
- **Green colouration** indicates that there is no possibility of finding fossils in that section of the site/route development.

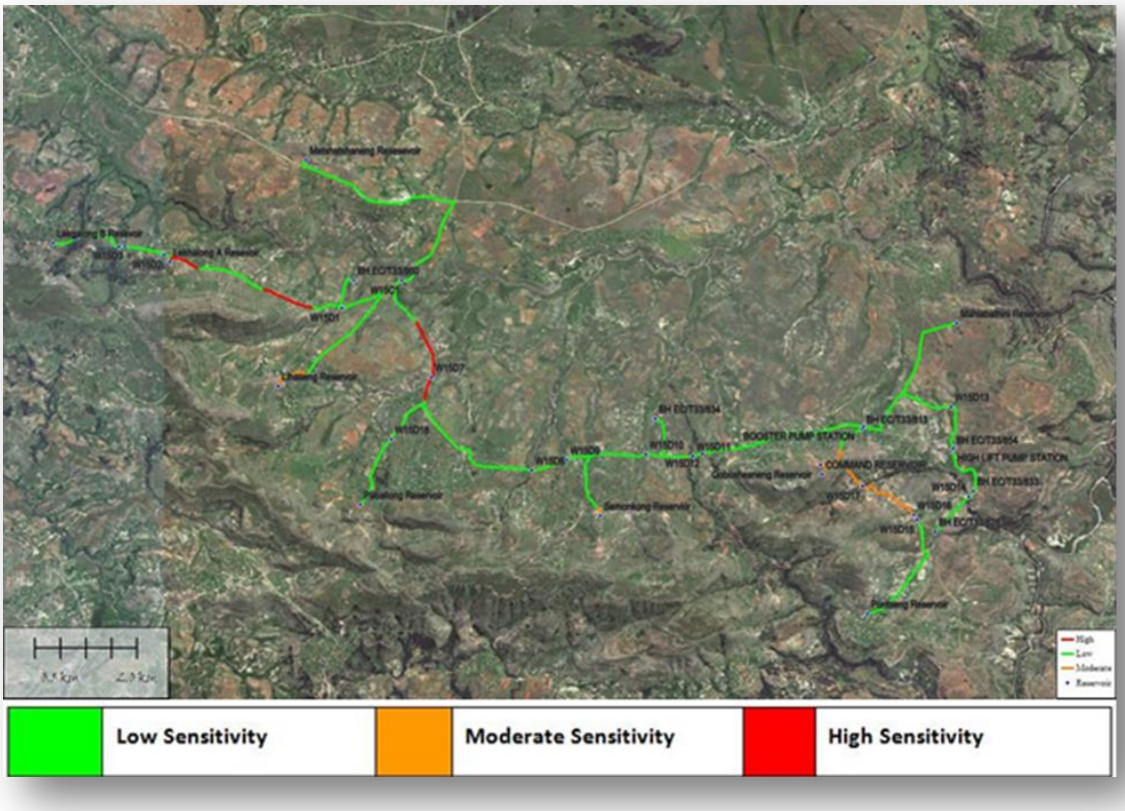

Figure 44 – Palaeontological Sensitivity Map, of the proposed project

The palaeontological significance and rating is summarised in **Table 4** and **Table 6**.

Impact rating:

Table 4: Palaeontological Significance of Geological Units on Site (Groenewald, 2014)

Geological Unit	Rock Type and Age	Fossil Heritage	Vertebrate Biozone	Palaeontological Sensitivity
Elliot Formation	Fluvial and lacustrine mudstone and sandstones. *LATE TRIASSIC*	Reptilian (mainly dinosaur) fossils and fish fossils. Apart from dinosaur orders Ornithishia and Saurischia, Thecodontia and Crocodilia	Lower *Euskelosaurus* Range zone and upper *Massospondylus* Range zone. The *Tritylodon* Acme zone also occurs in the *Massospondylus* Range zone.	High (Reduced to Low where deep soil cover is present)
Molteno Formation	Fluvial, braided river sandstone and khaki-coloured mudstone. TRIASSIC	Plant fossils from the Dicroidium Assemblage		Moderate sensitivity due to lack of outcrops

Table 5: Significance Rating Table as Per CES Template (Groenewald, 2014)

IMPACT	Overall nature	Spatial extent Over which impact may be experienced	Duration of impact	Probability of occurrence	Mitigation Potential	Significance of Impact
Elliot Formation	Negative	International	Permanent	Possible	High to Moderate	Slight
Molteno Formation	Negative	International	Permanent	Possible	High to Moderate	Slight

**While the fossils will only be impacted on at the site itself, the discovery and rescue or destruction of fossils are of international significance and the impact would thus be of international importance*

Mitigation:

- The EAP and ECO be informed of the fact that a Low Palaeontological sensitivity is allocated to areas on gentler slopes on the ground of deep soil cover in the development area. If fresh bedrock is exposed during excavations, the possibility of finding fossils is high and any fossils observed must be reported and rescued by a qualified palaeontologist.
- A qualified Palaeontologist must be on site during excavations into fresh bedrock of the Elliot Formation where a High Palaeontological sensitivity is allocated to the site (steeper slopes) or where the Palaeontological sensitivity allocation increases to a High Palaeontological sensitivity when fresh bedrock is exposed during construction.

- All recorded fossils must be rescued according to SAHRA specifications."

5.3 Cultural Landscape

Heritage significance of the cultural landscape is derived from the interaction between the natural landscape, and that landscape as created and changed by man and influenced by his construction of roads, bridges, farming landscapes (such as grazing fields, farmsteads, etc.) and townscapes. Also interacting with these physical entities are intangible and historic landscapes and events that are known to have added to the cultural fabric of a place or area.

The evaluation of the study area and surrounds as demarcated, has shown the general area to be rich in heritage resources spanning the archaeological to historical timeframe. The town of Matatiele has evolved as part of the landscape over the past 120+ years. However, since the areas affected by the proposed water supply scheme are located on undeveloped land, no long term impact is foreseen. Short term impacts will only be during construction and will be for the duration of the construction timeframe.

IMPACT	Overall nature	Spatial extent Over which impact may be experienced	Duration of impact	Probability of occurrence	Mitigation Potential	Significance of Impact
Impact on cultural landsacpe	Negativet	Local	Short term	Probable	High	Slight

Mitigation:

Screening of construction activities as per usual construction requirements is recommended.

6 OVERALL IMPACT EVALUATION

The study has identified that the proposed project activities will have a substantative pre-mitigation impact on the identified heritage resources in the project area. It must however be noted that all the envisaged impacts on heritage resources can be mitigated.

6.1 Status Quo and "No Go" option

6.1.1 Status Quo

During the heritage study a total of 8 heritage sites were identified to be close or within the proposed alignment of the pipeline routes or reservoir sites. Seven of these identified sites are historic/recent homesteads and stone walled enclosures and one grave or burial site found to be close or within the proposed alignment of the pipeline routes or reservoir sites.

The sites sidentified are within the alignments and footprint areas of the proposed project, through implemented mitigation measures these site scan be preserved and the project continue with minimum cost implication.

No fatal flaws were identified from a cultural, historical, archaeological and paleontological perspective

6.1.2 "No go" Option

The implementation of site specific heritage mitigation measures exclude the possibility of a no-go option. All heritage sites identified can also be mitigated in the case that the foot print area cannot be adjusted.

6.2 Project Impact (Unmitigated)

During the construction of the pipelines and allied services impacts could occur to the identified and heritage resources. These impacts could occur as a result of construction activities such as topsoil stripping, excavations and vegetation clearing. The most notable impacts will definitely be on the cemetery and the palaeontologically sensitive substrata that occur throughout the study area.

The combined weighted project impact to the cemetery and palaeontological resources (prior to mitigation) will definitely be of a HIGH negative significance, affecting isolated sites. The impact will be permanent and is going to happen. The impact risk class is thus **Moderate High to High**.

6.3 Cumulative Impact

The baseline impacts are considered to be Very Low, and additional project impacts (if no mitigation measures are implement) will increase the significance of the existing baseline impacts, the

cumulative unmitigated impact will definitely be of a HIGH negative significance, isolated sites in extent. The impact is going to happen and will be permanent. The impact risk class is thus High.

However with the implementation of the recommended management and mitigation measures this risk class can be minimized to a rating of Low.

7 CONCLUSIONS AND RECOMMENDATIONS

During the heritage study a total of 8 heritage sites were identified to be close or within the proposed alignment of the pipeline routes or reservoir sites. Seven of these identified sites are historic/recent homesteads and stone walled enclosures and one grave or burial site found to be close or within the proposed alignment of the pipeline routes or reservoir sites.

The following recommendations are made with regards to the finds:

7.1 Graves

A single grave was identied at site **M15 007** and the following is recommended:

The identified grave fall within or nearby the proposed area of the development and could possibly be affected by the proposed development. The developer should take note of the location of these graves and also of the recommendations as outlined in this report regarding it.

Graves older than 60 years (or presumed older) and/or not in a municipal graveyard are protected in terms of the National Heritage Act (No. 25 of 1999). Human remains (graves) younger than 60 years may only be handled by a registered undertaker or institution declared under the Human Tissues Act.

The developer is required to follow the process described in the legislation (section 36 of Act No. 25 and its associated regulations) if he wants to develop in or near an area where there are graves present.

It is therefore recommended that the areas with the grave should be avoided.

If the developer decides to plan the development around the identified grave and leave it undisturbed, adequate arrangements should be made to protect the graves from the impact of the development. These should include the following:

- It is important to understand that the identified graves could have significant heritage value to the relevant families (if identified) and should therefore be preserved.
- The relevant families should be identified (if possible) and should be informed about the proposed activities which could possibly affect their grave.
- It is recommended that the identified graves should be clearly marked with danger tape during the entire duration of the project and especially during earth-moving/bush clearing activities and a 10m buffer zone must be allowed around the grave.
- A watching brief performed by a suitable qualified person is recommended during the bush clearing and construction phases of the project. This person should see to it that the grave are safe and protected during these phases.
- It is advisable to fence the grave to prevent future mistakes. A buffer zone of at least 10m around the grave is recommended.
- The proposed earth-moving/bush clearing activities should be altered and should be planned around the grave in order to protect it from any damage or other negative impacts.
- Bush clearing crews should be made aware of the grave in order that the grave will not be accidentally damaged during the earth-moving activities.
- The planning team should **ensure that access to the grave is not limited in any way**. A small management plan should be set up to ensure the future safety, access and maintenance of the graves next to the proposed development.

If the above recommendations can't be adhered to, further steps and measures should be taken to move the graves and relocate them to an official graveyard in the area. This should only be done as last resort if no other options deem to be possible. The following process is then required:

- A process of consultation with the affected families and communities, if identified, should then be initiated to start the relocation of the grave.
- Various applications to various Departments should be put into motion to obtain the necessary permissions and permits to perform the relocation of the grave. These applications and permits are required by law.

Only after all the required permissions and permits have been obtained, can the relocation of the grave continue as performed by professionals.

7.2 Historic Homestead

Seven sites with historic/recent homesteads, stone walled enclosures and buildings were identified to be close or within the proposed alignment of the pipeline routes or reservoir sites. The following mitigation measures are recommended for the identified structures at sites **M15 001** to **M15 006** and **M15 008**:

- The structures are most probably older than 60 years and has heritage significance and/or value and is also protected under the Heritage Act (Act 25 of 1999).

- It must also be noted that the possibility of infant and stillborn burials does exist in and around the homesteads of tradional communities and therefore such burials can be expected at this site.

- An application for the total destruction of these structures should be filed at the South African Heritage Resources Agency (SAHRA).

- SAHRA will dictate the extent and the standard of recording of the structures. This could include the appointment of a qualified/approved historical architect to document the structures.

- Only after the requirements of SAHRA have been fulfilled can the destruction of the structures continue.

7.3 Palaeontology

Due to the lack of outcrops in the lower lying areas and the fact that most of the excavations for the pipelines will be in either deep soil or partly weathered mudstone of the Elliot Formation, a Low Palaeontological sensitivity is allocated to a large part of the development site that falls on gentler slopes, with a High Palaeontological Sensitivity allocated to steeper sloped areas. If unweathered mudstone bedrock is exposed during the excavation of trenches, or during the excavation for larger infrastructure such as pumping houses and reservoirs, the Palaeontological sensitivity will increase to a High Palaeontological sensitivity and the ECO of the project must be notified. If fossils are observed, the palaeontologist must be informed and the fossils recovered according to SAHRA specifications.It is recommended that:

- The EAP and ECO be informed of the fact that a Low Palaeontological sensitivity is allocated on the ground of deep soil cover in the development area. If fresh bedrock is exposed, the

possibility of finding fossils is high and any fossils observed must be reported and rescued be a qualified palaeontologist.

- A qualified Palaeontologist must be on site during excavations into fresh bedrock of the Burgersdorp Formation where a Moderate Palaeontological sensitivity is allocated to the site or where the Palaeontological sensitivity allocation increases to a High Palaeontological sensitivity when fresh bedrock is exposed during construction.

7.4 Cultural landscape

The establishment of the proposed new water supply scheme will not have a negative influence on the cultural landscape or characteristics of the area in the long term. Short term impacts will only be during construction and will be for the duration of the construction timeframe. Screening of construction activities as per usual construction requirements is recommended.

7.5 General

Further to these recommendations, the general Heritage Management Guidelines in Section 8 need to be incorporated into the EMP for the project.

The overall impact of the development on heritage resources is seen as acceptably low and impacts can be mitigated to acceptable levels.

8 HERITAGE MANAGEMENT GUIDELINES

8.1 General Management Guidelines

1. The National Heritage Resources Act (Act 25 of 1999) states that, any person who intends to undertake a development categorised as-
   (a) the construction of a road, wall, transmission line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
   (b) the construction of a bridge or similar structure exceeding 50m in length;
   (c) any development or other activity which will change the character of a site-
      (i) exceeding 5 000 m^2 in extent; or
      (ii) involving three or more existing erven or subdivisions thereof; or
      (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m^2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

In the event that an area previously not included in an archaeological or cultural resources survey is to be disturbed, the SAHRA needs to be contacted. An enquiry must be lodged with them into the necessity for a Heritage Impact Assessment.

2. In the event that a further heritage assessment is required it is advisable to utilise a qualified heritage practitioner, preferably registered with the Cultural Resources Management Section (CRM) of the Association of Southern African Professional Archaeologists (ASAPA).

   This survey and evaluation must include:

   (a) The identification and mapping of all heritage resources in the area affected;

   (b) An assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6 (2) or prescribed under section 7 of the National Heritage Resources Act;

   (c) An assessment of the impact of the development on such heritage resources;

   (d) An evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;

   (e) The results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;

   (f) If heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and

   (g) Plans for mitigation of any adverse effects during and after the completion of the proposed development.

3. It is advisable that an information section on cultural resources be included in the SHEQ training given to contractors involved in surface earthmoving activities. These sections must include basic information on:

   a. Heritage;

   b. Graves;

c. Archaeological finds; and

d. Historical Structures.

This module must be tailor made to include all possible finds that could be expected in that area of construction.

4. In the event that a possible find is discovered during construction, all activities must be halted in the area of the discovery and a qualified archaeologist contacted.
5. The archaeologist needs to evaluate the finds on site and make recommendations towards possible mitigation measures.
6. If mitigation is necessary, an application for a rescue permit must be lodged with SAHRA.
7. After mitigation, an application must be lodged with SAHRA for a destruction permit. This application must be supported by the mitigation report generated during the rescue excavation. Only after the permit is issued may such a site be destroyed.
8. If during the initial survey sites of cultural significance are discovered, it will be necessary to develop a management plan for the preservation, documentation or destruction of such a site. Such a program must include an archaeological/palaeontological monitoring programme, timeframe and agreed upon schedule of actions between the company and the archaeologist.
9. In the event that human remains are uncovered, or previously unknown graves are discovered, a qualified archaeologist needs to be contacted and an evaluation of the finds made.
10. If the remains are to be exhumed and relocated, the relocation procedures as accepted by SAHRA need to be followed. This includes an extensive social consultation process.

The purpose of an archaeological/palaeontological monitoring programme[1] is:

- To allow, within the resources available, the preservation by recording of archaeological/palaeontological deposits, the presence and nature of which could not be established (or established with sufficient accuracy) in advance of development or other potentially disruptive works

[1] The definition of an archaeological/palaeontological monitoring programme is a formal program of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, in the inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive.

- To provide an opportunity, if needed, for the watching archaeologist to signal to all interested parties, before the destruction of the material in question, that an archaeological/palaeontological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment to a satisfactory and proper standard.
- A monitoring programme is not intended to reduce the requirement for excavation or preservation of known or inferred deposits, and it is intended to guide, not replace, any requirement for contingent excavation or preservation of possible deposits.
- The objective of the monitoring programme is to establish and make available information about the archaeological resource existing on a site.

PGS can be contacted on the way forward in this regard.

Table 6: Roles and responsibilities of archaeological and heritage management

ROLE	RESPONSIBILITY	IMPLEMENTATION
A responsible specialist needs to be allocated and should attend all relevant meetings, especially when changes in design are discussed, and liaise with SAHRA.	The client	Archaeologist and a competent archaeology support team
If chance finds and/or graves or burial grounds are identified during construction or operational phases, a specialist must be contacted in due course for evaluation.	The client	Archaeologist and a competent archaeology support team
Comply with defined national and local cultural heritage regulations on management plans for identified sites.	The client	Environmental Consultancy and the Archaeologist
Consult the managers, local communities and other key stakeholders on mitigation of archaeological sites.	The client	Environmental Consultancy and the Archaeologist
Implement additional programs, as appropriate, to promote the safeguarding of our cultural heritage. (i.e. integrate the archaeological components into the employee induction course).	The client	Environmental Consultancy and the Archaeologist,
If required, conservation or relocation of burial grounds and/or graves according to the	The client	Archaeologist, and/or competent authority for

applicable regulations and legislation.		relocation services
Ensure that recommendations made in the Heritage Report are adhered to.	The client	The client
Provision of services and activities related to the management and monitoring of significant archaeological sites.	The client	Environmental Consultancy and the Archaeologist
After the specialist/archaeologist has been appointed, comprehensive feedback reports should be submitted to relevant authorities during each phase of development.	Client and Archaeologist	Archaeologist

8.2 All phases of the project

Based on the findings of the HIA, all stakeholders and key personnel should undergo an heritage induction course during this phase. Induction courses generally form part of the employees' overall training and the heritage component can easily be integrated into these training sessions. Two courses should be organised – one aimed more at managers and supervisors, highlighting the value of this exercise and the appropriate communication channels that should be followed after chance finds, and the second targeting the actual workers and getting them to recognize artefacts, features and significant sites. This needs to be supervised by a qualified archaeologist. This course should be reinforced by posters reminding operators of the possibility of finding archaeological/palaeontological sites.

The project will encompass a range of activities during the construction phase, including ground clearance, establishment of construction camps area and small scale infrastructure development associated with the project/operations.

It is possible that cultural material will be exposed during operations and may be recoverable, but this is the high-cost front of the operation, and so any delays should be minimised. Development surrounding infrastructure and construction of facilities results in significant disturbance, but construction trenches do offer a window into the past and it thus may be possible to rescue some of the data and materials. It is also possible that substantial alterations will be implemented during this phase of the project and these must be catered for. Temporary infrastructure is often changed or added to during the subsequent history of the project. In general these are low impact developments as they are superficial, resulting in little alteration of the land surface, but still need to be catered for.

During the construction/operational phase, it is important to recognise any significant material being unearthed, and to make the correct judgment on which actions should be taken. A responsible archaeologist/palaeontologist must be appointed for this commission. This person does not have to be a permanent employee, but needs to attend relevant meetings, for example when changes in design are discussed, and notify SAHRA of these changes. The archaeologist would inspect the site and any development on a recurrent basis, with more frequent visits to the actual workface and operational areas.

In addition, feedback reports can be submitted by the archaeologist to the client and SAHRA to ensure effective monitoring. This archaeological monitoring and feedback strategy should be incorporated into the Environmental Management Plan (EMP) of the project. Should an archaeological/palaeontological site or cultural material be discovered during construction (or operation), such as burials or grave sites, the project needs to be able to call on a qualified expert to make a decision on what is required and if it is necessary to carry out emergency recovery. SAHRA would need to be informed and may give advice on procedure. The developers therefore should have some sort of contingency plan so that operations could move elsewhere temporarily while the material and data are recovered. The project thus needs to have an archaeologist/palaeontologist available to do such work. This provision can be made in an archaeological/palaeontological monitoring programme.

8.2.1 Graves

In the case where a grave is identified during construction the following measures must be taken:

- Upon the accidental discovery of graves, a buffer of at least 20 meters should be implemented.
- If graves are accidentally discovered during construction, activities must cease in the area and a qualified archaeologist be contacted to evaluate the find. To remove the remains a permit must be applied for from SAHRA and other relevant authorities. The local South African Police Services must immediately be notified of the find.
- Where it is recommended that the graves be relocated, a full grave relocation process that includes comprehensive social consultation must be followed.

The grave relocation process must include:

i. A detailed social consultation process, that will trace the next-of-kin and obtain their consent for the relocation of the graves, that will be at least 60 days in length;
ii. Site notices indicating the intent of the relocation;

iii. Newspaper notices indicating the intent of the relocation;
iv. A permit from the local authority;
v. A permit from the Provincial Department of Health;
vi. A permit from the South African Heritage Resources Agency, if the graves are older than 60 years or unidentified and thus presumed older than 60 years;
vii. An exhumation process that keeps the dignity of the remains intact;
viii. The whole process must be done by a reputable company that is well versed in relocations;
ix. The exhumation process must be conducted in such a manner as to safeguard the legal rights of the families as well as that of the developing company.

9 PREPARERS

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Appendix A

LEGISLATIVE REQUIREMENTS – TERMINOLOGY AND ASSESSMENT CRITERIA

1 General principles

In areas where there has not yet been a systematic survey to identify conservation worthy places, a permit is required to alter or demolish any structure older than 60 years. This will apply until a survey has been done and identified heritage resources are formally protected.

Archaeological and palaeontological sites, materials, and meteorites are the source of our understanding of the evolution of the earth, life on earth and the history of people. In the NHRA, permits are required to damage, destroy, alter, or disturb them. People who already possess material are required to register it. The management of heritage resources is integrated with environmental resources and this means that before development takes place heritage resources are assessed and, if necessary, rescued.

In addition to the formal protection of culturally significant graves, all graves, which are older than 60 years and are not in a formal cemetery (such as ancestral graves in rural areas), are protected. The legislation protects the interests of communities that have an interest in the graves: they should be consulted before any disturbance takes place. The graves of victims of conflict and those associated with the liberation struggle are to be identified, cared for, protected and memorials erected in their honour.

Anyone who intends to undertake a development must notify the heritage resource authority and if there is reason to believe that heritage resources will be affected, an impact assessment report must be compiled at the construction company's cost. Thus, the construction company will be able to proceed without uncertainty about whether work will have to be stopped if an archaeological or heritage resource is discovered.

According to the National Heritage Act (Act 25 of 1999 section 32) it is stated that:
An object or collection of objects, or a type of object or a list of objects, whether specific or generic, that is part of the national estate and the export of which SAHRA deems it necessary to control, may be declared a heritage object, including –

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

- visual art objects;
- military objects;
- numismatic objects;
- objects of cultural and historical significance;
- objects to which oral traditions are attached and which are associated with living heritage;
- objects of scientific or technological interest;
- books, records, documents, photographic positives and negatives, graphic material, film or video 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), or in a provincial law pertaining to records or archives; and
- any other prescribed category.

Under the National Heritage Resources Act (Act No. 25 of 1999), provisions are made that deal with, and offer protection to, all historic and pre-historic cultural remains, including graves and human remains.

2 Graves and cemeteries

Graves younger than 60 years fall under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925) as well as the Human Tissues Act (Act 65 of 1983) and are under the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the Office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning, or in some cases the MEC for Housing and Welfare. Authorisation for exhumation and reinterment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. In order to handle and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

Graves older than 60 years, but younger than 100 years, fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act) as well as the Human Tissues Act (Act 65 of 1983) and are under the jurisdiction of the South African Heritage Resource Agency (SAHRA). The procedure for Consultation Regarding Burial Grounds and Graves (Section 36(5) of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local

authority. Graves in the category located inside a formal cemetery administrated by a local authority will also require the same authorisation as set out for graves younger than 60 years, over and above SAHRA authorisation.

If the grave is not situated inside a formal cemetery but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws set by the cemetery authority must be adhered to.

Appendix B

HERITAGE MAP

MATATIELE WARD 15
WATER SUPPLY SCHEME