



**PHASE 1 ARCHAEOLOGICAL/ HERITAGE IMPACT ASSESSMENT REPORT FOR THE
PROPOSED MATLA-SUBLIME ROAD UPGRADE IN THE EMALAHLENI LOCAL
MUNICIPALITY IN MPUMALANGA PROVINCE.**

November 2017

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DOCUMENT INFORMATION

Item	Description
Proposed development and location	Proposed Matla-Sublime road upgrade in eMalahleni Local Municipality, Mpumalanga Province.
Title	Proposed Matla-Sublime road upgrade in eMalahleni Local Municipality in Mpumalanga Province: Archaeological and Heritage Impact Assessment Report.
Purpose of the study	The purpose of this study is an Archaeological and Heritage Impact Assessment report that describes the cultural values and heritage factors that may be impacted on by the proposed Matla-Sublime road upgrade
1:50 000 Topographic Map	2629 AA & AC
Coordinates	S26° 16' 506", E029° 07' 713" (Start) S26° 17' 087", E029° 07' 176 (End)
Municipalities	eMalahleni Local Municipality, Nkangala District Municipality
Predominant land use of surrounding area	Network of powerlines, existing road, mining infrastructure, power station and associated infrastructure, Sewerage treatment plant, agricultural, road and transport
Developer	Matla Coal
Heritage Consultant	Sativa Travel and Environmental Consultants (Pty) Ltd
Date of Report	05 November 2017
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Authorship: This AIA/HIA Report has been prepared by Mr Trust Mlilo (Professional Archaeologist). The report is for the review of the Mpumalanga Province PHRA.

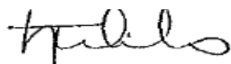
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Geographic Co-ordinate Information: Geographic co-ordinates in this report were obtained using a hand-held Garmin Global Positioning System device. The manufacturer states that these devices are accurate to within +/- 5 m.

Maps: Maps included in this report use data extracted from the National Topographic Survey Map and Google Earth Pro.


Disclaimer: The Author is not responsible for omissions and inconsistencies that may result from information not available at the time this report was prepared. The Archaeological and Heritage Impact Assessment Study was carried out within the context of tangible and intangible cultural heritage resources as defined by the SAHRA Regulations and Guidelines as to the authorisation proposed Matla-Sublime road upgrade.

Signed by



November 2017

REVIEW AND APPROVAL

Name	Title	Signature	Date
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ACKNOWLEDGEMENTS

The authors acknowledge GIBB (Pty) Ltd team for their assistance with project information, and the associated project BID as well as responding to technical queries related to the project.

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EXECUTIVE SUMMARY

This Archaeological and Heritage Impact Assessment (AIA/HIA) Report has been prepared to address requirements of Section 38 of the National Heritage Resources Act, Act 25 of 1999 (NHRA). Sativa Travel and Environmental Consultants (Pty) Ltd (STEC) was appointed by GIBB (Pty) Ltd to conduct this Archaeological and Heritage Impact Assessment (AIA/HIA) Study for the proposed Matla-Sublime road upgrade. The development includes ± 1.9 km road upgrade. The proposed project is located in the eMalahleni Local Municipality, Mpumalanga Province. This report comprises an impact study on potential archaeological and cultural heritage resources that may be associated with the proposed Matla-Sublime road upgrade. This study was conducted as part of the specialist input for the Basic Impact Assessment exercise. The study covers the existing road servitude. These have been determined by the developer and project information has been passed to STEC research team by the project EAP. Analysis of the archaeological, cultural heritage, environmental and historic contexts of the study area predicted that archaeological sites, cultural heritage sites, burial grounds or isolated artefacts were likely to be present on the affected landscape. The field survey was conducted to test this supposition and verify this prediction within the proposed road servitude. The main urban residential areas in the area include eMalahleni and Middleburg.

The report makes the following observations:

- The findings of this report have been informed by desktop data review, field survey and impact assessment reporting which include recommendations to guide heritage authorities in making decisions with regards to the proposed project.
- The project area is accessible and the field survey was effective enough to cover all sections of the project receiving environs.
- The project area is predominantly mining, power generation and associated infrastructure.
- Although the possibility of archaeological or historical sites associated with the general project area is medium, however, from a contextual studies perspective, no medium to high significance archaeological, heritage landmark or monument was recorded during this study.

The report sets out the potential impacts of the proposed development on heritage matters and recommends appropriate safeguard and mitigation measures that are designed to minimize the impacts where appropriate. The Report makes the following recommendations:

- Should construction work commence for this project:
 - The proposed project construction teams must be inducted on the significance of the possible archaeological resources that may be encountered during subsurface construction work before work on the area commences in order to ensure appropriate treatment and course of action is afforded to any chance finds.

- If archaeological materials are uncovered, work should cease immediately and the SAHRA be notified and activity should not resume until appropriate management provisions are in place.
- The findings of this report, with approval of the SAHRA/Mpumalanga Province PHRA, may be classified as accessible to any interested and affected parties within the limits of the laws.

The conclusion of this study is that the impacts of the proposed development on the cultural environmental values are not likely to be significant if the Environmental Management Plan includes recommended safeguard and mitigation measures identified in this report.

ABBREVIATIONS

AIA	Archaeological Impact Assessment
ECO	Environmental Control Officer
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EM	Environmental Manager
EMP	Environmental Management Plan
GPS	Geographical Positioning System
HIA	Heritage Impact Assessment
LIA	Late Iron Age
NHRA	Nation Heritage Resources Act, Act 25 of 1999
PM	Project Manager
MPHRA	Mpumalanga Province Provincial Heritage Agency
SM	Site Manager
SAHRA	South African Heritage Resources Agency

KEY CONCEPTS AND TERMS

Periodization Archaeologists divide the different cultural epochs according to the dominant material finds for the different time periods. This periodization is usually region-specific, such that the same label can have different dates for different areas. This makes it important to clarify and declare the periodization of the area one is studying. These periods are nothing a little more than convenient time brackets because their terminal and commencement are not absolute and there are several instances of overlap. In the present study, relevant archaeological periods are given below;

Early Stone Age (~ 2.6 million to 250 000 years ago)

Middle Stone Age (~ 250 000 to 40-25 000 years ago)

Later Stone Age (~ 40-25 000, to recently, 100 years ago)

Early Iron Age (~ AD 200 to 1000)

Late Iron Age (~ AD1100-1840)

Historic (~ AD 1840 to 1950, but a Historic building is classified as over 60 years old)

Definitions Just like periodization, it is also critical to define key terms employed in this study. Most of these terms derive from South African heritage legislation and its ancillary laws, as well as international regulations and norms of best-practice. The following aspects have a direct bearing on the investigation and the resulting report:

Cultural (heritage) resources are all non-physical and physical human-made occurrences, and natural features that are associated with human activity. These can be singular or in groups and include significant sites, structures, features, ecofacts and artefacts of importance associated with the history, architecture, or archaeology of human development.

Cultural significance is determined by means of aesthetic, historic, scientific, social, or spiritual values for past, present or future generations.

Value is related to concepts such as worth, merit, attraction or appeal, concepts that are associated with the (current) usefulness and condition of a place or an object. Although significance and value are not mutually exclusive, in some cases the place may have a high level of significance but a lower level of value. Often, the evaluation of any feature is based on a combination or balance between the two.

Isolated finds are occurrences of artefacts or other remains that are not in-situ or are located apart from archaeological sites. Although these are noted and recorded, but do not usually constitute the core of an impact assessment, unless if they have intrinsic cultural significance and value.

In-situ refers to material culture and surrounding deposits in their original location and context, for example an archaeological site that has not been disturbed.

Archaeological site/materials are remains or traces of human activity that 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. According to the National Heritage Resources Act (NHRA) (Act No. 25 of 1999), no archaeological artefact, assemblage or settlement (site) and no historical building or structure older than 60 years may be altered, moved or destroyed without the necessary authorisation from the South African Heritage Resources Agency (SAHRA) or a provincial heritage resources authority.

Historic material are remains resulting from human activities, which are younger than 100 years, but no longer in use, including artefacts, human remains and artificial features and structures.

Chance finds means archaeological artefacts, features, structures or historical remains accidentally found during development.

A grave is a place of interment (variably referred to as burial) and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place. A grave may occur in isolation or in association with others where upon it is referred to as being situated in a cemetery (contemporary) or burial ground (historic).

A site is a distinct spatial cluster of artefacts, structures, organic and environmental remains, as residues of past human activity.

Heritage Impact Assessment (HIA) refers to the process of identifying, predicting, and assessing the potential positive and negative cultural, social, economic and biophysical impacts of any proposed project, which requires authorisation of permission by law and which may significantly affect the cultural and natural heritage resources. Accordingly, an HIA must include recommendations for appropriate mitigation measures for minimising or circumventing negative impacts, measures enhancing the positive aspects of the proposal and heritage management and monitoring measures.

Impact is the positive or negative effects on human well-being and / or on the environment.

Mitigation is the implementation of practical measures to reduce and circumvent adverse impacts or enhance beneficial impacts of an action.

Mining heritage sites refer to old, abandoned mining activities, underground or on the surface, which may date from the prehistorical, historical or the relatively recent past.

Study area or 'project area' refers to the area where the developer wants to focus its development activities (refer to plan).

Phase I studies refer to surveys using various sources of data and limited field walking in order to establish the presence of all possible types of heritage resources in any given area.

INTRODUCTION

1.1. Background

This Archaeological and Heritage Impact Assessment (AIA/HIA) Report has been prepared by Sativa Travel and Environmental Consultants (Pty) Ltd (Heritage Division) for the purpose of Basic Impact Assessment being conducted by GIBB (Pty) Ltd. Matla Coal is proposing to upgrade the existing 1.9km Matla-Sublime road. This report details the field study, results of the study as well as discussion on the anticipated impacts of the proposed development as is required by Section 38 of the National Heritage Resources Act, Act 25. It focuses on identifying and assessing potential impacts on archaeological resources as well as on other physical cultural properties including historical heritage resources in relation to the proposed development. Sativa research team undertook the assessments, research and consultations required for the preparation of the report comprising archaeological and heritage impacts for the purpose of ensuring that the cultural environmental values are taken into consideration and reported into the Basic Assessment process.

The study was designed to ensure that any significant archaeological or cultural physical property or sites are located and recorded, and site significance is evaluated to assess the nature and extent of expected impacts from the proposed development. The assessment includes recommendations to manage the expected impact of the proposed development site. The report includes recommendations to guide heritage authorities in making appropriate decision with regards to approval process for the proposed road upgrade. The report concludes with detailed recommendations on heritage management associated with the proposed development work. STEC, an independent consulting firm, conducted the assessment; research and consultations required for the preparation of the report in a manner consistent with its obligations set out in the NHRA.

In line with SAHRA guidelines, this report, not necessarily in that order, provides:

- 1) Management summary
- 2) Methodology
- 3) Information regarding the desktop study
- 4) Map and relevant geodetic images and data
- 5) GPS co-ordinates
- 6) Directions to the site
- 7) Site description and interpretation of the cultural area where the project will take place
- 8) Management details, description of affected cultural environment, photographic records of the project area
- 9) Recommendations regarding the significance of the site and recommendations regarding further monitoring of the site

10) Conclusions.

1.2. Location of the proposed project site

The project area is located at Matla Coal and Matla Power Station under the jurisdiction of eMalahleni Local Municipality within Mpumalanga Province (**See Figure 1**). The proposed road upgrade will start at Matla Coal stockpile site and will terminate at R580 Road junction. The proposed road upgrade will start at GPS Coordinates S28° 44' 13.981".and will terminate at GPS Coordinates S28° 44' 12.053"., E020° 40' 07.353". The project area is predominantly mining, powerline generation and agricultural, which dates to the 19th Century. The project area is accessed from the R50 and R580 east (Refer to Fig. 1 – Google Site Map).



Figure 1: Site and directions to access to Matla-Sublime road upgrade (GIBB 2017)

1.3. Description of the Proposed Project

The proposed project entails upgrading of the existing Matla-Sublime road upgrade. This report is a component of a broader Basic Assessment Report and addresses the requirements of Section 38 of the NHRA Act 25 of 1999 and EIA Terms of Reference in relation to the assessment of impacts of the proposed development on the cultural and heritage resources associated with the receiving environment. The statutory mandate of heritage impact assessment studies is to encourage and facilitate the protection and conservation of archaeological and cultural heritage sites, in accordance with the provisions of the NHRA and auxiliary regulations. Therefore, in pre-development context, heritage impact assessment study is conducted to fulfil the requirements of Section 38 (1) of the National Heritage Resources Act (No 25 of 1999).

LEGAL REQUIREMENTS

Two main pieces of legislations are relevant to the present study and there are presented here. Under the National Heritage Resources Act (Act 25 of 1999) (NHRA) and the National Environmental Management Act (Act 107 of 1998) (NEMA), an AIA or HIA is required as a specialist sub-section of the EIA.

Heritage management and conservation in South Africa is governed by the NHRA and falls under the overall jurisdiction of the SAHRA and its PHRAs. There are different sections of the NHRA that are relevant to this study. The present proposed development is a listed activity in terms of Section 38 of the NHRA which stipulates that the following development categories require a HIA to be conducted by an independent heritage management consultant:

- Construction of a road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length
- Construction of bridge or similar structure exceeding 50m in length
- Development or other activity that will change the character of a site -
 - Exceeding 5000 sq m
 - Involving three or more existing erven or subdivisions
 - Involving three or more erven or divisions that have been consolidated within past five years
 - Rezoning of site exceeding 10 000 sq m
 - The costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority

- Any other development category, public open space, squares, parks, recreation grounds

Thus, any person undertaking any development in the above categories, 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. Section 38 (2) (a) of the same act also requires the submission of a heritage impact assessment report for authorization purposes to the responsible heritage resources agencies (SAHRA/PHRAs). Because, the proposed road upgrade will change the character of a site exceeding 300m, then an HIA is required according to this section of act.

Related to Section 38 of the NHRA are Sections 34, 35, 36 and 37. Section 34 stipulates that no person may alter damage, destroy, relocate etc. any building or structure older than 60 years, without a permit issued by SAHRA or a provincial heritage resources authority. This section may not apply to present study since none were identified. Section 35 (4) of the NHRA stipulates that no person may, without a permit issued by SAHRA, destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object. This section may apply to any significant archaeological sites that may be discovered before or during construction. This means that any chance find must be reported to the heritage practitioner or SAHRA, who will assist in investigating the extent and significance of the finds and inform about further actions. Such actions may entail the removal of material after documenting the find site or mapping of larger sections before destruction. Section 36 (3) of the NHRA also stipulates that no person may, without a permit issued by the South African Heritage Resources Agency (SAHRA), destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years, which is situated outside a formal cemetery administered by a local authority. This section may apply in case of the discovery of chance burials, which is unlikely. The procedure for reporting chance finds also applies to the unlikely discovery of burials or graves by the developer or his contractors. Section 37 of the NHRA deals with public monuments and memorials but this may not apply to this study.

In addition, the new EIA Regulations of 2014 as (amended) promulgated in terms of NEMA (Act 107 of 1998) determine that any environmental reports will include cultural (heritage) issues. The new regulations in terms of Chapter 5 of the NEMA provide for an assessment of development impacts on the cultural (heritage) and social environment and for Specialist Studies in this regard. The end purpose of such a report is to alert the developer the environmental consultant, SAHRA and interested and affected parties about existing heritage resources that may be affected by the proposed development, and to recommend mitigatory measures aimed at reducing the risks of any adverse impacts on these heritage resources.

Evaluation of the proposed development as guided by the criteria in NHRA and NEMA

ACT	Stipulation for developments	Requirement details
NHRA Section 38	Construction of road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length	No
	Construction of bridge or similar structure exceeding 50m in length	No
	Development exceeding 5000 sq m	Yes
	Development involving three or more existing erven or subdivisions	No
	Development involving three or more erven or divisions that have been consolidated within past five years	No
	Rezoning of site exceeding 10 000 sq m	Not available
	Any other development category, public open space, squares, parks, recreation grounds	No
NHRA Section 34	Impacts on buildings and structures older than 60 years	Subject to identification during Phase 1
NHRA Section 35	Impacts on archaeological and palaeontological heritage resources	Subject to identification during Phase 1
NHRA Section 36	Impacts on graves	Subject to identification during Phase 1
NHRA Section 37	Impacts on public monuments	Subject to identification during Phase 1
Chapter 5 (21/04/2006) NEMA	HIA is required as part of an EIA	Yes

TERMS OF REFERENCE

The author was asked to conduct an AIA/HIA study addressing the following issues:

- Archaeological and heritage potential of the proposed development site including any known data on affected areas;
- Provide details on methods of study; potential and recommendations to guide the PHRA/ SAHRA to make an informed decision with regards to authorisation of the proposed road development.

Photographic Presentation of the Project Area



Plate 1: Photo 1: View of Matla Coal stockpile site where the proposed road will start (Photograph © by Author 2017).



Plate 2: Photo 2: View of the existing road earmarked for upgrading (Photograph © by Author 2017).



Plate 3: Photo 3: View of existing road earmarked for upgrading (Photograph © by Author 2017).



Plate 4: Photo 4: View of existing road and workshop for mine equipment (Photograph © by Author 2017).



Plate 5: Photo 5: View of existing road earmarked for upgrading and a network of the high voltage powerlines from Matla Power Station (Photograph © by Author 2017).



Plate 6: Photo 6: View of existing road , powerlines and mine infrastructure along proposed road servitude (Photograph © by Author 2017).



Plate 7: Photo 7: View existing road and high voltage powerlines cutting through the road servitude (Photograph © by Author 2017).



Plate 8: Photo 8: View of road servitude, Sewerage treatment plant and a network powerlines within the development area (Photograph © by Author 2017).



Plate 9: Photo 9: View of road servitude, and sewerage treatment plant on the right (Photograph © by Author 2017).



Plate 10: Photo 10: View of existing road, fence lines and powerlines that characterise the project area (Photograph © by Author 2017).



Plate 11: Photo 11: View of existing road power generation and transmission infrastructure within the project area (Photograph © by Author 2017)



Plate 12: Photo 12: View of terminal position of the proposed road upgrade at R580 Junction (Photograph © by Author 2017).

METHODOLOGY

The proposed development requires clearance and authorisation from government compliance agencies including the heritage authority SAHRA. Key AIA/HIA objectives for this project are to:

- Fulfil the statutory requirements of the National Heritage Resources Act, Act 25 of 1999.
- Identify and describe, (in terms of their conservation and / or preservation importance) sites of cultural and archaeological importance that may be affected by the proposed project. This study seeks to identify sites and features of traditional historical, social, scientific, cultural, and aesthetic significance within the affected study area; the identification of gravesites.
- Assess the significance of the resources where they are identified.
- Evaluate the impact thereon with respect to the socio-economic opportunities and benefits that would be derived from the proposed development.
- Provide guidelines for protection and management of identified heritage sites and places (including associated intangible heritage resources management that may apply).
- Consult with the affected and other interested parties, where applicable, regarding the impact on the heritage resources in the project's receiving environment.
- Make recommendations on mitigation measures with the view to reduce specific adverse impacts and enhance specific positive impacts on the heritage resources.
- Take responsibility for communicating with the SAHRA and other authorities in order to obtain the relevant permits and authorization regarding heritage aspects.

In order to meet the objectives of the AIA/HIA Phase 1 study, the following tasks were conducted: 1) site file search, 2) limited literature review, 3) consultations with the affected communities, 4) completion of a field survey and assessment and 5) analysis of the acquired data and report production. The following tasks were undertaken:

- Preparation of a predictive model for archaeological heritage resources in the study area.
- A review and gap analysis of archaeological, historical, and cultural background information, including possible previous heritage consultant reports specific to the affected project area, the context of the study area and previous land use history as well as a site search;
- Field survey of sampled sections of the proposed development site within the study area, in order to test the predictive model regarding heritage sites in the area;
- Physical cultural property recording of any identified sites or cultural heritage places;
- Identification of heritage significance; and
- Preparation of AIA/HIA report with recommendation, planning constraints and opportunities associated with the proposed development.

Walking surveys were conducted in order to identify and document archaeological and cultural sites along the proposed road upgrade. Power generation infrastructure, transmission and distribution lines, coal mining infrastructure, Formal, settlements, commercial farming infrastructure; access and main road infrastructures, and other auxiliary infrastructures dominate the affected project area. The entire project area was accessible through a network of main roads and district roads used to access the mine and power station. Coordinates were obtained with a handheld Garmin GPS global positioning unit. Photographs were taken as part of the documentation process during field study.

4.1. Impact Assessment

The impact assessment takes into account the nature, scale and duration of the effects on the cultural landscape and whether such effects are positive (beneficial) or negative (detrimental).

A rating/point system is applied to the potential impacts on the affected environment and includes an objective evaluation of the mitigation of the impact. In assessing the significance of each issue, the following criteria are used and points awarded as shown:

- Extent: National - 4; Regional – 3; Local – 2; Site – 1.
- Duration: Permanent – 4; Long term – 3; Medium term – 2; Short term – 1.
- Intensity: Very high – 4; High – 3; Moderate – 2; Low – 1.
- Probability of Occurrence: Definite – 4; Highly probable – 3; Possible – 2; Impossible – 1.

4.2. Criteria for the classification of an impact

Nature

A brief description of the cultural aspect being impacted upon by a particular action or activity is presented.

Extent (Scale)

Considering the area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact.

- Site: Within the construction site
- Local: Within a radius of 2 km of the construction site
- Regional: Provincial (and parts of neighbouring provinces)
- National: The whole of South Africa

Duration

Indicates what the lifetime of the impact will be.

- Short-term: The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase.
- Medium-term: The impact will last for the period of the construction phase, where after it will be entirely negated.
- Long-term: The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter.
- Permanent: The only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.

Intensity

Describes whether an impact is destructive or benign.

- Low: Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected.
- Medium: Effected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way.
- High: Natural, cultural and social functions and processes are altered to extent that they temporarily cease.
- Very high: Natural, cultural and social functions and processes are altered to extent that they permanently cease.

Probability

Probability is the description of the likelihood of an impact occurring.

- Improbable: Likelihood of the impact materialising is very low.
- Possible: The impact may occur.
- Highly probable: Most likely that the impact will occur.
- Definite: Impact will certainly occur.

Significance

Significance is determined through a synthesis of impact characteristics. It is an indication of the importance of the impact in terms of both the physical extent and the time scale and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

Using the scoring from the previous section, the significance of impacts is rated as follows:

- Low impact: 4-7 points. No permanent impact of significance. Mitigating measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
- Medium impact: 8-10 points. Mitigation is possible with additional design and construction inputs.
- High impact: 11-13 points. The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.
- Very high impact: 14-16 points. The design of the site may be affected. Intensive remediation as needed during construction and/or operational phases. Any activity, which results in a “very high impact”, is likely to be a fatal flaw.

Status

Status gives an indication of the perceived effect of the impact on the area.

- Positive (+): Beneficial impact.
- Negative (-): Harmful or adverse impact.
- Neutral Impact (0): Neither beneficial nor adverse.

It is important to note that the status of an impact is assigned based on the *status quo*. That is, should the project not proceed. Therefore, not all negative impacts are equally significant. The suitability and feasibility of all proposed mitigation measures will be included in the assessment of significant impacts. This will be achieved through the comparison of the significance of the impact before and after the proposed mitigation measure is implemented.

4.3. Assumptions and Limitations

The investigation has been influenced by the unpredictability of buried archaeological remains (absence of evidence does not mean evidence of absence) and the difficulty in establishing intangible heritage values. It should be remembered that archaeological deposits (including graves and traces of mining heritage) usually occur below the ground level. Should artefacts or skeletal material be revealed at the site during construction, such activities must be halted immediately, and a competent heritage practitioner, SAHRA or PHRA must be notified in order for an investigation and evaluation of the find(s) to take place (see NHRA (Act No. 25 of 1999), Section 36 (6)). Recommendations contained in this document do not exempt the developer from complying with any national, provincial and municipal legislation or other regulatory requirements, including any protection or management or general provision in terms of the NHRA. The author assumes no responsibility for compliance with conditions that may be required by SAHRA in terms of this report.

The field survey did not include any form of subsurface inspection beyond the inspection of burrows, road cut sections, and the sections exposed by erosion or field ploughing. Some assumptions were made as part of the study and therefore some limitations, uncertainties and gaps in information apply. It should however, be noted that these do not invalidate the findings of this study in any significant way:

- The proposed development will be limited to specific right of corridors as detailed in the development layout (Figure 1 & 2).
- The construction team will utilize existing access to the proposed development site and service sites will use the existing access roads and there will be no construction without any major deviations.
- The study observed that most sections of the project area have low potential to yield significant *in situ* archaeological or physical cultural properties.
- No excavations or sampling were undertaken, since a permit from heritage authorities is required to disturb a heritage resource. As such the results herein discussed are based on surface observed indicators, these surface observations concentrated on exposed sections such as road cuts and clear farmland.
- This study did not include any ethnographic and oral historical studies nor did it investigate the settlement history of the area.

4.4. Consultation

The EIA Public Participation invited comments from stakeholder's interested parties on any archaeological heritage matters related to the proposed development.

CULTURE HISTORY BACKGROUND OF THE PROJECT AREA

5.1. Stone Age Archaeology

Introduction

In order to place the project area in archaeological and historical context, primary and secondary sources were consulted. Ethnographical and linguistic studies by early researchers such as Theal and Van Warmelo provide insights on the cultural groups who lived in and around the project area since ca 1600. Historic and academic sources by Küsel and Bergh, Makhura, Delius, and Webb were also consulted. There are no museums in the Emalahleni and Middelburg towns which could be consulted, and no historical information was available at the municipalities or information centres (Van Wyk Rowe 2012). Very little contemporary research has been done on prehistoric African settlements in the study area, and according to Bergh, there are no recorded sites that date from the Stone Age, (including Rock paintings or engravings), Early or Later Iron Age. The topographical map 2629 AA &AC, shows that the project area is highly disturbed with cultivated land, plantations and mining.

5.1.1. Stone Age Archaeology

Stone Age sites are marked by stone artefacts that are found scattered on the surface of the earth or as parts of deposits in caves and rock shelters. The Stone Age is divided into the Early Stone Age (covers the period from 2.5 million years ago to 250 000 years ago), the Middle Stone Age (refers to the period from 250 000 years ago to 22 000 years ago) and the Late Stone Age (the period from 22 000 years ago to 200 years ago). The Later Stone Age is also associated with rock paintings and engravings which were done by the San, Khoi Khoi and in more recent times by Iron Age farmers. Heritage surveys up to now have recorded few outstanding Stone Age sites, rock paintings and engravings in the Eastern Highveld - primarily as a result of limited extensive archaeological surveys. Stone tools have been recorded around some of the pans which occur on the Eastern Highveld.

In the larger geographical area there is material manifestation of Stone Age people but generally, Highveld area did not attract much of habitation in these early times due to lack of rock-shelters and domination of exposed environments. Thus, it is mostly in the vicinity of large watercourses and lower parts of mountains that some ESA (~ 2.6 million to 250 000 years ago) materials (crude chopper and other unifacial tools of the Oldowan industry and the characteristic Acheulian hand axes and cleavers) and MSA (~ 250 000 to 40-25 000 years ago) materials are generally found. The MSA is a flake-technological stage characterized by faceted platforms, produced from prepared cores, as distinct from the core tool-based ESA technology. More technological and behavioural changes than those witnessed in the MSA, occurred during the LSA (~ 40-25 000, to recently, 100 years ago), which is also associated with Homo Sapiens (Barham and Mitchell 2008). For the first time we get evidence of people's activities derived from material other than stone tools (ostrich eggshell beads, ground bone arrowheads, small bored stones and wood fragments) (Deacon and Deacon 1999). The LSA people are also credited with the production of rock art (engravings and paintings), which is an expression of their complex social and spiritual beliefs (Parkington et al. 2008). However, it is important to note that no Stone Age materials were recorded during the field walking, perhaps due to the presence of tall grass. Nonetheless, it is possible to encounter isolated finds of these objects in the study area, even though these would most likely be out of context due to the modern disturbances

5.1.2. Iron Age Archaeology

The Iron Age of the Mpumalanga region dates back to the 5th Century AD when the Early Iron Age (EIA) proto-Bantu-speaking farming communities began arriving in this region which was then occupied by hunter-gatherers. These EIA communities are archaeologically referred to as the Mzonjani facies of the Urewe EIA Tradition (Huffman, 2007: 127-9). They occupied the foot-hills and valley lands along the general Indian Ocean coastland introducing settled life, domesticated livestock, crop production and the use of iron (also see Maggs 1984a; 1984b; Huffman 2007). Alongside the Urewe Tradition was the Kalundu Tradition whose EIA archaeological sites have been recorded along the Mpumalanga areas. From AD 650 to 750 the EIA sites in the region are classified as the Msuluzi

facies which was replaced by the Ndongondwane and Ntsekane facies from AD 750 to 950 and AD 950 to 1050 respectively (Huffman, 2007).

By 1050 AD proto-Nguni Bantu-speaking groups associated with the Late Iron Age (LIA) called the Blackburn sub-branch of the Urewe Tradition had arrived in the eastern regions of South Africa, including modern day Mpumalanga, migrating from the central African region of the Lakes Tanganyika and Victoria (Huffman 2007: 154-5). According to archaeological data available, the Blackburn facies ranged from AD 1050 to 1500 (ibid. p.155). The Mpumalanga and the Natal inland regions saw the development of the LIA Moor Park facies between AD 1350 and 1750. This archaeological facies is interpreted as representing inland migration by LIA Nguni speaking groups (Huffman 2007). Moor Park is associated with settlements marked by stonewalling. The period from AD 1300 to 1750 saw multiple Nguni dispersal from the coastland into the hinterland and eventually across the Drakensberg Escapement into central and eastern South Africa (ibid).

No Iron Age sites are indicated in a historical atlas around the town of Witbank, but this may only indicate a lack of research. The closest known Iron Age occurrences to the surveyed area are Late Iron Age sites that have been identified to the west of Bronkhorstspuit and in the vicinity of Bethal (Bergh 1999: 7-8). The good grazing and access water in the area would have provided a good environment for Iron Age people although building material seem to be reasonably scarce. One would therefore expect that Iron Age people may have utilized the area. This is the same reason why white settlers moved into this environment later on.

5.1.3. Historical Background

The Late Iron Age Nguni communities engaged in the Indian Ocean Trade exporting ivory and importing consumables such as cloth and glass beads. The exporting point was Delagoa. This brought the Nguni speaking community in touch with the Indo-Asian and first Europeans (Portuguese). It was the arrival of the Dutch and the English traders that opened up Delagoa Bay to more trade did the Nguni engaged in extensive trade with the international traders (Huffman 2007). From the late 1700s, trade in supply of meat to passing ship had increased substantially to an extent that by 1800 meat trade is estimated to have surpassed ivory trade. At the same time population was booming following the increased food production that came with the introduction of maize that became the staple food. Naturally, there were signs that population groups had to compete for resources especially along the east coastal regions. The KwaZulu Natal coastal region has a special place in the history of the region and country at large. This relates to the most referenced Mfecane (wandering hordes) period of tremendous insecurity and military stress which eventually affected the entire Southern Africa including the modern day Mpumalanga area. Around the 1830s, the region also witnessed the massive movements associated with the Mfecane. The causes and consequences of the Mfecane are well documented elsewhere (e.g. Hamilton 1995; Cobbing 1988). In this context new African kingdoms emerged such as the Zulu Kingdom under Shaka in the second

quarter of the 1800s AD. Military pressure from Zululand spilled onto the highveld by at least 1821. Various marauding groups of displaced Sotho-Tswana moved across the plateau in the 1820s. Mzilikazi raided the plateau extensively between 1825 and 1837. For example, at the beginning of the 19th century, the Phuthing, a South Sotho group, stayed to the east of Emalahleni. During the Difaquane they fled to the south from the Ndebele of Mzilikazi who established several settlement complexes in Eastern Bankveld between Pretoria and Witbank (Bergh 1999: 10-11; 109).

At the same time the Boers trekked into this area in the 1830s. And throughout this time settled communities of Tswana people also attacked each other. As a result of this troubled period, Sotho-Tswana people concentrated into large towns for defensive purposes. Their settlements were built of stone because of the lack of trees in the project area. These stone-walled villages were almost always located near cultivatable soil and a source of water. Such sites are known to occur near Kriel (e.g. Pelsler, *et al* 2006) and to the south (Taylor 179). However, stonewalled sites associated with Sotho Tswana clans have not been reported in the Witbank area as yet.

White farmers only settled in the Witbank and Middleburg area after 1850 (Bergh 1999: 16). One may therefore expect to find farm buildings, structures and objects from this period in time in the area. Many graveyards from this period have indeed been identified in surrounding areas during past surveys.

Ethnographical and linguistic studies by early researchers such as Ziervogel, Theal and Van Warmelo shed light on the cultural groups living in the area since ca 1600. Historic and academic sources by Küsel and Bergh, were consulted, as well as historic sources by Makhura and Webb. There are no museums in the eMalahleni and Middelburg towns which could be consulted, and no historical information was available at the municipalities or information centres. The author had to rely on the assistance of current farmers and their families who lived in the area since the 1920's, as well as local people documenting history in the area. Very little contemporary research has been done on prehistoric African settlements in the study area, and according to Bergh, there are no recorded sites that date from the Stone Age, (including Rock paintings or engravings), Early or Later Iron Age.¹ The topographical map 2529CD Middelburg, (Appendix 2), revealed that this area was highly disturbed with cultivated land, plantations and mining. This map also shows isolated ruins and one grave in the study area (See Appendix 2: Topographical Map: Doornpoort - Rockdale). One of the land owners, Mr. Dolf Rossouw indicated that his family farmed extensively on Rietfontein and Doornpoort since the 1920's. The area between Emalahleni (Witbank) and Middelburg was sparsely populated in the 19th century, and although Bergh, indicates that only the Ndzundza Ndebele group is situated to the north of Middelburg, ethnographical and linguistic studies by early researchers such as D. Ziervogel and N.J. Van Warmelo, revealed that the study area (i.e between Witbank and Middelburg), was inhabited by the Ndzundza abaga (Ndebele), Nhlapho abakwa, and various tribes of the baSotho (baKôpa, baPedi). (See Appendix 8: NJ Van Warmelo, 1935 Map: Bantu Tribes of South Africa). Van Warmelo based his 1935 survey of Bantu Tribes of South Africa on the number of taxpayers living in the area. One dot on the map

represented 10 taxpayers, which were mainly male. (1 J. Bergh, Geskiedenis Atlas, die vier Noordelike provinsies) According to Elizabeth Congwane (Ndebele) and Ester Miggels (a coloured woman) who have been living on the farm Rietfontein 314JS for the past 50 years, the Mahlangus (Ndebele), lived in this area. One of the graves, G1 (Appendix 5), south of the N4 was marked as “John Mahlangu”. Most of the graves are unknown but another is marked “Jan Maguanzela Ncongwane”.

Kriel is a town in the eMalahleni Local Municipality of the Nkangala District Municipality in the Mpumalanga province. Kriel was proclaimed on the farms Onverwacht and Roodebloemin in the early seventies, essentially to service three mines, two power stations (Matla and Kriel) and the farming community in the vicinity - and named after the first resident magistrate Mr. DJ Kriel from nearby Bethal. The town has been in existence since the late 1800's. The town is located 10km from the last great battle of the Boer War. The Kriel area became part of the Transvaal Local Government Affairs Council in 1988. On 1 July 1990, Kriel was proclaimed as a Local Authority. The economy around Kriel is largely based on producing electricity, although mining and agriculture also play an important role. In 1973 Eskom was granted authorisation to develop a residential area on the farm Roodebloem to provide housing and other facilities for the staff employed at the power station. In 1975, a section of the farm Onverwacht was purchased by Eskom and the construction of Kriel Power Station started in September 1975. Kriel Power Station was completed in 1979 and was the largest coal fired power station in the southern hemisphere at the time. Matla Power Station was completed in 1983 and is one of the largest coal fired power stations in the world. Matla at its completion was the biggest power station in South Africa (the first using 600 MW turbo-generators) and one of the largest in the world. Matla was the first of the giant 3 600 MW coal-fired power stations in the world with a concrete boiler house superstructure. The unusual design evolved as a result of a world-wide steel shortage during the design stages. The planning and design of Matla Power Station commenced in the early 1970s. It was designed for an operating life of 30 years, but substantial coal reserves at Matla Coal have extended its life span to 50 years. The station consists of six 600 MW units, giving an installed capacity of 3 600 MW. Matla's Power is fed into both the 400 and 275 kV networks. Construction commenced in 1976, and the station was fully commercial by July 1983. A total of 3 800 tons of coal per hour can be transported by conveyor to the power station from the adjacent Matla colliery, which mainly makes use of long wall retreating mining methods. The proposed road is located within the Matla Power Station and Matla Coal landscape.

5.2. SAHRIS Database and Impact assessment reports in the proposed project area

Several archaeological and heritage studies were conducted within eMalahleni and Kriel area and their vicinity since 2002 and these presents the nature and heritage character of the area. The HIA conducted in the area also provide some predictive evidence regarding the types and ranges of heritage resources to be expected in the proposed project area: (see reference list for HIA reports). The studies include mining, water pipeline and powerline projects completed by Birkholtz, P 2017. No sites were recorded, but the reports mention that structures older than 60 years

occur in the area, Pelser and Van Vollenhoven (2011,2013, 2011, 2014, 2015) for mining and infrastructure development survey also recorded no sites. Van Schalkwyk did extensive work in the project area mostly for mining and infrastructure developments for example Van Schalkwyk, (2002, 2004, 2006, 2006, and 2010). Other than burial sites and buildings older than 60 years the studies did not record any significant archaeological sites in the project area.

5.3. Intangible Heritage

As defined in terms of the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (2003) intangible heritage includes oral traditions, knowledge and practices concerning nature, traditional craftsmanship and rituals and festive events, as well as the instruments, objects, artefacts and cultural spaces associated with group(s) of people. Thus, intangible heritage is better defined and understood by the particular group of people that uphold it. In the present study area, very little intangible heritage is anticipated on the development footprint because most historical knowledge does not suggest a relationship with the study area per se, even though several other places in the general area such do have intangible heritage.

RESULTS OF THE ARCHAEOLOGICAL/HERITAGE ASSESSMENT STUDY

The proposed road development is located in the magisterial district of Nkangala in Mpumalanga Province. The proposed development site has been established through consideration of biophysical, social, technical and cultural aspects. The Basic Assessment process will aim to provide a final site selection of the proposed development site is based on biophysical, social, cultural and technical considerations. The following section presents results of the archaeological and Heritage survey conducted along the proposed road development.

Heritage resource	Status/Findings
Buildings, structures, places and equipment of cultural significance	Non exist along the road servitude.
Areas to which oral traditions are attached or which are associated with intangible heritage	None exists along the road servitude
Historical settlements and townscapes	None survives in the proposed area
Landscapes and natural features of cultural significance	None
Archaeological and palaeontological sites	Non were recorded along the road servitude.
Graves and burial grounds	None were recorded along the road servitude
Movable objects	None
Overall comment	Although disturbed the site has potential to yield significant archaeological remains.

6.1. Archaeological and Heritage Site

The proposed road development servitude did not yield any confirmable archaeological remains. It is assumed that the chances of recovering significant archaeological materials *in situ* were seriously compromised by erosion and stamping by farm animals.

6.2. Historical Buildings and Structures

The proposed road servitude did not yield any buildings or structures older than 60 years. In terms of the built environment, the area has no significance. There are no other structures, features or old equipment in the study area.

6.3. Burial Grounds and Graves

The survey did not record any burial grounds or graves along the proposed road upgrade servitude. It should be noted that burial grounds and gravesites are accorded the highest social significance threshold (**See Appendix 3**). They have both historical and social significance and are considered sacred. Wherever they exist or not, they may not be tempered with or interfered with during any development. The possibility of encountering human remains during subsurface earth moving works anywhere on the landscape is ever present. Although the possibility of encountering previously unidentified burial sites is low along the proposed road servitude, should such sites be identified during subsurface construction work, they are still protected by applicable legislations and they should be protected (**See Appendices 2 & 3 for more details**).

6.4. Historical Monuments and Memorials

The proposed road upgrade routes did not yield any historical monuments and memorials.

6.5. Palaeontology

The proposed development falls within a palaeontologically sensitive landscape. As such a palaeontological field study is required for the proposed road development. Subsequently a palaeontology study was conducted for the project (see Durand 2017). Although no palaeontological remains were recorded during the study, there is potential of recovering palaeontological remains during clearance and earth moving activities along the road servitude.

6.6. Mitigation Measures

No mitigation is required for the proposed Matla –Sublime road upgrading.

6.7. CUMULATIVE IMPACTS

The proposed road upgrade will utilize the existing road servitude. As such no new impacts are expected from the proposed development including deviations. The development will not introduce new impacts to the landscape.

DISCUSSION

Various archaeological and heritage specialist studies were conducted in the general project area since 2002. The current study should be read in conjunction with previous Phase 1 Impact Studies conducted in the general project area. These studies recorded sites of varying significance for example Kaplan (2006, 2008, 2011, 2014), van der Walt (2008, 2011, 2013, 2015); Morris (2011a 2011b), Van Ryneveld, K. (2007A, 2007B, 2007C) which testify that the project area is a cultural landscape with high potential to yield significant Stone Age sites. The study noted that the proposed road servitude is located within a degraded area, and have reduced sensitivity for the presence of high significance physical cultural site remains, be they archaeological, historical or burial sites, due to previous disturbances resulting from mainly agriculture activities in the area. However, the absence of confirmable and significant archaeological cultural heritage sites is not evidence in itself that such sites did not exist in the proposed road servitude. There is potential of recovering significant archaeological remains beneath the surface. Significance of the sites of Interest is not limited to presence or absence of physical archaeological sites.

CULTURAL HERITAGE SITE ASSESSMENT OF SIGNIFICANCE

The appropriate management of cultural heritage resources is usually determined on the basis of their assessed significance as well as the likely impacts of any proposed developments. Cultural significance is defined in the Burra Charter as meaning aesthetic, historic, scientific, or social value for past, present, or future generations (Article 1.2). Social, religious, cultural, and public significance are currently identified as baseline elements of this assessment, and it is through the combination of these elements that the overall cultural heritage values of the site of interest, associated place or area are resolved.

Not all sites are equally significant and not all are worthy of equal consideration and management. The significance of a place is not fixed for all time, and what is considered of significance at the time of assessment may change as similar items are located, more research is undertaken and community values change. This does not lessen the value of the heritage approach, but enriches both the process and the long-term outcomes for future generations as the nature of what is conserved and why, also changes over time (Pearson and Sullivan 1995:7).

African indigenous cultural heritage significance is not limited to items, places or landscapes associated with pre-European contact. Indigenous cultural heritage significance is understood to encompass more than ancient archaeological sites and deposits, broad landscapes, and environments. It also refers to sacred places and story sites, as well as historic sites, including mission sites, memorials, and contact sites. This can also refer to modern sites with resonance to the indigenous community. The site of interest considered in this project falls within this realm of broad significance.

ASSESSMENT CRITERIA

The SAHRA Guidelines and the Burra Charter define the following criterion for the assessment of cultural significance:

9.1. Aesthetic Value

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria may include consideration of the form, scale, colour, texture, and material of the fabric; sense of place, the smells and sounds associated with the place and its use.

9.2. Historic Value

Historic value encompasses the history of aesthetics, science, and society, and therefore to a large extent underlies all of the terms set out in this section. A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase, or activity. It may also have historic value as the site of an important event. For any given place, the significance will be greater where evidence of the association or event survives in situ, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment.

9.3. Scientific value

The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality, or representativeness, and on the degree to which the place may contribute further substantial information. Scientific value is also enshrined in natural resources that have significant social value. For example, pockets of forests and bushvelds have high ethnobotany value.

9.4. Social Value

Social value embraces the qualities for which a place has become a focus of spiritual, religious, political, local, national or other cultural sentiment to a majority or minority group. Social value also extends to natural resources such as bushes, trees and herbs that are collected and harvested from nature for herbal and medicinal purposes.

IMPACT ASSESSMENT

The main causes of impact during construction of the proposed road are excavation and clearance along road servitude, movement of heavy construction equipment during transporting of material and during construction as well as maintenance of the road. The project area is mainly disturbed by overgrazing, erosion and stamping by cattle as the project falls on a major cattle track.

10.1. Potential impacts

The biggest potential negative impacts on the affected landscape are activities related to excavations, and movement of construction equipment along the proposed road servitude. However, because the existing route is already significantly impacted on, the potential impacts are insignificant. The following impact assessment was done for this study. The impact assessment takes into consideration that the general landscape is already significantly disturbed.

The table below is the impact assessment for the dismantling and construction as are related to the road construction.

Potential impacts on archaeological and heritage remains during dismantling and construction	
Criteria	Rating
Intensity	1
Duration	1
Intensity	1
Probability	2
Total	5

The study concluded that without any mitigating measures, the impacts of the proposed road upgrade will be very low. However, construction teams must take into consideration the chance find procedures below.

10.2. Chance Finds Procedures

It has already been highlighted that sub-surface materials may still be lying hidden from surface surveys. Therefore, absence (during surface survey) is not evidence of absence all together. The following monitoring and reporting procedures must be followed in the event of a chance find, in order to ensure compliance with heritage laws and policies for best-practice. This procedure applies to the developer's permanent employees, its subsidiaries,

contractors and subcontractors, and service providers. Accordingly, all construction teams must be properly inducted to ensure they are fully aware of the procedures regarding chance finds.

- ❖ If during the construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance, work must cease at the site of the find and this person must report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- ❖ The site manager must then make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area before informing Sativa.
- ❖ The client will then contact a professional archaeologist for an assessment of the finds who will in turn inform SAHRA/PHRA.

RECOMMENDATIONS

The study, did not find any permanent barriers to the proposed road upgrade. The following recommendations are based on the results of the AIA/HIA research, cultural heritage background review, site inspection and assessment of significance. The road upgrade is viable from an archaeological perspective. All the potential impacts associated with the development site can be mitigated without serious design alterations. The project may be approved subject to the following recommendations:

- The proposed road development may be approved to proceed as planned under observation that construction work does not extend beyond the surveyed site.
- The road development is viable from an archaeological and heritage perspective. However, a paleontological study must be conducted to ensure protection of paleontological resources during construction
- The foot print impact of the proposed road development should be kept to minimal to limit the possibility of encountering chance finds within servitude.
- Location of the proposed development infrastructure should be restricted to minimum footprint impact especially where such infrastructure falls within bushy area. Such bushy sections have local ethno-botany significance as sources of traditional herbs and medicines. As such disruption and vegetation clearance should be minimal.
- Overall, impacts to heritage resources are not considered to be significant for the project receiving environment. It is thus concluded that the project may be cleared to proceed as planned subject to the Heritage Authority ensuring that a detailed heritage monitoring procedures are included in the project EMP for the construction phase, include chance archaeological finds mitigation procedure in the project EMP (See Appendix 1).
- The chance finds process will be implemented when necessary especially when archaeological materials and burials are encountered during subsurface construction activities.
- If archaeological materials are uncovered, work should cease immediately and the SAHRA be notified and activity should not resume until appropriate management provisions are in place.
- If during the construction or operations phases of this project, any person employed by the developer, any of its subsidiaries, contractors and subcontractors, or service provider, finds any artefacts of cultural significance, work must cease at the site of the find and this person must report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- The senior-site manager must then make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area before informing SAHRA/PHRA.
- If a human grave/burial is encountered, the remains must be left as undisturbed as possible before the local police and SAHRA or PHRA are informed. If the burial is deemed to be over 60 years old and no foul play

is suspected, an emergency rescue permit may be issued by SAHRA for an archaeologist to exhume the remains.

- The Project Public Participation Process should ensure that any cultural heritage related matters for this project are given due attention whenever they arise and are communicated PHRA throughout the proposed project development. This form of extended community involvement would pre-empt any potential disruptions that may arise from previously unknown cultural heritage matter that may have escaped the attention of this study.
- The findings of this report, with approval of the PHRA/SAHRA, may be classified as accessible to any interested and affected parties within the limits of the laws.

CONCLUDING REMARKS

The literature review and field research confirmed that the project area is situated within a contemporary cultural landscape dotted with settlements with long local history. In terms of the archaeology and heritage with respect to the proposed Matla-Sublime road upgrade there are no obvious 'Fatal Flaws' or 'No-Go' areas. No archaeological sites were recorded along the existing road earmarked for upgrading. The field survey established that the affected project area is degraded by existing road construction, high voltage powerlines and other mining infrastructure developments. This report concludes that the proposed development may be approved by SAHRA/PHRA to proceed as planned subject to recommendations herein made which include a heritage monitoring plan being incorporated into the construction EMP (**See Appendices 1, 2 &3**). The measures are informed by the results of the study and principles of heritage management enshrined in the NHRA, Act 25 of 1999.

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APPENDIX 1: HERITAGE MANAGEMENT PLAN INPUT INTO THE MATLA SUBLIME ROAD UPGRADE PROJECT EMP

Objective	<ul style="list-style-type: none"> • Protection of archaeological sites and land considered to be of cultural value; • Protection of known physical cultural property sites against vandalism, destruction and theft; and • The preservation and appropriate management of new archaeological finds should these be discovered during construction. 								
No.	Activity	Mitigation Measures	Duration	Frequency	Responsibility	Accountable	Contacted	Informed	
Pre-Construction Phase									
1	Planning	Ensure all known sites of cultural, archaeological, and historical significance are demarcated on the site layout plan, and marked as no-go areas.	Throughout Project	Weekly Inspection	Contractor [C] CECO	SM	ECO	EA EM PM	
Construction Phase									
1	Emergency Response	Should any archaeological or physical cultural property heritage resources be exposed during excavation for the purpose of construction, construction in the vicinity of the finding must be stopped until heritage authority has cleared the development to continue.	N/A	Throughout	C CECO	SM	ECO	EA EM PM	
		Should any archaeological, cultural property heritage resources be exposed during excavation or be found on development site, a registered heritage specialist or PHRA official must be called to site for inspection.		Throughout	C CECO	SM	ECO	EA EM PM	
		Under no circumstances may any archaeological, historical or any physical cultural property heritage material be destroyed or removed from site;		Throughout	C CECO	SM	ECO	EA EM PM	
		Should remain and/or artefacts be discovered on the development site during earthworks, all work will cease in the area affected and the Contractor will immediately inform the Construction Manager who in turn will inform PHRA.		When necessary	C CECO	SM	ECO	EA EM PM	
		Should any remains be found on site that is potentially human remains, the PHRA and South African Police Service should be contacted.		When necessary	C CECO	SM	ECO	EA EM PM	
Rehabilitation Phase									
		Same as construction phase.							
Operational Phase									

	Same as construction phase.
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APPENDIX 2: HERITAGE MITIGATION MEASURE TABLE

SITE REF	HERITAGE ASPECT	POTENTIAL IMPACT	MITIGATION MEASURES	RESPONSIBLE PARTY	PENALTY	METHOD STATEMENT REQUIRED
Chance Archaeological and Burial Sites	General area where the proposed project is situated is a historic landscape, which may yield archaeological, cultural property, remains. There are possibilities of encountering unknown archaeological sites during subsurface construction work which may disturb previously unidentified chance finds.	<p>Possible damage to previously unidentified archaeological and burial sites during construction phase.</p> <ul style="list-style-type: none"> • Unanticipated impacts on archaeological sites where project actions inadvertently uncovered significant archaeological sites. • Loss of historic cultural landscape; • Destruction of burial sites and associated graves • Loss of aesthetic value due to construction work • Loss of sense of place <p>Loss of intangible heritage value due to change in land use</p>	<p>In situations where unpredicted impacts occur construction activities must be stopped and the heritage authority should be notified immediately.</p> <p>Where remedial action is warranted, minimize disruption in construction scheduling while recovering archaeological data. Where necessary, implement emergency measures to mitigate.</p> <ul style="list-style-type: none"> • Where burial sites are accidentally disturbed during construction, the affected area should be demarcated as no-go zone by use of fencing during construction, and access thereto by the construction team must be denied. • Accidentally discovered burials in development context should be salvaged and rescued to safe sites as may be directed by relevant heritage authority. The heritage officer responsible should secure relevant heritage and health authority permits for possible relocation of affected graves accidentally encountered during construction work. 	<ul style="list-style-type: none"> • Contractor / • Project Manager • Archaeologists • Project EO 	Fine and or imprisonment under the PHRA Act & NHRA	<p>Monitoring measures should be issued as instruction within the project EMP.</p> <p>PM/EO/Archaeologists Monitor construction work on sites where such development projects commence within the farm.</p>

1. APPENDIX 3: LEGAL BACK GROUND AND PRINCIPLES OF HERITAGE RESOURCES MANAGEMENT IN SOUTH AFRICA

Extracts relevant to this report from the National Heritage Resources Act No. 25 of 1999, (Sections 5, 36 and 47):

General principles for heritage resources management

5. (1) All authorities, bodies and persons performing functions and exercising powers in terms of this Act for the management of heritage resources must recognise the following principles:

(a) Heritage resources have lasting value in their own right and provide evidence of the origins of South African society and as they are valuable, finite, non-renewable and irreplaceable they must be carefully managed to ensure their survival;

(b) every generation has a moral responsibility to act as trustee of the national heritage for succeeding generations and the State has an obligation to manage heritage resources in the interests of all South Africans;

(c) heritage resources have the capacity to promote reconciliation, understanding and respect, and contribute to the development of a unifying South African identity; and

(d) heritage resources management must guard against the use of heritage for sectarian purposes or political gain.

(2) To ensure that heritage resources are effectively managed—

(a) the skills and capacities of persons and communities involved in heritage resources management must be developed; and

(b) provision must be made for the ongoing education and training of existing and new heritage resources management workers.

(3) Laws, procedures and administrative practices must—

(a) be clear and generally available to those affected thereby;

(b) in addition to serving as regulatory measures, also provide guidance and information to those affected thereby; and

(c) give further content to the fundamental rights set out in the Constitution.

(4) Heritage resources form an important part of the history and beliefs of communities and must be managed in a way that acknowledges the right of affected communities to be consulted and to participate in their management.

(5) Heritage resources contribute significantly to research, education and tourism and they must be developed and presented for these purposes in a way that ensures dignity and respect for cultural values.

(6) Policy, administrative practice and legislation must promote the integration of heritage resources conservation in urban and rural planning and social and economic development.

(7) The identification, assessment and management of the heritage resources of South Africa must—

(a) take account of all relevant cultural values and indigenous knowledge systems;

(b) take account of material or cultural heritage value and involve the least possible alteration or loss of it;

- (c) promote the use and enjoyment of and access to heritage resources, in a way consistent with their cultural significance and conservation needs;
- (d) contribute to social and economic development;
- (e) safeguard the options of present and future generations; and
- (f) be fully researched, documented and recorded.

Burial grounds and graves

36. (1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.

(2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.

(3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—

(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;

(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or

(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

(5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority—

(a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and

(b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.

(6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources

authority—

(a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and

(b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

(7) (a) SAHRA must, over a period of five years from the commencement of this Act, submit to the Minister for his or her approval lists of graves and burial grounds of persons connected with the liberation struggle and who died in exile or as a result of the action of State security forces or agents provocateur and which, after a process of public consultation, it believes should be included among those protected under this section.

(b) The Minister must publish such lists as he or she approves in the Gazette.

(8) Subject to section 56(2), SAHRA has the power, with respect to the graves of victims of conflict outside the Republic, to perform any function of a provincial heritage resources authority in terms of this section.

(9) SAHRA must assist other State Departments in identifying graves in a foreign country of victims of conflict connected with the liberation struggle and, following negotiations with the next of kin, or relevant authorities, it may re-inter the remains of that person in a prominent place in the capital of the Republic.

General policy

47. (1) SAHRA and a provincial heritage resources authority—

(a) must, within three years after the commencement of this Act, adopt statements of general policy for the management of all heritage resources owned or controlled by it or vested in it; and

(b) may from time to time amend such statements so that they are adapted to changing circumstances or in accordance with increased knowledge; and

(c) must review any such statement within 10 years after its adoption.

(2) Each heritage resources authority must adopt for any place which is protected in terms of this Act and is owned or controlled by it or vested in it, a plan for the management of such place in accordance with the best environmental, heritage conservation, scientific and educational principles that can reasonably be applied taking into account the location, size and nature of the place and the resources of the authority concerned, and may from time to time review any such plan.

(3) A conservation management plan may at the discretion of the heritage resources authority concerned and for a period not exceeding 10 years, be operated either solely by the heritage resources authority or in conjunction with an environmental or tourism authority or under contractual arrangements, on such terms and conditions as the heritage resources authority may determine.

(4) Regulations by the heritage resources authority concerned must provide for a process whereby, prior to the adoption or amendment of any statement of general policy or any conservation management plan, the public and

interested organisations are notified of the availability of a draft statement or plan for inspection, and comment is invited and considered by the heritage resources authority concerned.

(5) A heritage resources authority may not act in any manner inconsistent with any statement of general policy or conservation management plan.

(6) All current statements of general policy and conservation management plans adopted by a heritage resources authority must be available for public inspection on request.