APPENDIX Q

Cultural and Heritage Assessment

Prepared for:

EXXARO COAL (PTY) LTD

A PHASE I HERITAGE IMPACT ASSESSMENT STUDY FOR THE PROPOSED EXXARO TURFVLAKTE OPEN PIT PROJECT NEAR LEPHALALE IN THE LIMPOPO PROVINCE

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Member ASAPA

ACRONYMS AND ABBREVIATIONS

AIA Archaeological Impact Assessment

ASAPA Association of South African Professional Archaeologists

CRM Cultural Resource Management

EAP Environmental Assessment Practitioner

ECO Environmental Control Officer

EIA Environmental Impact Assessment

EMP Environmental Management Plan

EPS Environmental Performance Standards

EIA Early Iron Age

ESA Early Stone Age

GPS Global Positioning System

HIA Heritage Impact Assessment

IEM Integrated Environmental Management

I & Aps Interested and Affected Parties

LIA Late Iron Age

LSA Late Stone Age

MIA Middle Iron Age

MPRDA Mineral and Petroleum Resources Development Act, 28 of 2002

MSA Middle Stone Age

NEMA National Environmental Management Act, 107 of 1998

NEMBA National Environmental Management: Biodiversity Act, 10 of 2004

NEMAQA National Environmental Management: Air Quality Act, 39 of 2004

NEMWA National Environmental Management: Waste Act, 59 of 2008

NHRA National Heritage Resources Act, 25 of 1999

NWA National Water Act, 36 of 1998

OSHA Occupational Health and Safety Act, 85 of 1993

PHRA Provincial Heritage Resource Agency

RSA Republic of South Africa

SAHRA South African Heritage Resources Agency

SAHRIS South African Heritage Resources Information System

ToR Terms of Reference

TERMINOLOGY

Terms that may be used in this report are briefly outlined below:

- Conservation: The act of maintaining all or part of a resource (whether renewable or non-renewable) in its present condition in order to provide for its continued or future use. Conservation includes sustainable use, protection, maintenance, rehabilitation, restoration and enhancement of the natural and cultural environment.

- Cultural resource management: A process that consists of a range of interventions and provides a framework for informed and value-based decision-making. It integrates professional, technical and administrative functions and interventions that impact on cultural resources. Activities include planning, policy development, monitoring and assessment, auditing, implementation, maintenance, communication, and many others. All these activities are (or will be) based on sound research.

- Cultural resources: A broad, generic term covering any physical, natural and spiritual properties and features adapted, used and created by humans in the past and present. Cultural resources are the result of continuing human cultural activity and embody a range of community values and meanings. These resources are non-renewable and finite. Cultural resources include traditional systems of cultural practice, belief or social interaction. They can be, but are not necessarily identified with defined locations.

- Heritage resources: The various natural and cultural assets that collectively form the heritage. These assets are also known as cultural and natural resources. Heritage resources (cultural resources) include all human-made phenomena and intangible products that are the result of the human mind. Natural, technological or industrial features may also be part of heritage resources, as places that have made an outstanding contribution to the cultures, traditions and lifestyles of the people or groups of people of South Africa.

- In-Situ Conservation: The conservation and maintenance of ecosystems, natural habitats and cultural resources in their natural and original surroundings.

- Iron Age: Refers to the last two millennia and 'Early Iron Age' to the first thousand years AD. 'Late Iron Age' refers to the period between the 16th century and the 19th century and can therefore include the Historical Period.

- Maintenance: Keeping something in good health or repair.

- Pre-historical: Refers to the time before any historical documents were written or any written language developed in a particular area or region of the world. The historical period and historical remains refer, for the Project Area, to the first appearance or use of 'modern' Western writing brought to the Eastern Highveld by the first Colonists who settled here from the 1840's onwards.

- Preservation: Conservation activities that consolidate and maintain the existing form, material and integrity of a cultural resource.

- Recent past: Refers to the 20th century. Remains from this period are not necessarily older than sixty years and therefore may not qualify as archaeological or historical remains. Some of these remains, however, may be close to sixty years of age and may, in the near future, qualify as heritage resources.

- Protected area: A geographically defined area designated and managed to achieve specific conservation objectives. Protected areas are dedicated primarily to the protection and enjoyment of natural or cultural heritage, to the maintenance of biodiversity, and to the maintenance of life-support systems. Various types of protected areas occur in South Africa.

- Reconstruction: Re-erecting a structure on its original site using original components.

- Replication: The act or process of reproducing by new construction the exact form and detail of a vanished building, structure, object, or a part thereof, as it appeared at a specific period.

- Restoration: Returning the existing fabric of a place to a known earlier state by removing additions or by reassembling existing components.

- Stone Age: Refers to the prehistoric past, although Late Stone Age people lived in South Africa well into the Historical Period. The Stone Age is divided into an Earlier Stone Age

(3 million years to 150 000 thousand years ago) the Middle Stone Age (150 000 years to 40 000 years ago) and the Late Stone Age (40 000 years to 200 years ago).

- Sustainability: The ability of an activity to continue indefinitely, at current and projected levels, without depleting social, financial, physical and other resources required to produce the expected benefits.

- Translocation: Dismantling a structure and re-erecting it on a new site using original components.

- Project Area: refers to the area (footprint) where the developer wants to focus its development activities.

- Phase I studies refer to surveys using various sources of data in order to establish the presence of all possible types and ranges of heritage resources in any given Project Area (excluding paleontological remains as these studies are done by registered and accredited palaeontologists).

- Phase II studies include in-depth cultural heritage studies such as archaeological mapping, excavating and sometimes laboratory work. Phase II work may include the documenting of rock art, engraving or historical sites and dwellings; the sampling of archaeological sites or shipwrecks; extended excavations of archaeological sites; the exhumation of human remains and the relocation of graveyards, etc. Phase II work involves permitting processes, requires the input of different specialists and the co-operation and approval of the SAHRA.

EXECUTIVE SUMMARY

A Phase I Heritage Impact Assessment (HIA) study as required in terms of Section 38 of the National Heritage Resources Act (No 25 of 1999) was done for the proposed Exxaro Turfvlakte Open Pit Project on the farm Turfvlakte 463LQ and Grootestryd 467 LQ , adjoining the Grootegeluk Coal Mine near Lephalale in the Limpopo Province. The construction of the proposed Exxaro Turfvlakte Open Pit Project is hereafter referred to as the Exxaro Project whilst the area to be affected by the proposed project is referred to as the Exxaro Project Area.

The aims with the Phase I HIA study were the following:

- To establish whether any of the types and ranges of heritage resources as outlined in Section 38 of the National Heritage Resources Act (No 25 of 1999) do occur in the Exxaro Project Area.
- To establish the significance of the heritage resources in the Exxaro Project Area and the level of significance of any possible impact on any of these heritage resources.
- To propose mitigation measures for those types and ranges of heritage resources that may be affected by the proposed Exxaro Project.

The Phase I HIA study for the proposed Exxaro Project did not reveal the presence of any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in the Project Area.

There is consequently no reason from a heritage point of view why the proposed Exxaro Turfvlakte Open Pit Project cannot proceed.

The Lephalale region where Exxaro's proposed open cast pits will be developed is a marginal area which did not support human existence from the Stone Age onwards. Consequently, limited heritage resources occur in the area as outlined in sources listed in Part 11, 'Bibliography relating to earlier heritage studies' and discussed in Part 6, 'Contextualising the Project Area'.

Those which have been recorded include scatters of stone tools and potsherds dating from the Stone Age and the Iron Age. However, these finds are limited as is the number of artefacts associated with these finds which mostly occur out of archaeological context or are disturbed and therefore have low significance. Historical infrastructure, if it occurs, is also limited and of low heritage significance. Consequently, the Exxaro Project Area which does not reveal the presence of heritage resources or graves has low significance. Nevertheless, chance-find procedures have been outlined if any heritage resources are uncovered during the construction, operation or closures phases of the Exxaro Project.

Graves may occur beneath the surface, may be undecorated and therefore can be missed during surveys. Graves have high significance. It is therefore possible that this Phase I HIA study may have missed graves in the Exxaro Project Area as graves may be covered with grass or vegetation while others may lie below the surface of the earth and may only be exposed once development commences. Consequently, chance-find procedures were recommended which should be followed whenever graves are encountered during the construction, operation or decommissioning of the Exxaro Project.

If any heritage resources of significance are exposed during the construction, operation or closure of the proposed Exxaro Project the South African Heritage Resources Authority (SAHRA) should be notified immediately, all development activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notified in order to determine appropriate mitigation measures for the discovered finds. The chance-find procedures which have been outlined if any heritage resources or graves are uncovered during the construction, operation or closure phases of the Exxaro Project have to be adhered to. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.

CONTENTS

1 INTRODUCTION

1.1 Background and context

Exxaro Coal intends implementing the Exarro Turfvlakte Open Pit Project adjoining the existing Grootegeluk Coal Mine near Lephalale in the Limpopo Province. This project which is here referred to as the Exarro Project falls within Grootegeluk Mine's Mining Right Area and subsequently forms part of the resource pertaining to Grootegeluk Mine. The Exxaro Project Area is located within the boundaries of the farm Turfvlakte 463LQ and Grootestryd 467 LQ, east of the Medupi Power Station coal conveyor belt and falls outside the Grootegeluk LOM pit shell (figure 1).

Two areas on the eastern portion of the farm Turfvlakte 463LQ have been identified where the coal sources in Zone 3 (Benches 9A and 9B) and Zone 2 (Bench 11) are relatively close to surface and have favourable thicknesses and stripping rations for open pit mining. It is envisaged that that these coal zones will be utilized as raw coal and therefore no beneficiation will be conducted aside from crushing and screening.

1.2 Aims with the report

This study comprises a heritage survey and a heritage impact assessment study according to Section 38 of the National Heritage Resources Act (No 25 of 1999) for the proposed Exxaro Turfvlakte Open Pit Project adjoining the Grootegeluk Coal Mine near Lephalale in the Limpopo Province. The aims with the heritage survey and impact assessment for the Exxaro Project were the following:

- To establish whether any of the types and ranges of heritage resources as outlined in Section 38 of the National Heritage Resources Act (No 25 of 1999) do occur in the Exxaro Project Area.
- To establish the significance of the heritage resources in the Exxaro Project Area and the level of significance of any possible impact on any of these heritage resources.
- To propose mitigation measures for those types and ranges of heritage resources that may be affected by the proposed Exxaro Project.

1.3 Assumptions and limitations

The findings, observations, conclusions and recommendations reached in this report are based on the author's best scientific and professional knowledge, available information and his ability to keep up with the physical and other comprehensive challenges that the project commanded. The author has a good understanding of the types and ranges of heritage

resources that occur in and near the Exxaro Project Area as was involved with several heritage impact assessment studies in the area during the last fifteen years (see Part 12, ‘Bibliography relating to earlier heritage studies’).

The report findings are based on accepted archaeological survey and assessment techniques and methodologies.

The GPS track log is not necessary a true reflection of all the tracks routes that the surveyor followed as the track logs were registered with a mounted GPS instrument. Pedestrian surveys from the vehicle were not in all instances recorded whilst tracks were not registered when the GPS lost signal with the satellites.

Areas that were not covered during the survey comprise a limited number of existing haul road and power line corridors which occur in the Grootegeluk Mine Area which was surveyed in the past and which is severely disturbed as a result of mining activities.

The author reserves the right to modify aspects of the report including the recommendations if and when new information becomes available particularly if this information may have an influence on the reports final results and recommendations.

The heritage survey may have missed heritage resources as heritage sites may occur in in tall grass or thick clumps of vegetation whilst others may be located below the surface of the earth and may only be exposed once development commences.

It is also possible that heritage resources may simply have been missed as a result of human failure and the extent of the surface area that was covered.

2. DETAILS OF THE SPECIALIST

Profession: Archaeologist, Museologist (Museum Scientists), Lecturer, Heritage Guide Trainer and Heritage Consultant

Qualifications:

BA (Archaeology, Anthropology and Psychology) (UP, 1976)

BA (Hons) Archaeology (distinction) (UP, 1979)

MA Archaeology (distinction) (UP, 1985)

D Phil Archaeology (UP, 1989)

Post Graduate Diploma in Museology (Museum Sciences) (UP, 1981)

Work experience:

Museum curator and archaeologist for the Rustenburg and Phalaborwa Town Councils (1980-1984)

Head of the Department of Archaeology, National Cultural History Museum in Pretoria (1988-1989)

Lecturer and Senior Lecturer Department of Anthropology and Archaeology, University of Pretoria (1990-2003)

Independent Archaeologist and Heritage Consultant (2003-)

Accreditation: Member of the Association for Southern African Professional Archaeologists. (ASAPA)

Summary: Julius Pistorius is a qualified archaeologist and heritage specialist with extensive experience as a university lecturer, museum scientist, researcher and heritage consultant. His research focussed on the Late Iron Age Tswana and Lowveld-Sotho (particularly the Bamalatji of Phalaborwa). He has published a book on early Tswana settlement in the North-West Province and has completed an unpublished manuscript on the rise of Bamalatji metal workings spheres in Phalaborwa during the last 1 200 years. He has excavated more than twenty LIA settlements in North-West and twelve IA settlements in the Lowveld and has mapped hundreds of stone walled sites in the North-West. He has written a guide for Eskom's field personnel on heritage management. He has published twenty scientific papers in academic journals and several popular articles on archaeology and heritage matters. He collaborated with environmental companies in compiling State of the Environmental Reports for Ekhurhuleni, Hartebeespoort and heritage management plans for the Magaliesberg and Waterberg. Since acting as an independent consultant he has done approximately 800 large to small heritage impact assessment reports. He has a longstanding working relationship with Eskom, Rio Tinto (PMC), Rio Tinto (EXP), Impala Platinum, Angloplats (Rustenburg), Lonmin, Sasol, PMC, Foskor, Kudu and Kelgran Granite, Bafokeng Royal Resources, Pilanesberg Platinum Mine (PPM) etc. as well as with several environmental companies.

3 DECLARATION OF INDEPENDENCE

I, Julius CC Pistorius, declare that:

•I act as the independent environmental practitioner in this application
•I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
•I declare that there are no circumstances that may compromise my objectivity in performing such work;
•I have expertise in conducting environmental impact assessments, including knowledge of the National Heritage Resources Act (No 25 of 1999) and any guidelines that have relevance to the proposed activity;
•I will comply with the Act, regulations and all other applicable legislation;
•I will take into account, to the extent possible, the matters listed in regulation **8** of the regulations when preparing the application and any report relating to the application;
•I have no, and will not engage in, conflicting interests in the undertaking of the activity;
•I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
•I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
•I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
•I will keep a register of all interested and affected parties that participated in a public participation process; and
•I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
•all the particulars furnished by me in this form are true and correct;
•will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
•I realise that a false declaration is an offence in terms of regulation 71 and is punishable in terms of section 24F of the Act.

Disclosure of Vested Interest

I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2010.

_____

Private Consultant:
1 March 2018

4 LEGAL FRAMEWORK

South Africa's heritage resources ('national estate') are protected by international, national, provincial and local legislation which provides regulations, policies and guidelines for the protection, management, promotion and utilization of heritage resources. South Africa's 'national estate' includes a wide range of various types of heritage resources as outlined in Section 3 of the National Heritage Resources Act (NHRA, Act No 25 of 1999) (see Box 1).

At a national level heritage resources are dealt with by the National Heritage Council Act (Act No 11 of 1999) and the National Heritage Resources Act (NHRA, Act No 25 of 1999). According to the NHRA (Act No 25 of 1999) heritage resources are categorized using a three-tier system, namely Grade I (national), Grade II (provincial) and Grade III (local) heritage resources.

At the provincial level, heritage legislation is implemented by Provincial Heritage Resources Agencies (PHRA's) which apply the National Heritage Resources Act (Act 25 of 1999) together with provincial government guidelines and strategic frameworks. Metropolitan or Municipal (local) policy regarding the protection of cultural heritage resources is also linked to national and provincial acts and is implemented by the South African Heritage Resources Agency (SAHRA) and the Provincial Heritage Resources Agencies (PHRA's).

4.1 Legislation relevant to heritage resources

Legislation relevant to South Africa's national estate includes the following:

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

Box 1: Types and ranges of heritage resources (the national estate) as outlined in Section 3 of the National Heritage Resources Act, 1999 (No 25 of 1999).

The National Heritage Resources Act (Act No 25 of 1999, Art 3) outlines the following types and ranges of heritage resources that qualify as part of the National Estate, namely:

(a) places, buildings structures and equipment of cultural significance;
(b) places to which oral traditions are attached or which are associated with living heritage;
(c) historical settlements and townscapes;
(d) landscapes and natural features of cultural significance;
(e) geological sites of scientific or cultural importance;
(f) archaeological and palaeontological sites;
(g) graves and burial grounds including-
  (i) ancestral graves;
  (ii) royal graves and graves of traditional leaders;
  (iii) graves of victims of conflict;(iv) graves of individuals designated by the Minister by notice in the Gazette;
  (v) historical graves and cemeteries; and
  (vi) other human remains which are not covered by in terms of the Human Tissues Act, 1983 (Act No 65 of 1983);
(h) sites of significance relating to the history of slavery in South Africa;
(i) movable objects, including -
(i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
  (ii) objects to which oral traditions are attached or which are associated with living heritage;
  (iii) ethnographic art and objects;
  (iv) military objects;
  (v) objects of decorative or fine art;
  (vi) objects of scientific or technological interest; and
  (vii) books, records, documents, photographs, positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No 43 of 1996).

The National Heritage Resources Act (Act No 25 of 1999, Art 3) also distinguishes nine criteria for places and objects to qualify as 'part of the national estate if they have cultural significance or other special value …'. These criteria are the following:

(a) its importance in the community, or pattern of South Africa's history;
(a) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
(b) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
(c) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
(e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
(f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
(g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; (h)
(h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
(i) sites of significance relating to the history of slavery in South Africa

4.1.1 NEMA

The NEMA stipulates under Section 2(4)(a) that sustainable development requires the consideration of all relevant factors including (iii) the disturbance of landscapes and sites that constitute the nation's cultural heritage must be avoided, or where it cannot be altogether avoided, is minimised and remedied. Heritage assessments are implemented in terms of the NEMA Section 24 in order to give effect to the general objectives. Procedures considering heritage resource management in terms of the NEMA are summarised under Section 24(4) as amended in 2008. In addition to the NEMA, the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) (NEMPA) may also be applicable. This act applies to protected areas and world heritage sites, declared as such in terms of the World Heritage Convention Act, 1999 (Act No. 49 of 1999) (WHCA).

4.1.2 MPRDA

The MPRDA stipulates under Section 5(4) no person may prospect for or remove, mine, conduct technical co-operation operations, reconnaissance operations, explore for and produce any mineral or petroleum or commence with any work incidental thereto on any area without (a) an approved environmental management programme or approved environmental management plan, as the case may be.

4.1.3 NHRA

According to Section 3 of the NHRA (Act No 25 of 1999) the 'national estate' comprises a wide range and various types of heritage resources (see Box 1).

4.1.3.1 Heritage Impact Assessment studies

According to Section 38 of the National Heritage Resources Act (Act No 25 of 1999) a Heritage Impact Assessment (HIA) process must be followed under the following circumstances:

- The construction of a linear development (road, wall, power line, canal etc.) exceeding 300m in length
- The construction of a bridge or similar structure exceeding 50m in length
- Any development or activity that will change the character of a site and which exceeds 5 000m^2 or which involve three or more existing erven or subdivisions thereof
- Re-zoning of a site exceeding 10 000 m^2
- Any other category provided for in the regulations of SAHRA, a provincial or local heritage authority or any other legislation such as NEMA, MPRDA, etc.

4.1.3.2 Section 34 (Buildings and structures)

Section 34 of the NHRA provides for general protection of structures older than 60 years. According to Section 34(1) no person may alter (demolish) any structure or part thereof which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

A structure means any building, works, device or any other facility made by people and which is fixed to land and which includes fixtures, fittings and equipment associated with such structures.

Alter means any action which affects the structure, appearance or physical properties of a place or object, whether by way of structural or any other works such as painting, plastering, decorating, etc.

Most importantly, Section 34(1) clearly states that no structure or part thereof may be altered or demolished without a permit issued by the relevant Provincial Heritage Resources Authority (PHRA). These permits will not be granted without a HIA being completed. A destruction permit will thus be required before any removal and/or demolition may take place, unless exempted by the PHRA according to Section 34(2) of the NHRA.

4.1.3.3 Section 35 (Archaeological and palaeontological resources and meteorites)

Section 35 of the NHRA provides for the general protection of archaeological and palaeontological resources, and meteorites. In the event that archaeological resources are discovered during the course of development, Section 38(3) specifically requires that the discovery must immediately be reported to the PHRA, or local authority or museum who must notify the PHRA. Furthermore, no person may without permits issued by the responsible heritage resources authority may:

- destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site or any meteorite
- destroy, damage, excavate, remove from its original position, collect or own any archaeological or paleontological material or object or any meteorite
- trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or paleontological material or object, or any meteorite; or bring onto or use at an archaeological or paleontological site any excavation

equipment or any equipment that assists in the detection or recovery of metals or archaeological and paleontological material or objects, or use such equipment for the recovery of meteorites

- alter or demolish any structure or part of a structure which is older than 60 years.

Heritage resources may only be disturbed or moved by an archaeologist after being issued with a permit received from the South African Heritage Resources Agency (SAHRA). In order to demolish heritage resources the developer has to acquire a destruction permit by from SAHRA.

4.1.3.4 Section 36 (Burial grounds and graves)

Section 36 of the NHRA allows for the general protection of burial grounds and graves. Should burial grounds or graves be found during the course of development, Section 36(6) stipulates that such activities must immediately cease and the discovery reported to the responsible heritage resources authority and the South African Police Service (SAPS). Section 36 also stipulates that no person without a permit issued by the relevant heritage resources authority may:

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

Section 36 of the NHRA divides graves and burial grounds into the following categories:

a. ancestral graves
b. royal graves and graves of traditional leaders
c. graves of victims of conflict
d. graves designated by the Minister
e. historical graves and cemeteries
f. human remains

Human remains less than 60 years old are subject to provisions of the National Health Act, 2003 (Act No 61 of 2003), Ordinance 12 of 1980 (Exhumation Ordinance) and Ordinance No 7 of 1925 (Graves and dead bodies Ordinance, repealed by Mpumalanga). Municipal bylaws with regard to graves and graveyards may differ. Professionals involved with the exhumation and relocation of graves and graveyards must establish whether such bylaws exist and must adhere to these laws.

Unidentified graves are handled as if they are older than 60 years until proven otherwise.

Permission for the exhumation and relocation of graves older than sixty years must also be gained from descendants of the deceased (where known), the National Department of Health, Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (i.e. where the graves are located and where they are to be relocated) before exhumation can take place.

Human remains can only be handled by a registered undertaker or an institution declared under the Human Tissues Act (Act 65 of 1983 as amended).

4.1.3.5 Section 37 (Public monuments and memorials)

Section 37 makes provision for the protection of all public monuments and memorials in the same manner as places which are entered in a heritage register referred to in Section 30 of the NHRA.

4.1.3.6 Section 38 (HRM)

Section 38 (8): The provisions of this section do not apply to a development as described in Section 38 (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (Act No. 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environment Affairs and Tourism, or the Minerals Act, 1991 (Act No. 50 of 1991), or any other legislation. Section 38(8) ensures cooperative governance between all responsible authorities through ensuring that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of Subsection (3), and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent.

4.4.4 NEMA Appendix 6 requirements

NEMA Regulations (2014) - Appendix 6	Relevant section in report
Details of the specialist who prepared the report	Dr Julius CC Pistorius
The expertise of that person to compile a specialist report including a curriculum vitae	Part 2. Details of the specialist
A declaration that the person is independent in a form as may be specified by the competent authority	Part 3. Declaration of independence
An indication of the scope of, and the purpose for which, the report was prepared	Part 1. Introduction
The date and season of the site investigation and the relevance of the season to the outcome of the assessment	Part 7. Approach and Methodology Part 8.1. Field survey
A description of the methodology adopted in preparing the report or carrying out the specialised process	Part 7. Approach and Methodology
The specific identified sensitivity of the site related to the activity and its associated structures and infrastructure	Part 8.1 The field survey

An identification of any areas to be avoided, including buffers	Part 8.2 Summary
A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Figure 4
A description of any assumptions made and any uncertainties or gaps in knowledge;	Part 1.3. Assumptions and limitations
A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives, on the environment	Part 8.2 Summary Part 9. Conclusion and recommendations
Any mitigation measures for inclusion in the EMPr	Part 8.2. Summary Part 9. Conclusion and recommendations
Any conditions for inclusion in the environmental authorisation	Part 9. Conclusion and recommendations
Any monitoring requirements for inclusion in the EMPr or environmental authorisation	Part 9. Conclusion and recommendations
A reasoned opinion as to whether the proposed activity or portions thereof should be authorised and	Part 9. Conclusion and recommendations
If the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	Part 9. Conclusion and recommendations
A description of any consultation process that was undertaken during the course of carrying out the study	Part 7.4 Consultation process undertaken and comments received from stakeholders

A summary and copies if any comments that were received during any consultation process	Part 7.4 Consultation process undertaken and comments received from stakeholders
Any other information requested by the competent authority.	None

5 THE EXXARO PROJECT AREA

5.1 Location

Grootegeluk Mine is located approximately 20 km to the west of Lephalale in the Limpopo Province. Access to the mine is from the east-west aligned provincial Road, the D2001 running between Lephalale and Stockpoort.

The Grootegeluk Mine is the country's largest single coal processing complex with a current ROM of approximately 56.3 Mtpa. The Exxaro proposed Turfvlakte Open Pit project is situated on the farm Turfvlakte 463LQ directly adjoining the Grootegeluk Mine along its south-eastern perimeter (Figures 1 & 2) (2326 Lephalale; 1:250 000 map & 2327 Ellisras 1:50 000 topographical map).

Figure 1- Regional location of the Exxaro Turfvlakte Open Pit Project adjoining Grootegeluk Mine to the west of Lephalale in the Limpopo Province (above).

5.2 The nature of the Exxaro Turfvlakte Open Pit Project

Mining at Grootegeluk Mine (GG) can be described as a conventional truck and shovel operation. The existing total mining operation footprint covers an area of 3,639 hectares. Mining operations and material destinations are based on the existing pit layout and bench definitions. The existing mine model and the quality parameters derived from the present layout and bench definitions are used for this project.

Extraction of the Volksrust Formation and the Vryheid Formation differs. The Volksrust Formation is bulk mined. The Vryheid Formation zones are mined selectively.

The primary loading equipment consists of both rope and hydraulic shovels. The rope shovels are used on the five upper benches and the hydraulic shovels for the selective mining of the pit bottom benches 6 to 11. Exxaro's currently fleet of haul trucks consists of 181 200 and 250 ton rear dump trucks which transport 78 million tons of coal annually. The annual production will be increased to 115 million ton–ex pit with the project. Pantograph systems used to save diesel consumption on haul trucks at Grootegeluk are absent from haul trucks feeding the IPCC.

Spontaneous combustion of coal is managed by means of adding sand and weathered overburden to cover waste dumps. Backfilling of the pit waste is already in progress. Exxaro's research also includes the rehabilitation of the outside discard dumps as part of the immediate mine closure cost recovery. Grootegeluk is currently establishing the most suitable trees and ground cover for rehabilitating the dumps.

The Exarro Turfvlakte Open Pit Project and Project Area falls within Grootegeluk's Mine's mining licence area and subsequently forms part of the resource pertaining to Grootegeluk Mine. The project area is located within the boundaries of the farm Turfvlakte 463LQ, east of the Medupi Power Station coal conveyor belt and falls outside the Grootegeluk LOM pit shell (Figure 1).

Two areas on the eastern portion of the farm Turfvlakte 463LQ have been identified where Zone 3 (Benches 9A and 9B) and Zone 2 (Bench 11) are relatively close to surface and have favourable thicknesses and stripping rations for open pit mining. It is envisaged that that these coal zones will be utilized as raw coal and therefore no beneficiation will be conducted aside from crushing and screening.

Some of the proposed infrastructure comprises of the following, namely (Figure 2):

- Topsoil stockpiles;
- Opencast mining pits (Pit 1 and Pit 2); and
- Mine vehicle and haul roads.

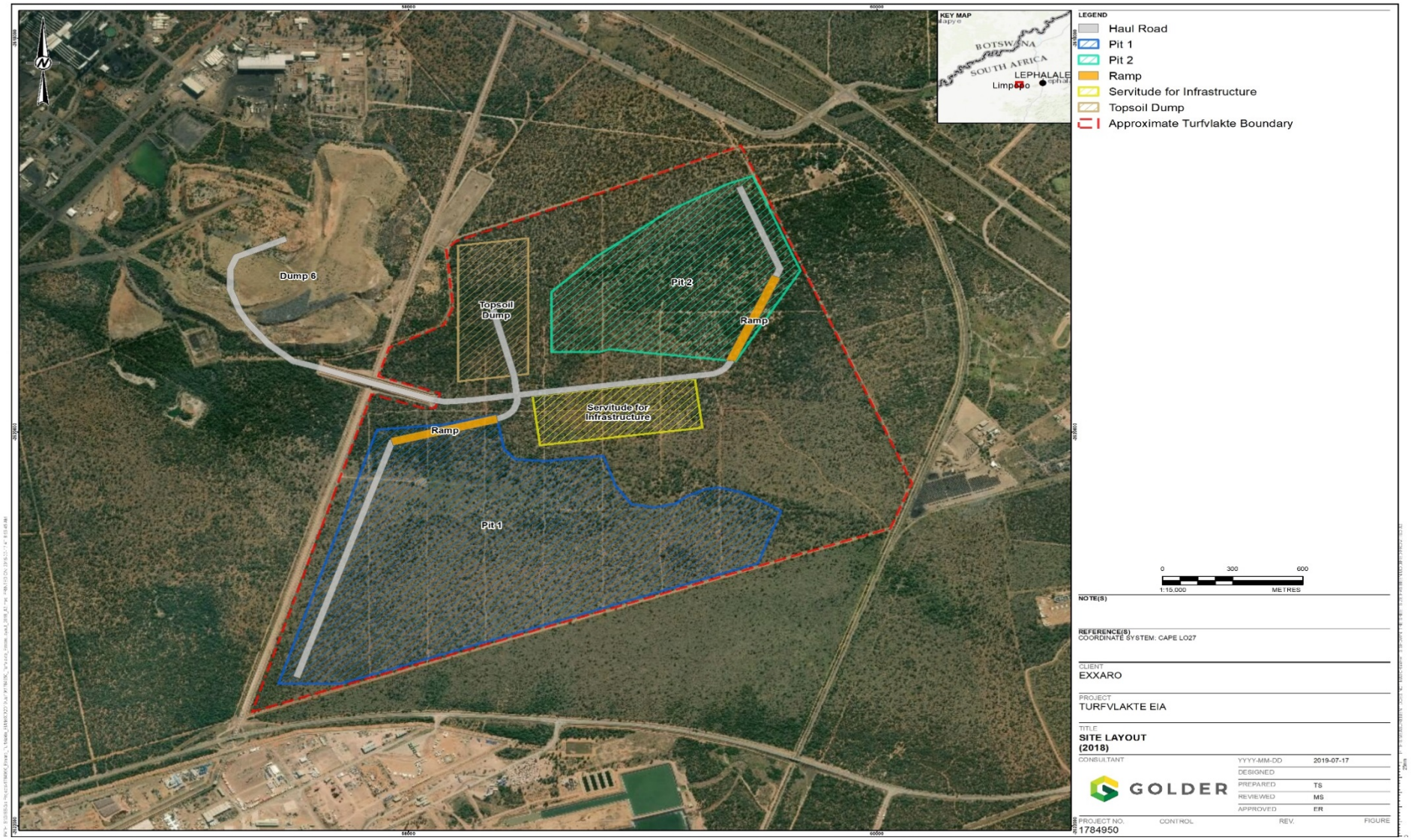


Figure 2- The proposed Exxaro Project Area adjoining the Grootegeluk Mine near Lephalle in the Limpopo Province outlining the proposed infrastructure and footprint for the project.

5.3 The heritage character of the Project Area

The Exxaro Project Area is part of a level land mass marked by three major water courses namely, the Limpopo River further to the north-west, the Matlasbas River to the south and the Mogol River to the east. The Exxaro Project Area covers consistent level sandy plains covered with open savannah bush (Pistorius 2010)..

Figure 3- The larger Exxaro Project Area seen from the air during the winter. Outstretched open savannah veldt with little surface water is a dominant feature of the landscape. This inhospitable environment was not conducive for human settlement in the past.

A solitary kopje known as Nelsonskop occurs near the Exxaro Project Area and is associated with human occupation in the past (Van Schalkwyk 1985; Pistorius 2010; Van Der Walt 2017). A few scattered pans occur around the Exxaro Project Area whilst agricultural fields are more prominent to the south of the Exxaro Project Area.

The Exxaro Project Area was sparsely populated by humans in the past. However, occupation may have started at an early period so that humans may have been present in the area for hundreds of years but on a limited scale. This occupation occurred from the Later Stone Age throughout the Early Iron Age along the Waterberg and during the Later Iron Age at places such as Bobididi to the north-east of Lephalale.

The larger area was also occupied during the Historical Period which commenced during the middle of the nineteenth century with the arrival of the first colonial hunters, traders and farmers (see Part 5, 'Contextualising the Exxaro Project Area', below).

Several heritage impact assessment studies have been done at Grootegeluk Mine and at the Matimba and Medupi power stations which are located in close proximity of the mine. Heritage studies were also conducted for power lines running from these power stations to other major Eskom Substations located in the North West Province and in the Free State Province as well as for proposed coal mines (see Part 11, 'Bibliography relating to earlier heritage studies'). These heritage studies together with other sources of information (see Part 10, 'Select Bibliography' illuminate the general heritage character of the larger area as well as the Exxaro Project Area.

6 CONTEXTUALISING THE PROJECT AREA

A brief overview of pre-historical and historical information below contextualises the Exxaro Project Area.

6.1 The Stone Age (hunter gatherers)

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 (ESA) (covering the period from 2.5 million years ago to 250 000 years ago), the Middle Stone Age (MSA) (the period from 250 000 years ago to 22 000 years ago) and the Late Stone Age (LSA) (the period from 22 000 years ago to 200 years ago).

The LSA 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 (Van Der Ryst 1996, 1998).

<u>In and near the Exxaro Project Area</u>

Hunter gatherers from the Stone Age, including the few who left rock paintings during the last 20 000 years in the mountainous Waterberg to the east of the Exxaro Project Area, occurred throughout the larger region from as early as the MSA. MSA and LSA

tools were observed along the banks of the Mokolo (Mogol) River and on farms in the Waterberg Mountains (Laue 2000; Van Der Ryst 1996,1998).

Surveys, although limited, have recorded scattered finds of Stone Age sites, rock paintings and engravings in the larger region. At least one rock shelter (Olieboompoort) with MSA and LSA assemblages in the mountainous Waterberg has being researched (Van Der Ryst 1996, 1998). At Nelsonskop, a small protrusion near the Grootegeluk Mine engravings of animal spoor, cupules and other incisions were found on a face of this kopje (Van Der Ryst, Lombard, & Biemond 2004).

Most of the Stone Age sites can be classified as open (surface) sites which imply that most of the artefacts occur 'out of context'. (Such assemblages have less significance than artefact types which occur in closed stratigraphic layers). MSA and LSA collections also occur in rock shelters and caves. Hunter-gatherers preferred caves as settlements from the MSA onwards as these shelters provided warmth and safety (Inskeep 1978). No mountains or ridges with caves occur in the Exxaro Project Area. Small protrusions or hills such as Nelsonskop and Bulkop - outside the Exxaro Project Area - may have served as outlook points or places were rituals, such as rain making ceremonies, may have been concluded (Van Der Ryst, Lombard, & Biemond, 2004).

Rock shelters and caves with rock paintings are common in the Waterberg Mountains to the south of the Exxaro Project Area (Laue 2000, 2001).

Sites from the Stone Age in general are scarce on the flatter parts as attested in several heritage reports in and near the Exxaro Project Area. Some surveys did not reveal any evidence for stone age sites which were either absent (Pistorius 2011; Van Der Walt 2016, 2017; Van Der Walt & Du Pisanie 2017) or which merely recorded a few scattered stone tools occurring at random on the surface (Roodt 2001; Pistorius, J.C.C.. 2010; Shahzaadee K. Nel, J. & Higget N. 2013).

6.2 The Iron Age (earliest farmers)

Hunter-gatherers were followed by the first agro-pastoralists who lived in semi-permanent villages and who practised metal working during the last two millennia, the so-called Iron Age. The Iron Age is usually divided into the Early Iron Age (EIA) (covers

the 1st millennium AD) and the Later Iron Age (LIA) (covers the first 880 years of the 2nd millennium AD) (Huffman 1990, 2007).

Whilst the EIA is marked by small scattered sites with (elaborately) decorated pottery and in many instances with iron smelting, LIA sites may occur in clusters covering large tracks of land constituting cultural landscapes. These sites are mostly marked by stone walls and (undecorated) pottery. Metal working during the LIA only occurs when this activity has been mastered by specialists who knew the technological requirements to manufacture iron and copper wares. Historical links between LIA complexes and communities close to the sites can usually be pointed out. (This provides opportunities for oral traditions, cultural landscapes and aspects of living [tangible and intangible] heritage to be investigated as well).

EIA sites are limited to the northern and eastern parts of the country whilst LIA farmers' settlements cover a large part of South Africa – except the far western low-summer rainfall region and the southern extreme of the country (Hall 1986).

<u>In and near the Exxaro Project Area</u>

EIA farmers utilized pieces of land close to the banks of major rivers, such as the Limpopo or Mogol Rivers outside the Project Area or near confluences between major rivers and small streams (Biemond 2002). Here, some farmers planted crops while small numbers of cattle and small stock were kept where grazing and shrubbery allowed for stock keeping. Woods, such as the Vaalbos (*Terminalia sericea*), growing on sand veld, was fired to make charcoal which was used to smelt iron ores. Magnetite ore was collected from the surface (if available) or was carried long distances to smelting sites. Large scale iron smelting with substantial evidence for habitation occurred at Diamant, south of the Project Area during the EIA (Huffman 1990).

EIA as well as LIA communities did not prefer the flat outstretched sand veld of the Exxaro Project Area for habitation and for farming. The scarcity of drinkable surface water for humans and animals; low annual summer rainfalls, high temperatures with accompanying high evaporation rates and soils which lacked nutrients were not conducive to crop planting. The absence of all year round grazing also did not encourage mixed farming in the region. This is evident in the recording of either no

remains from the Iron Age (Pistorius 2011; Van der Walt 2016, 2017 and Van der Walt & Du Pisanie 2017) or the limited presence of scatters of undecorated pottery in places on the landscape (Pistorius 2010; Shahzaadee, Nel & Higget 2013).

Late Iron Age occupation on the scale that marked the Ga-Seleka and Shongwane areas to the north-east of Lephalale did not occur in the Exxaro Project Area. Here, the Ga-Seleka and Batlhalerwa established spheres of influence. The mountain stronghold Bobididi near Villa Nora was occupied by the Batlhalerwa and illustrates the kind of sites which were used by second millennium farming communities. The Seleka Ndebele occupied the Ga Seleka region from as early as the onset of the seventeenth century (Van Warmelo 1930, 1944).

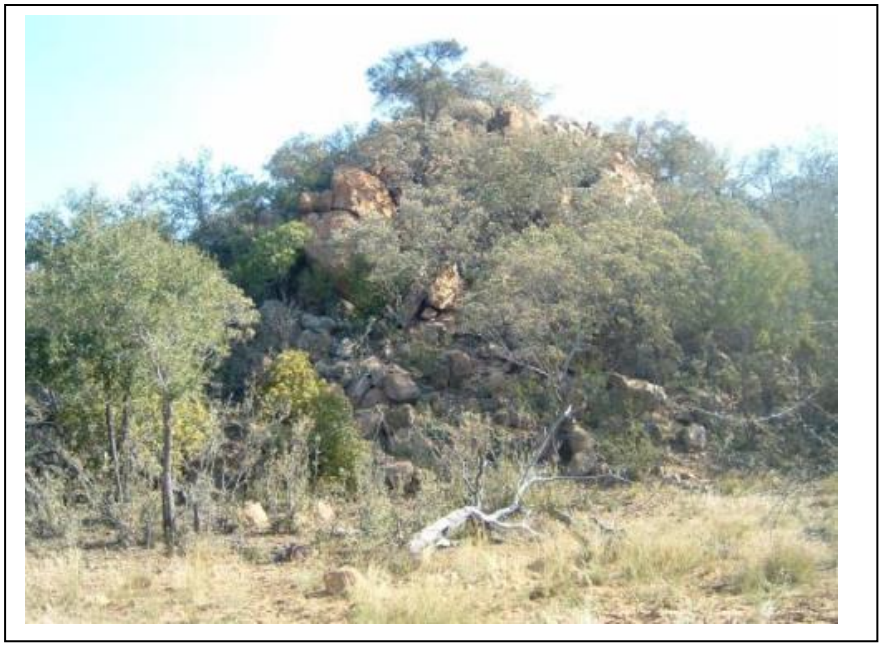


Figure 4- Nelsonskop, a small sandstone kopje to the north of the Exxaro Project Area. Limited stone tools and potsherds occur along the base of the kopje. This kopje together with the limited number of kopjes on the vast plains to the west of the Waterberg probably had some ideological meaning to Later Stone Age, Iron Age and historical communities (above).

The absence of mountains and kopjes and therefore stone that was used as building material during the LIA is a conspicuous feature of the Exxaro Project Area.

No historically known tribal groupings or clans occupied the Exarro Project Area during the LIA or the Historical Period. Communities known as the 'Vaalpense' (mixed Negroid and San) lived further to the south and their descendants can still be found. These communities were nomadic hunters and herders before they became employed by the first colonial farmers (Van Schalkwyk 1985). As far as it is known they did not occupy large permanent settlements that have left traces on the landscape.

Some LIA and historical farmers left rock paintings much younger than those which date from the Stone Age. These phenomena were restricted to areas occupied by historically known communities and therefore probably did not occur in the Exxaro Project Area.

6.3 The Historical Period

The restricted hunting and farming practises supported by Stone and Iron Age communities were intensified and expanded when the first colonial hunters and traders, followed by colonial settlers, arrived in the region from the second half of the 19th century. Whilst little has been recorded about these early farmers in the Exxaro Project Area some research has been done on the colonial farmers who occupied the Waterberg Mountain Bushveld further to the east.

<u>In and near the Exxaro Project Area</u>

Farm houses with outbuildings, family graveyards, cattle posts, outlying bore holes with drinking troughs and grazing fields lead to the establishment of cultural landscapes of some proportions in the region from the second half of the 19th century. First generation homesteads, or 'hartbeeshuise' constructed with clay or clay bricks and thatched roofs, have all disappeared by now and have been replaced with second and third generation farm residences (Naude 1990, 2004) of whom none were recorded in the Exxaro Project Area.

However, as elsewhere in the larger region, farm homesteads with associated infrastructure and activity areas have been transformed as a result of changing subsistence patterns. Cattle ranching and crop planting have in many instances, been replaced by game farming.

The opening of the Grootegeluk Mine in the 1980's introduced a new economic dimension to the region with consequences not yet fully realised. (The town of Lephalale also came into being during this time period). Primarily mined and transported away for the smelting of iron ores, low-grade coal is now also used locally by the Matimaba Power Station to generate electricity. A second power station, Medupi, is currently being constructed near the Exxaro Project Area.

Coal mining in the region is too young to warrant any mining heritage value, except when considering that the coal fields were actually discovered in the 1920's during exploration for water. The coal fields around Lephalale represent as much as one half of the country's coal reserves.

Historically significant structures older than sixty years such as farm houses, sheds and other secondary infrastructure occur throughout the region and include family graveyards as well as informal cemeteries used by farm labourers. Such infrastructure, although on a very restricted scale were recorded in the wider project area (Pistorius 2010). Rubble from demolished structures with 'modern' rubbish also occurs in the larger project area on a limted scale but have low significance (Pistorius 2010; Van der Walt 2016).

7 APPROACH AND METHODOLOGY

This heritage survey and impact assessment study was conducted by means of the following:

7.1 Field survey

A field survey was conducted from 5 to 6 December 2017. Archaeological visibility was good as the summer rain season was not yet in full swing in this part of the Limpopo Province. The author was accompanied by a security officer employed with Exxaro Grootegeluk Coal Mine.

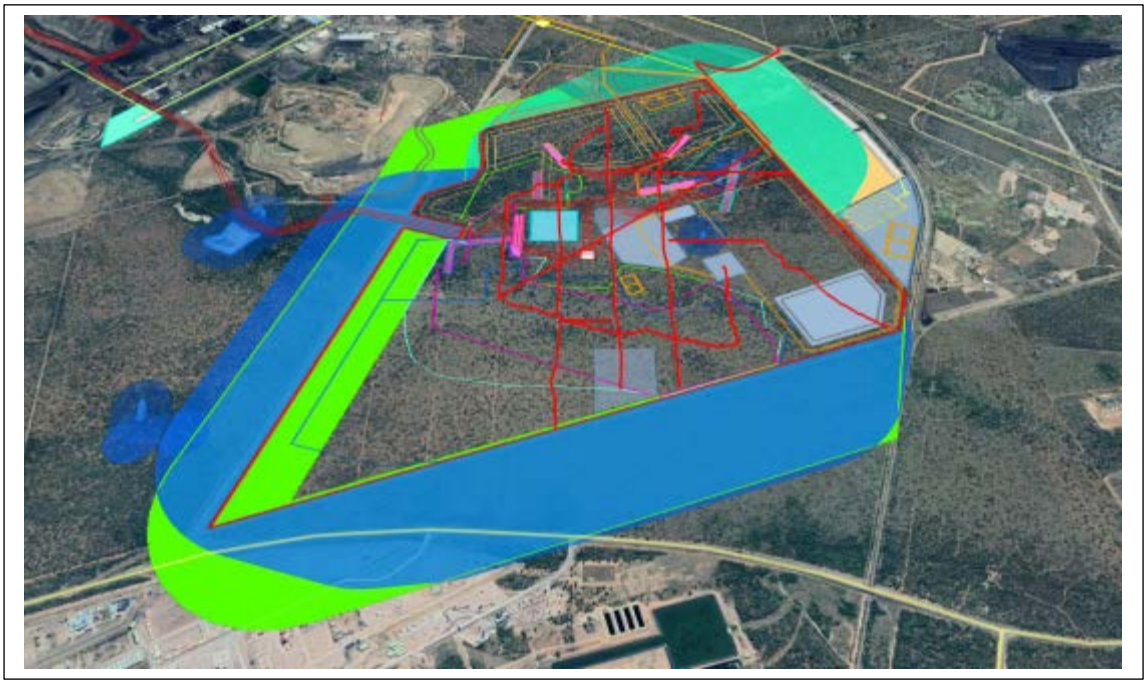


Figure 5- GPS track log which was registered with a GPS instrument. Pedestrian surveys were conducted from the main pathway. Not all tracks were recorded as a result of signal loss (above).

The field survey was conducted by means of following a system (grid) of two track roads which were developed by exploration teams who travelled across the Exxaro Project Area. Other pathways such as footpaths produced by game were utilized to conduct pedestrian surveys into the bush situated between the two track roads.

Not all vehicle and pedestrian tracks were recorded on GPS as a result of signal loss from satellites. The limited number of existing haul roads and power line corridors within the Grootegeluk Coal Mine which will be utilized by the proposed Exxaro Project were not surveyed as the mine area was surveyed in the past and this this infrastructure is located in severely disturbed mining areas.

All coordinates for heritage resources recorded were done with a Garmin Etrex hand set Global Positioning System (instrument) with an accuracy of < 15m.

Google imagery was used as a supplementary source (*prior* to and after fieldwork) to establish the possible presence of heritage resources such as abandoned buildings in the Exxaro Project Area.

The nature and character of the Exxaro Project Area is further illuminated with descriptions and photographs in Part 8.1 'The field survey'.

7.2 Databases, literature survey and maps

Databases kept and maintained at institutions such as the PHRA, the Archaeological Data Recording Centre at the National Flagship Institute (Museum Africa) in Pretoria and SAHRA's national archive (SAHRIS) were consulted by the author to determine whether any heritage resources of significance had been identified during earlier heritage surveys in or near the Exxaro Project Area. Nevertheless heritage resources may have been missed as a result of various factors (Part 1.3, 'Assumptions and limitations).

7.3 Spokespersons consulted

Employers at Grootegeluk Coal Mine who is acquainted with the Exxaro Project Area were consulted regarding the possible presence of graveyards in the project area (see Part 13, 'Spokespersons consulted').

7.4 Consultation process undertaken and comments received from stakeholders

No specific consultation process was undertaken for the purposes of the heritage study as the stakeholder consultation for the project is being done by Golder Associates Africa (Pty) Ltd.

7.5 Significance ratings

The significance of possible impacts on the heritage resources was determined using a ranking scale based on the following:

- Occurrence
  - Probability of occurrence (how likely is it that the impact may/will occur?), and
  - Duration of occurrence (how long may/will it last?)
- Severity
  - Magnitude (severity) of impact (will the impact be of high, moderate or low severity?), and
  - Scale/extent of impact (will the impact affect the national, regional or local environment, or only that of the site?).

Each of these factors has been assessed for each potential impact using the following ranking scales:

Probability: 5 – Definite/don't know 4 – Highly probable 3 – Medium probability 2 – Low probability 1 – Improbable 0 – None	Duration: 5 – Permanent 4 – Long-term (ceases with the operational life) 3 - Medium-term (5-15 years) 2 - Short-term (0-5 years) 1 – Immediate
Scale: 5 – International 4 – National 3 – Regional 2 – Local 1 – Site only 0 – None	Magnitude: 10 - Very high/don't know 8 – High 6 – Moderate 4 – Low 2 – Minor

The heritage significance of each potential impact was assessed using the following formula:

Significance Points (SP) = (Magnitude + Duration + Scale) x Probability

The maximum value is 100 Significance Points (SP). Potential environmental impacts are rated as very high, high, moderate, low or very low significance on the following basis:

- More than 80 significance points indicates VERY HIGH heritage significance.
- Between 60 and 80 significance points indicates HIGH heritage significance.
- Between 40 and 60 significance points indicates MODERATE heritage significance.
- Between 20 and 40 significance points indicates LOW heritage significance.
- Less than 20 significance points indicates VERY LOW heritage significance.

8 THE PHASE I HERITAGE IMPACT AND ASSESSMENT

8.1 The field survey

The Exxaro Project Area comprises a flat piece of veld which is covered with grass veld and a large variety of indigenous trees. It is featureless except for the presence of explosive magazines and a conveyer belt near the western border of the project area and semi- dry pans across the area.

The Exxaro Project Area is covered with a sandy soil and no obvious outcrops of dolerite or sandstone dykes which usually are associated with coal seams were observed.

Figure 6- The Project Area is characterised as a flat, outstretched piece of veld which is covered with sandy soil and grass as well as a variety of indigenous trees (above).

Figure 7- Infrastructure in the Exxaro Project Area is limited. The conveyer belt which carries coal from the Grootegeluk Mine to the Matimba power station is located on the western border of the site (above).

Figure 8- Infrastructure in the Exxaro Project Area also incorporates explosive magazines near the site's western boundary (above).

Figure 9- The Medupi power station near the Exxaro Project Area's south-eastern boundary. The large number of two track roads in the project area and former exploration activities has scarred the area which cannot be described as a pristine piece of land any longer (above).

Figure 10- A pan which was adapted to a water hole which is used as a source of drinking water for game in the Exxaro Project Area (above).

8.2 Chance-find procedures

Although no heritage resources or graves were encountered in the project area it is possible that the heritage survey may have missed heritage resources or graves due to various reasons outlined in the report. Therefore chance-find procedures have to be implemented during the implementation of the Exxaro Project and are applicable during the construction, operation or closure phases of the Exxaro Project.

The chance-find procedures apply to all contractors, subcontractors, subsidiaries or service providers. If any of these institutions' employees find any heritage resources during any developmental activity all work at the site must be stopped and kept on hold. Chance-finds must be reported to supervisors and through supervisors to the senior manager on site. Chance-find procedures are summarized for heritage resources and graveyards.

8.2.1 Chance-find procedures for heritage resources

The initial procedure to follow whenever heritage resources are uncovered during development is aimed at avoiding any further possible damage to the heritage resources, namely:

- The person or group (identifier) who identified or exposed the heritage resource or graves must cease all activity in the immediate vicinity of the site.
- The identifier must immediately inform the senior on-site manager of the discovery.
- The senior on-site manager must make an initial assessment of the extent of the find and confirm that further work has stopped and ensure that the site is secured and that controlled access is implemented.
- The senior on-site manager will inform the Environmental Officer (EO) and Health and Safety (HS) officers of the chance-find and its immediate impact on the Exxaro Project. The EO will then contact the project archaeologist.
- The project archaeologist will do a site inspection and confirm the significance of the discovery, recommend appropriate mitigation measures to the mine and notify the relevant authorities.
- Based on the comments received from the authorities the project archaeologist will provide the mine with a Terms of References Report and associated costs if mitigation measures have to be implemented.

8.2.2 Chance-find Procedures for graves

In the event that previously unidentified graves are uncovered and/or exposed during any of the developmental phases of the Akanani Project the following steps must be implemented subsequent to those outlined above:

- The project archaeologist must confirm the presence of graveyards and graves and follow the following procedures.
- Inform the local South African Police Service (SAPS) and traditional authority.
- The project archaeologist in conjunction with the SAPS and traditional authority will inspect the possible graves and make an informed decision whether the remains are of forensic, recent, cultural-historical or of archaeological significance.

- Should it be concluded that the find is of heritage significance and therefore protected in terms of heritage legislation the project archaeologist will notify the relevant authorities.
- The project archaeologist will provide advice with regard to mitigation measures for the graveyards and graves.

8.3 Summary

The Phase I HIA study for the proposed Exxaro Project did not reveal the presence of any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in the Project Area.

There is consequently no reason from a heritage point of view why the proposed Exxaro Turfvlakte Open Pit Project cannot proceed.

The Lephalale region where Exxaro's proposed open cast pits will be developed is a marginal area which did not support human existence from the Stone Age onwards. Consequently, limited heritage resources occur in the area as outlined in sources listed in Part 11, 'Bibliography relating to earlier heritage studies' and discussed in Part 6, 'Contextualising the Project Area'.

Those which have been recorded include scatters of stone tools and potsherds dating from the Stone Age and the Iron Age. However, these finds are limited as is the number of artefacts associated with these finds which mostly occur out of archaeological context or are disturbed and therefore have low significance. Historical infrastructure, if it occurs, is also limited and of low heritage significance. Consequently, the Exxaro Project Area which does not reveal the presence of heritage resources or graves has low significance. Nevertheless, chance-find procedures have been outlined if any heritage resources are uncovered during the construction, operation or closures phases of the Exxaro Project.

Graves may occur beneath the surface, may be undecorated and therefore can be missed during surveys. Graves have high significance. It is therefore possible that this Phase I HIA study may have missed graves in the Exxaro Project Area as graves may

be covered with grass or vegetation while others may lie below the surface of the earth and may only be exposed once development commences. Consequently, chance-find procedures were recommended which should be followed whenever graves are encountered during the construction, operation or decommissioning of the Exxaro Project.

If any heritage resources of significance are exposed during the construction, operation or closure of the proposed Exxaro Project the South African Heritage Resources Authority (SAHRA) should be notified immediately, all development activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notified in order to determine appropriate mitigation measures for the discovered finds. The chance-find procedures which have been outlined if any heritage resources or graves are uncovered during the construction, operation or closure phases of the Exxaro Project have to be adhered to. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.

9 CONCLUSION AND RECOMMENDATIONS

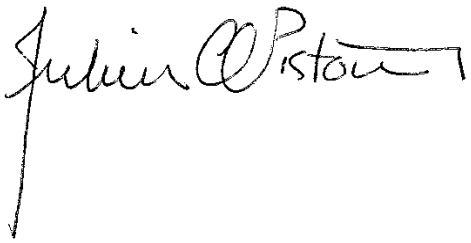
The Phase I HIA study for the proposed Exxaro Project Area did not reveal the presence of any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in the Project Area.

There is consequently no reason from a heritage point of view why the project cannot proceed.

It is possible that this Phase I HIA study may have missed heritage resources in the Exxaro Project Area as heritage sites may be covered with grass or vegetation while others may lie below the surface of the earth and may only be exposed once development commences.

If any heritage resources of significance are exposed during the construction, operation or closure of the proposed Exxaro Project the South African Heritage Resources Authority (SAHRA) should be notified immediately, all development activities must be stopped and an archaeologist accredited with the Association for

Southern African Professional Archaeologist (ASAPA) should be notify in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.



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10 SELECT BIBLIOGRAPHY

Bergh, J.S. (red.) 1998. *Geskiedenisatlas van Suid Afrika. Die vier noordelike provinsies*. J.L. van Schaik: Pretoria.

Biemond, W.M. 2002. *The Iron Age sequence around a Limpopo river floodplain on Basinghall Farm, Tuli Block, Botswana*. Unpublished: University of Pretoria M.A. research proposal.

Coetzee C.B. 1976. *Delfstowwe van die Republiek van Suid-Afrika*. Geologiese Opname. Departement van Mynbou. Pretoria: Die Staatsdrukker.

De Beer, F. C. 1986. *Groepsgebondenheid in die familie-, erf- en opvolgingsreg van die Noord Ndebele*. Universiteit van Pretoria: Pretoria.

Erasmus, B.P.J. 1995. *Oppad in Suid Afrika. 'n Gids tot Suid Afrika, Streek vir Streek*. Jonathan Ball Uitgewers Bpk.

Huffman, T.N. 1990. The Waterberg research of Jan Aukema. *South African Archaeological Bulletin*, 45:117-119.

Inskeep, R.R. 1978. *The peopling of Southern Africa*. David Philip: Cape Town.

Jackson, A. O. 1969. *The history and political structure of the Mapela Chiefdom of the Potgietersrus district*. Unpublished manuscript.

Jackson, A. O. 1982. *The Ndebele of Langa*. Ethnological publications no. 54. Department of Co-operation and Development.

Laue, G.B. 2000. *Taking stance: posture and meaning in the rock art of the Waterberg, Northern Province South Africa*. Unpublished M.Sc. University of the Witwatersrand.

Laue, G.B. 2001. *The rock art of Kurumakatiti Game Reserve. A summary of rock art recording and analysis work conducted in September 2001.* Unpublished report. Rock Art Reasearch Institute. University of the Witwatersrand.

Naude, M. 1990. Die Transvaalse Boerewoning. *Africana Society of Pretoria* (8): 46-49.

Naude, M. 2004. Oral evidence on the construction of vernavcular farm dwellings in the Waterberg (Limpopo Province). *South African Journal of Cultural History*. 18(1): 34-61

Van Der Ryst, M. 1998. The Waterberg Plateau in the Northern Province, Republic of South Africa, in the Later Stone Age. *BAR International Series* 715.

Van Der Ryst, M. 1996. *The later Stone Age prehistory of the Waterberg, with special reference to Goergap shelter*. Unpublished MA thesis. University of the Witwatersrand.

Van Der Ryst, M., Lombard, M., & Biemond, W. 2004. Rocks of potency: engravings, cupules from the Dovedale Ward, southern Tuli Block, Botswana. *South African Archaeological Bulletin*, 59 (179), p1-11.

Van Schalkwyk, J. 1985. Vaalpense: Verwarring en waarheid. *Suid Afrikaanse Tydskrif vir Etnologie*. 8(4), 146-153.

Van Warmelo, N. J. 1930. *Transvaal Ndebele texts*. Government Printer: Pretoria.

Van Warmelo, N. J. 1944. *The Ndebele of J. Kekana*. Government Printer: Pretoria.

Viljoen, M.J. & Reinhold, W.U. 1999. *An introduction to South Africa's geological and mining heritage*. Randburg: Mintek.

Wagner, P.A. & Gordon, H.S. 1929. Further notes on ancient bronze smelters in the Waterberg District. Transvaal. *South African Journal of Science*. 26:263-575.

11 BIBLIOGRAPHY RELATING TO EARLIER HERITAGE STUDIES

Du Pisanie 2017. NID. *Exarro Coal (Pty) Ltd Groottegeluk Coal Mine Short Term Stockpile Amendment Project. Unpublished report. Digby Wells.*

Pistorius, J.C.C. 2003 -2006. Various Phase I HIA studies for Eskom's rural power lines occurring on the following farms: Geelbeksvley, Rob Roy, Other World, Wentzel, Ouhoek. Vaalpenskraal, St Agnes and Dwars-in-de-Weg. Unpublished reports for Eskom. Polokwane

Pistorius, J.C.C. 2007. *A Phase I Heritage Impact Assessment study for the Eskom Mmamabula Delta Project near Lephalale in the Limpopo Province of South Africa*. Unpublished report for Eskom Megawattpark.

Pistorius, J.C.C.. 2009. *A Phase I Heritage Impact Assessment study for Eskom's proposed new 132kV power line running between the Waterpoort Substation and the Toulon Substation near Lephalale in the Limpopo Province of South Africa*. Unpublished report for Landscape Dynamics and Eskom Northern Region.

Pistorius, J.C.C.. 2009. *A Phase I Heritage Impact Assessment study for Anglo Coal's proposed 37 exploratory gas wells project on the farm Nooitgedacht 403LQ, north-west of Lephalale in the Limpopo Province of South Africa*. Unpublished report prepared for Golder Associates.

Pistorius, J.C.C.. 2010. *A Phase I Heritage Impact Assessment study for Exxarro's proposed new Thaba Metsi Open Cast Mine near Lephalale in the Limpopo Province of South Africa*. Unpublished report prepared for Golder Associates.

Pistorius, J.C.C. 2011. *A Phase I Heritage Impact Assessment study for the construction of a new cyclic operated coal slurry pond system for Exxaro Coal (Pty) Ltd's Grootegeluk Coal Mine near Lephalale in the Limpopo Province. Unpublished report for Golder Associates (Pty) Ltd.*

Pistorius, J.C.C. 2011*. A Phase I Heritage Impact Assessment study for Eskom's proposed new 88kV Maropong power line and substation near Lephalale in the Limpopo Province. Unpublished report for Shumani SHE Specialists.*

Pistorius, J.C.C. 2018*. A Phase I Heritage Impact Assessment study for the proposed Exxaro GLK IPCC Concept Project near Lephalale in the Limpopo Province. Unpublished report for Golder Associates.*

Roodt, F. 2001. Arachaeological Impact Assessment. Proposed heavy industrial area on Portion 5 of the farm Groottestryd 465LQ Ellisras. Unpublished report for R7R Cultural Resources Consultants.

Shahzaadee, K, Nel, J. & Higget, N. 2013. *Heritage Impact Assessment for the proposed Thabametsi project Lephalale, Limpopo Province. Unpublished report Digby and Wells Environmental (2013).*

Van Schalkwyk, J. 2005a. *A Phase Heritage Impact Assessment for Eskom's proposed new Matimba B Power Station near Lephalale in the Limpopo Province of South Africa. Unpublished report prepared for Bholweki Environmental and Eskom Megawatt Park.*

Van Schalkwyk, J. 2005b. *A Heritage Survey of the Kumba Properties at Grootegeluk Mine Lephalale Limpopo Province. Unpublished report 20005KH090. Pretoria Kultuurhistoriese Museum.*

Van der Walt, J. 2016*. Archaeological Impact Assessment for the proposed Tshivhase Coal-Fired Power Plant. Lephalale, Limpopo Province.*

Van der Walt, J. 2017. *Heritage Impact Assessment (required under Section 38(8) of the NHRA (No 25 of 1999) for the proposed Nelsonskop Farm Township development project. Lephalale, Limpopo Province.*

Van der Walt, J. and Du Pisanie 2017*. Grootegeluk Coal Mine New Gate Clearing Activities. Heritage Watching Brief Report. Unpublished report Digby Wells.*

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