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A PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR ANGLO OPERATIONS (PTY) LTD'S PROPOSED LESLIE 2 PROJECT (NEAR LEANDRA) IN THE GAUTENG PROVINCE

Prepared by:

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EXECUTIVE SUMMARY

This document contains the report on a Phase I Heritage Impact Assessment (HIA) study which was done according to Section 38 of the National Heritage Resources Act (No 25 of 1999) for Anglo Operations (Pty) Ltd's proposed Leslie 2 Project near Leandra on the eastern Highveld in the Gauteng Province of South Africa**.**

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 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 1) do occur in the project area and, if so, to determine the nature, the extent and the significance of these remains.
- To establish if any of these heritage resources will be affected by the proposed Leslie 2 Project and, if so, to evaluate what appropriate mitigation measures must be taken if any of the types and ranges of heritage resources will be affected by the project.

The Phase I HIA for the proposed project area revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in and near the project area, namely:

- Historical remains consisting of farmsteads with outbuildings.
- Graveyards and graves.

These heritage resources were geo-referenced and mapped (Figures 9a & 9b, Tables 1 & 2). Their significance is indicated (Tables 1 & 2) as well as possible impacts on some of these heritage resources. The significance of the impact on the heritage resources were determined (Tables 4 & 5). Mitigation measures are outlined for those heritage resources which may be affected by the Leslie 2 Project.

The significance of the heritage resources

The Leslie 2 Project may impact on some of the heritage resources. The significance of the historical remains and the graveyards and grave therefore has to be determined in order to establish the significance of the impact on these remains as well as to propose conservation, mitigation and management measures for heritage resources that may be affected by the Leslie 2 Project.

The significance of the historical remains

These remains comprise of two farmstead complexes (FC01, FC02) which are older than sixty years and which are protected by the National Heritage Resources Act (No 25 of 1999) (Table 1).

The medium-high level of significance for the historical remains was determined by means of various criteria which qualify places and objects as part of the national estate if they have cultural significance or other special value as outlined in Section 3 of the NHRA (Act No 25 of 1999) (see Box 1) (Table 1). This medium-high level of significance also corresponds with the rating of the historical remains as Grade IIIB Local Resources with medium-high significance (Table 3)

The significance of both farmstead complexes (FC01, FC02) can be rated as medium-high when considering criteria such as the following (Table 1):

- The historical remains can contribute to a better understanding of the lifeways of early inhabitants on the eastern Highveld in Mpumalanga.
- The historical remains are under threat due to an established agro-economic industry and an expanding coal mining complex on the eastern Highveld of Mpumalanga.
- The historical remains provide opportunities to be utilized in tourism, education and research particularly if further studied, renovated and applications to be utilized (e.g. in the tourism or leisure industry) can be implemented.
- The historical remains are relatively young as they date from the last six to seven decades.
- Some of the historical remains have been altered significantly in the more recent past and their historical core cannot be recognised any longer.
- The historical remains' architectural style is still common in the region as a considerable number of these structures and outbuildings still exist.

The significance of the graveyards and grave

All graveyards and graves can be considered to be of high significance and are protected by various laws (Table 2). Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (NHRA) (Act No 25 of 1999) in instances where graves are older than sixty years. It is highly likely that all the graves and graveyards in the project area are older than sixty years and if some of the graves are not this age they are approaching this time range as is laid down by the NHRA (Act No 25 of 1999). Other legislation with regard to graves includes

those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

Possible impact on the heritage resources

The proposed Leslie 2 Project may impact on those heritage resources which are located closest to the footprint of the proposed Leslie 2 Project, namely: (Figures 9a & 9b):

- GY03 which are located approximately 85m to the east of the conveyor route.
- FC02.1 and FC02.5 are located approximately 180m to the west of the conveyor route. These two structures are part of a complex of structures which constitute FC02.

The significance of the impact on the heritage resources

The significance of possible impacts on the heritage resources was determined using a ranking scale based on various criteria.

Impacts on the historical remains

FC02.1 and FC02.5 are located approximately 180m to the west of the conveyor route. These two structures are part of a complex of structures which together constitute FC02 which will not be directly impacted by the conveyer route (Figures 9a & 9b; Table 4).

The significance of any impact on these remains is low and will remain low if the proposed mitigation measures are implemented (Table 4).

Impacts on the graveyards and grave

GY03 is located approximately 85m to the east of the conveyor route. This graveyard therefore will not be directly impacted by the conveyor route (Figures 9a & 9b; Table 5).

The significance of any impact on GY03 therefore is low and will remain low if the proposed mitigation measures are implemented (Table 5).

Mitigating and managing the heritage resources

The following mitigation and management measures are outlined for those heritage resources which may be affected by the Leslie 2 Project, namely:

Mitigating the impacts on the historical remains

Although FC02) have been altered significantly during the more recent past the original historical core of the complex of structures may inform about the historical significance and

meaning of these structures before they may be altered to suit the mine's needs or be demolished.

FC02 has to be studied and documented by a historical architect before any of these remains may be affected in any way, e.g. to be altered or to be demolished as a result of the implementation of the Leslie 2 Project. The South African Heritage Resources Agency (SAHRA) will require that the historical structures to be affected (and the complex as such) have be studied and documented by the conservation architect before SAHRA will make any recommendations regarding the future existence of FC02.

The significance of any impact on FC02 therefore will be low after the mitigation measures have been implemented (Table 3).

Mitigating the impact on the graveyards

No mitigation measures are needed for GY03. However precautionary measures should be taken not to disturb the graveyards during the construction phase of the project. This can be prevented by demarcating GY03 with red cautionary tape and by placing 'Danger Graveyard' signposts in order to avoid that the graveyard be damaged by construction personnel or their vehicles.

The significance of any possible impact on GY03 after precautionary measures have been implemented will be low (Table 4).

Managing graveyards that remain unaffected

Graveyards that remain unaffected should be managed (by Anglo Operations) to ensure their future unaffected existence during the construction, operation and decommissioning phases of its mining operations. The following mitigation measures are recommended:

- Graveyards must be demarcated with fences or with walls and should be fitted with access gates.
- Regulated visitor hours should be implemented that is compatible with mine safety rules. This will not be necessary when graveyards are located next to national roads.
- Corridors of at least 20m should be maintained between graveyard's fences and any developmental components such as roads or other infrastructure that may be developed in the future.
- Graveyard should be inspected every three months. Inspections should be noted in an inspection register. The register should outline the state of the graveyards during

each inspection. Reports on damages to any of the graves or to the graveyards (fences, walls, gates) should be followed with the necessary maintenance work. Maintenance work should be recorded in in the inspection register.

- Graveyards should be kept tidy from any invader weeds and any other refuse.

Summary

There is no reason from a heritage point of view why Anglo's proposed Leslie 2 Project with all possible alternatives (haul road, new road to the offices, plant locations and conveyor alignment) cannot proceed after the appropriate mitigation measures outlined for historical remains and for graveyards have been implemented.

Assumptions and limitations

It is possible that this Phase I HIA study may have missed heritage resources in the project area as heritage sites may occur in maize fields or in tall grass or thick clumps of vegetation while others may be located below the surface of the earth and may only be exposed once development commences.

If any heritage resources of significance are exposed during the Leslie 2 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 impacts to the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.

1 INTRODUCTION

This document contains the report on the results of the Phase I Heritage Impact Assessment (HIA) study that was done for Anglo Operations (Pty) Ltd's proposed Leslie 2 Project near Leandra on the border between the Gauteng and Mpumalanga Provinces of South Africa. The Leslie 2 Project itself is located in the Gauteng Province.

Focused archaeological research has been conducted in the Gauteng and Mpumalanga Provinces for several decades. This research consists of surveys and of excavations of Stone Age and Iron Age sites as well as of the recording of rock art and historical sites in this area. The Gauteng and Mpumalanga Provinces have a rich heritage comprised of remains dating from the pre-historical and from the historical (or colonial) periods of South Africa. Pre-historical and historical remains in the Gauteng and Mpumalanga Provinces form a record of the heritage of most groups living in South Africa today.

Heritage resources in the Gauteng and Mpumalanga Province therefore constitute a rich and wide diversified range (comprising the 'national estate') as outlined in Section 3 of the National Heritage Resources Act (Act 25 of 1999) (see Box 1, next page).

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

The National Heritage Resources Act (No 25 of 1999) 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 paleontological 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 Tissue Act, 1983 (Act No 65 of 1983)
(h) sites of significance relating to the history of slavery in South Africa;
(i) moveable objects, including -
  (i) objects recovered from the soil or waters of South Africa, including archaeological and paleontological 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, Sec 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;
(b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
(c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
(d) 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) 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

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 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 etc. as well as with several environmental companies.

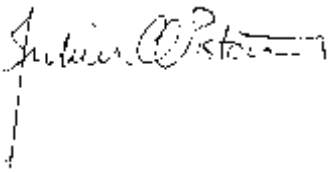
3 DECLARATION OF INDEPENDENCE

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.



Signature of the environmental practitioner:
Private Consultant

_____

1 October 2016

_____

Date:

4 LEGAL FRAMEWORK

South Africa's heritage resources ('national estate') are protected by international, national and regional 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).

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 (PHRAs) 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 acts and is implemented by the South African Heritage Resources Agency (SAHRA) and the Provincial Heritage Resources Agencies.

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 (Act No 25 of 1999).

4.1 Legislation relevant to heritage resources

The identification, evaluation and assessment of heritage resources in South Africa are regulated by the following legislation:

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

4.2 The National Heritage Resources Act (NHRA)

According to the NHRA (Act No 25 of 1999) the 'national estate' comprises the following (see Box 1):

a. Archaeological artefacts, structures and sites older than 100 years
b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
c. Objects of decorative and visual arts
d. Military objects, structures and sites older than 75 years
e. Historical objects, structures and sites older than 60 years
f. Proclaimed heritage sites
g. Graveyards, burial grounds and graves older than 60 years
h. Meteorites and fossils
i. Objects, structures and sites or scientific or technological value.

Elaborating on the above the 'national estate' also includes (Box 1):

1. Places, buildings, structures and equipment of cultural significance
2. Places to which oral traditions are attached or which are associated with living heritage
3. Historical settlements and townscapes
4. Landscapes and features of cultural significance
5. Geological sites of scientific or cultural importance
6. Archaeological and paleontological sites of importance
7. Sites of significance relating to the history of slavery
8. Movable objects (e.g. archaeological, paleontological, meteorites, geological specimens, military and ethnographic objects, books etc.)

4.3 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 or a provincial heritage authority

4.4 Regulations with regard to heritage resources

The regulations outlined below are applicable to the types and ranges of heritage resources which are the most common in the region where the heritage study was conducted, namely:

4.4.1 Buildings and structures

According to Section 34(1) of the NHRA (Act No 25 of 1999) 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..

4.4.2 Graves and burial grounds

Graves and burial grounds are divided into the following:

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

In terms of Section 36(3) of the NHRA (Act No 25 of 1999) 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.

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

Human remains that are less than 60 years old are subject to provisions of the Human Tissue Act (Act 65 of 1983) and to local regulations. Exhumation of graves must conform to the standards set out in the Ordinance on Excavations (Ordinance no. 12 of 1980) (replacing the old Transvaal Ordinance no. 7 of 1925).

Permission must also be gained from the descendants (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).

4.4.3 Archaeology, palaeontology and meteorites

Section 35(4) of the NHRA (Act No 25 of 1999) deals with archaeology, palaeontology and meteorites and states that no person without a permit issued by the responsible heritage resources authority (national or provincial) 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.

4.4.4 NEMA: EIA Regulations, dated 2014 - 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	See Part 2, Details of the specialist
A declaration that the person is independent in a form as may be specified by the competent authority	See Part 3, Declaration of independence
An indication of the scope of, and the purpose for which, the report was prepared	See Part 5, Terms of reference
The date and season of the site investigation and the relevance of the season to the outcome of the assessment	See Part 6, Methodology. (6.1 Fieldwork)
A description of the methodology adopted in	See Part 6, Methodology

preparing the report or carrying out the specialised process	
The specific identified sensitivity of the site related to the activity and its associated structures and infrastructure	See Part 8 Contextualising the project area and Part 9.1 The field survey
An identification of any areas to be avoided, including buffers	See Part 10.2 Possible impact on the heritage resources
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;	See Map 9, p45
A description of any assumptions made and any uncertainties or gaps in knowledge;	See Part 6.4. 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	See Part 9.2 Types and ranges of heritage resources and Part 10.2 Possible impact on the heritage resources
Any mitigation measures for inclusion in the EMPr	See 10.3.1 Impacts on the historical remains and Part 10.3.2 Impacts on the graveyards and graves
Any conditions for inclusion in the environmental authorisation	See Part 6.4 Assumptions and limitations
Any monitoring requirements for inclusion in the EMPr or environmental authorisation	None, but see Part 6.4 Assumptions and limitations
A reasoned opinion as to whether the proposed activity or portions thereof should be authorised and	See Part 10 Conclusion and recommendation. There is no reason from a heritage point of view why the proposed Leslie 2 Project with all possible alternatives (haul road, new road, plant locations, conveyor alignment) cannot proceed if the mitigation measures outlined in this report be implemented.
If the opinion is that the proposed activity or portions thereof should be authorised, any	See Part 9.8 Mitigating the graveyard impacts and 9.9 Managing graveyards that

avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	remain unaffected.
A description of any consultation process that was undertaken during the course of carrying out the study	See Part 9.4 Consultation process undertaken and comments received from stakeholders
A summary and copies if any comments that were received during any consultation process	See Part 9.4 Consultation process undertaken and comments received from stakeholders
Any other information requested by the competent authority.	None

5 TERMS OF REFERENCE

Anglo Operations (Pty) Ltd's intends to establish a coal mining venture (the proposed Leslie 2 Project) on the farms Winterhoek 314IR and Palmietfontein 316IR near Leandra in the Gauteng Province of South Africa. Activities relating to the construction, operation and eventual decommissioning of the Leslie 2 Project may have an influence on any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No. 25 of 1999). Consequently, Shangoni Management Services Pty (Ltd), the environmental consultant who is responsible for compiling the Scoping and Environmental Impact Assessment (EIA) report in terms of the National Environmental Management Act (Act 107 of 1998) for the new development, commissioned the author to undertake a Phase I HIA study for the proposed 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 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 1) do occur in the project area and, if so, to determine the nature, the extent and the significance of these remains.
- To establish if any of these heritage resources will be affected by the proposed Leslie 2 Project and, if so, to evaluate what appropriate mitigation measures must

be taken if any of the types and ranges of heritage resources will be affected by the project.

6 APPROACH AND METHODOLOGY

This Phase I HIA study was conducted by means of the following:

6.1 Field survey

Field surveys were conducted during 4 to 5 October 2016 and on 7 and 8 October 2016. The field survey for the proposed Leslie 2 Project was conducted by means of following district and two track roads as well as any other accessible pathways in the project area in order to gain access to the footprint of the proposed new mining area. The routes that were followed with a vehicle during the survey were recorded with a mounted GPS instrument. Pedestrian surveys were undertaken from these primary access routes.

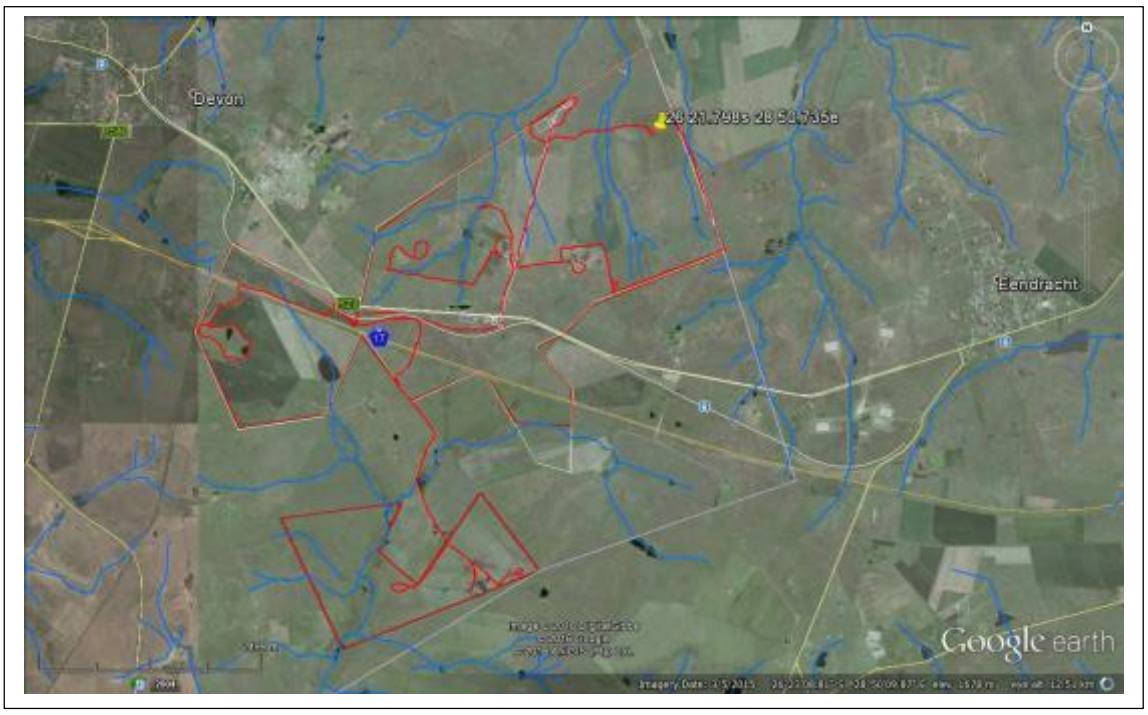


Figure 1- GPS track log which was registered for the project area. Pedestrian surveys were conducted from the main pathway which was recorded with a GPS instrument which was mounted in a vehicle (above).

Large parts of the project area are covered with maize fields. These fields were not surveyed except if graveyards, which were known to spokespersons, occurred in these fields.

Google imagery was used as a supplementary source next to the fieldwork to establish the possible presence of heritage resources such as historical farm homesteads with outbuildings.

Ecological indicators such as alternations in vegetation patterns; open or bald spots in the veld covered only with grass or extremely dense patches of vegetation were searched as possible indicators for settlements such as stone walls or as former abodes where farm workers may have settled in the past.

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

The description of the fieldwork survey (Part 9.1) further illuminates the nature and character of the project area by means of descriptions and photographs.

6.2 Databases, literature survey and maps

Databases kept and maintained at institutions such as the Provincial Heritage Resources Agency (PHRA), the Archaeological Data Recording Centre at the National Flagship Institute (Museum Africa) in Pretoria and SAHRA's national archive (SAHRIS) were consulted to determine whether any heritage resources of significance had been identified during earlier heritage surveys in or near the project area.

The author is acquainted with the project area at large as he has done several heritage impact assessment studies near the proposed project area. Several earlier heritage impact assessment studies have been done in close proximity to the current project area. These studies provided information regarding the nature and heritage character of the area, namely (see 'Part 9, Bibliography relating to earlier heritage studies'):

Literature relating to the pre-historical and the historical unfolding of the region where the Project Area is located was reviewed (see Part 8, 'Contextualising the Project Area' and Part 10 'Select Bibliography). The pre-historical and historical context of the larger area assisted with assumptions about the possible types and ranges of heritage resources to be expected in the project area as well as to comprehend the identity and meaning of heritage sites which may be found in and near the project area.

In addition, the project area was studied by means of maps (2628BD Leandra, 1: 50 000 topographical map; 2628 East Rand 1: 250 000 map and Google Earth imagery).

6.3 Spokespersons consulted

Spokespersons living and working in the project area was consulted about the whereabouts of certain heritage resources particularly graveyards which could be obnoxious when they are disbanded, neglected and not visited by any living relatives of the deceased any longer (See Part 14, 'Spokespersons consulted').

6.4 Assumptions and limitations

It is possible that this Phase I HIA study may have missed heritage resources in the project area as heritage sites may occur in maize fields or in tall grass or thick clumps of vegetation while others may be located 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 decommissioning of the Leslie 2 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 impacts to the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.

6.5 Some remarks on 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 (refer to Figure 7).

- 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.

7 THE PROJECT AREA

7.1 Location

The Leslie 2 Prospecting Right area is located 71km east of Johannesburg and 8km west of Leandra. The proposed Leslie 2 mining operation will cover the farm Palmietfontein 316 IR (Portions 3 [RE], 6[RE], 20, 32, 40 and 41 and Winterhoek 314 IR (Portions 9, 13, 21, 22, 24, 26) which are 1,432.59 hectares (ha) in extent. The proposed project is located in the Lesedi Local Municipality in the Sedibeng District Municipality in the Gauteng Province (2628BD Leandra 1: 50 000 topographical map & 2628 East Rand 1: 250 000 map) (Figures 1, 2 & 9a & 9b).

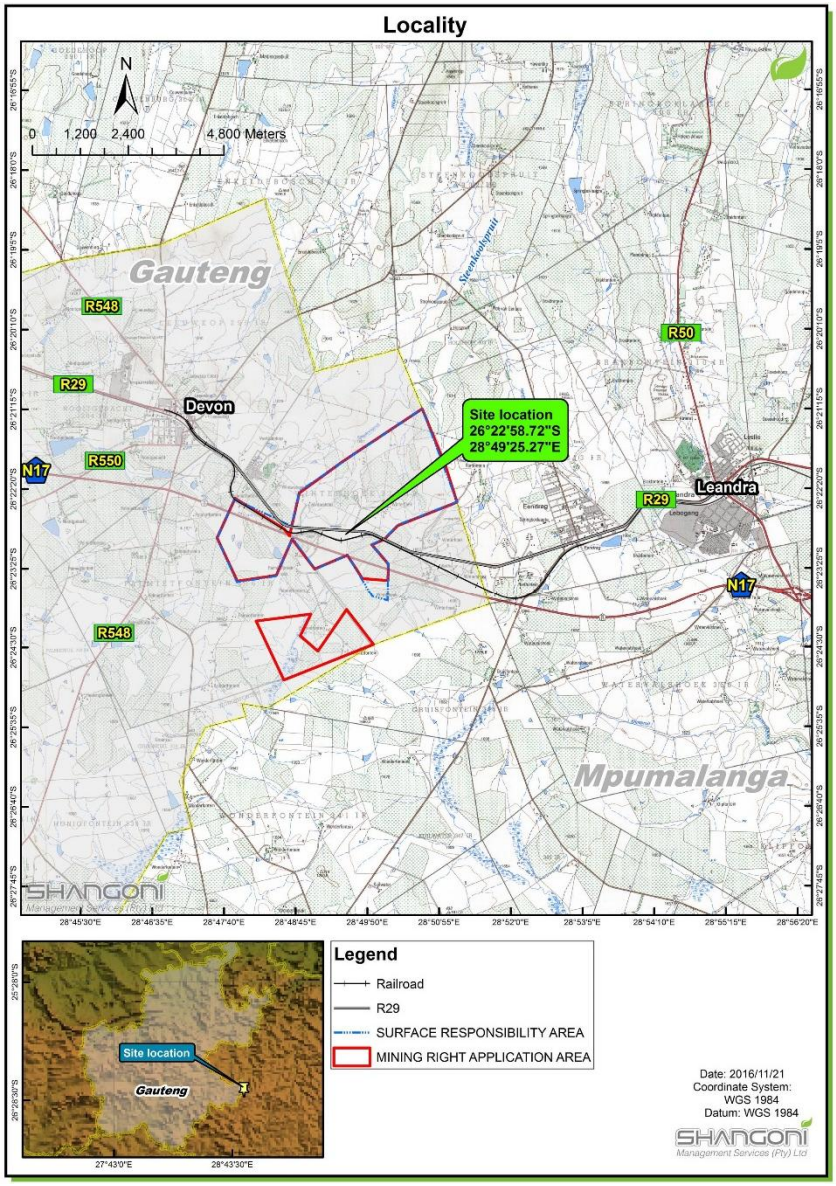


Figure 2- Regional location of the proposed Leslie 2 Project near Leandra in the Gauteng Province (above).

The Project area can be reached in the following ways: Via the R548 paved provincial road if traveling from the north or the south; via the N17 National road if traveling from the east or west; via the R29 pave provincial road from the east or the west. The nearest sizeable towns are Leandra, situated 8 km to the west, and Delmas situated 30 km to the northwest. The nearest accessible railway siding is at Endicott, approximately 26 km to the west.

7.2 The nature of the Leslie 2 Project

All the required mine infrastructure for the Leslie 2 Project will be established on the Leslie 2/40/2007 Prospecting Right area. Based on the underground mining the mine infrastructure will be situated on Portions 9, 21 and 22 of the farm Winterhoek 314IR.

The mine infrastructure will include the following:

- An adit with decline shaft to provide access to the underground mining.
- RoM stockpile at the shaft top.
- An up-cast ventilation shaft with the main fan situated in this shaft.
- Offices, workshops, change house and lamp room, all prefabricated structures that allow for easy removal and rehabilitation of the site.
- A parking area.
- A screening and crushing plant.
- A conveyor network to convey the coal from the shaft RoM stockpile to the screening and crushing plant, and from there to the product stockpiles.
- A LDV access road to the shaft that will be constructed along the overland conveyor route and in the same servitude.
- An access- and haul road from the R29 to the Plant and main offices.
- A water management system, including water storage facilities.

The total resources will be mined by means of underground mining using the conventional bord and pillar mining method deploying continuous miners with shuttle cars, supported by roof bolters for roof support and load haul dumpers for sweeping. The mine will be designed for the maximum extraction on the advance with no pillar extraction on retreat. The safety factors applied for main developments is 2.0 and for secondary production panels 1.6.

It is planned to establish three continuous miner production sections producing between 120 000 and 130 000 tons per month. A stone development section will be established for developing through dykes and faults. This will ensure that the continuous miner sections focus on coal production only. The mine design will allow for the introduction of additional production sections if required in the future.

The market for the coal from the Leslie 2 project area is to supply an Eskom 20.0MJ/kg product. The coal from the project area will be screened and crushed to minus (-) 50 millimetres (50mm) and sold raw as a 20.0 MJ/kg product with a plus (+) 20 percent VM content. The target market for the coal is for Eskom.

Various mining method alternatives have been considered and assessed for the Leslie 2 Project. The table below provides the identified alternatives and the advantages and disadvantages of each (where relevant) from a heritage / archaeological perspective.

Alternative		Advantages	Disadvantages
Activity alternatives (mining method alternatives)	**Alternative MM1**: Opencast (surface) mining methods		More significant surface disturbance than underground mining which may affect heritage resources.
	Alternative MM2: Undergorund mining method (board and pillar)	Minimal surface disturbance and therefore less possible impact on heritage resources.	
Market and process alternatives	**Alternative MA1**: Producing a washed Eskom 24 percent Ash and less than (<) one percent Sulphur product	N/A	N/A
	Alternative MA2: Producing a raw 20 MJ/kg, 30 percent Ash, < one percent Sulphur Eskom product	N/A	N/A
	Alternative MA3: Producing a 15 percent Ash export product.	N/A	N/A
Transport alternatives	**Alternative TA1**: Hauling via road		Construction of a haul road may have a negative affect on heriatge resources
	Alternative TA2: Transport via rail.		Construction of a train loading spur may have a negative affect on heritage resources.

Alternative		Advantages	Disadvantages
	Alternative TA3: Combination of road and rail	If road and rail are linearly spaced (parallel) both may have less influence on heritage resources than a separate road and rail way	Both railway and road infrastructure may negatively influence heritage resources as significant more surface disturbace will be brought about
Design alternatives	**Alternative DA1:** Construction of permanent buildings		Construction of permanent buildings require more elaborate and extended building operations which may cause damage to heritage resources
	Alternative DA2: Placement of structures of a portable nature (containers)	Construction of temporary, removable buildings require less elaborate and extended building operations which may result in less damage to heritage resources	
Development versus no-go alternative	**Alternative NG1**: Mining and related activities (development)		Heritage resources may be affected by development project
	Alternative NG2: No go option	All heritage resources will remain intact	
Plant Location	**Plant Location Alternative 1 (PL01):** Screening and Crushing Plant south of the R29 with access road from the R29 to main offices and separate haul road and entrance to Plant (product stockpiles) from the R29.	Screening and crushing Plant south of R29 where no heritage resources were observed	Haul road located 180m to the east of FC02 and 85m to the west of GY03.
	Plant Location Alternative 2 (PL02): Screening and Crushing Plant north of the R29 (east of existing farmers access road) and separate haul road and access road to Plant and main offices (from the R29).	Screening and crushing Plant directly north of R29 where no heritage resources were observed	New road located 180m to the east of FC02 and 85m to the west of GY03.

8 CONTEXTUALISING THE PROJECT AREA

The project area is located on the border of the Gauteng and Mpumalanga Provinces. However, the heritage character of the area is more intertwined with that of the Mpumalanga Province than with the Gauteng Province as it occurs outside the Witwatersrand and the Central Highveld. The context of the project area therefore is described and summarised in terms of that which is reminiscent for the Eastern

Highveld region. Heritage resources which are quite common on the Eastern Highveld are the following (see Part 9 'Select Bibliography'):

- Historical remains associated with farmstead complexes consisting of houses, associated outbuildings, cattle enclosures and graveyards.
- Abandoned graveyards left by farm workers who moved from farms to urban areas.

However, the following overview of pre-historical, historical and cultural evidence indicates the wide range of heritage resources which do occur across the Eastern Highveld.

8.1 Stone Age and rock art sites

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) (covers the period from 2.5 million years ago to 250 000 years ago), the Middle Stone Age (MSA) (refers to 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).

Dongas and eroded areas at Maleoskop near Groblersdal is one of only a few places in Mpumalanga where ESA Olduwan and Acheulian artefacts have been recorded. Evidence for the MSA has been excavated at the Bushman Rock Shelter near Ohrigstad. This cave was repeatedly visited over a prolonged period. The oldest layers date back to 40 000 years BP (Before Present) and the youngest to 27 000BP (Esterhuysen & Smith 2007).

LSA occupation of the Mpumalanga Province also has been researched at Bushman Rock Shelter where it dates back 12 000BP to 9 000BP and at Höningnestkrans near Badfontein where a LSA site dates back to 4 870BP to 200BP (Esterhuysen & Smith 2007).

The LSA is also associated with rock paintings and engravings which were done by San hunter-gatherers, Khoi Khoi herders and EIA (Early Iron Age) farmers (Maggs 1983, 2008). Approximately 400 rock art sites are distributed throughout Mpumalanga, notably in the northern and eastern regions at places such as Emalahleni (Witbank) (4), Lydenburg (2), White River and the southern Kruger National Park (76), Nelspruit and the Nsikazi District (250). The Ermelo area holds eight rock paintings (Smith & Zubieta 2007).

The rock art of the Mpumalanga Province can be divided into San rock art which is the most wide spread, herder or Khoe Khoe (Khoi Khoi) paintings (thin scattering from the Limpopo Valley) through the Lydenburg district into the Nelspruit area) and localised late white farmer paintings. Farmer paintings can be divided into Sotho-Tswana finger paintings and Nguni engravings (Only 20 engravings occur at Boomplaats, north-west of Lydenburg). Farmer paintings are more localised than San or herder paintings and were mainly used by the painters for instructional purposes (Smith & Zubieta 2007).

During the LSA and Historical Period, San people called the Batwa lived in sandstones caves and rock shelters near Lake Chrissie in the Ermelo area. The Batwa are descendants of the San, the majority of which intermarried with Bantu-Negroid people such as the Nhlapo from Swazi-descend and Sotho-Tswana clans such as the Pai and Pulana. Significant intermarriages and cultural exchanges occurred between these groups. The Batwa were hunter-gatherers who lived from food which they collected from the veldt as well as from the pans and swamps in the area. During times of unrest, such as the *difaqane* in the early nineteenth century, the San would converge on Lake Chrissie for food and sanctuary. The caves, lakes, water pans and swamps provided relative security and camouflage. Here, some of the San lived on the surfaces of the water bodies by establishing platforms with reeds. With the arrival of the first colonists in the nineteenth century many of the local Batwa family groups were employed as farm labourers. Descendants of the Batwa people still live in the larger Project Area (Schapera 1927; Potgieter 1955; Schoonraad & Schoonraad 1975).

8.2 Iron Age remains

The Iron Age is associated with the first agro-pastoralists or farming communities who lived in semi-permanent villages and who practised metal working during the last two millennia. 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).

Evidence of the first farming communities in the Mpumalanga Province is derived from a few EIA potsherds which occur in association with the LSA occupation of the Höningnest Shelter near Badfontein. The co-existence of EIA potsherds and LSA stone tools suggest some form of 'symbiotic relationship' between the Stone Age hunter-gatherers who lived in the cave and EIA farmers in the area (also note Batwa and Swazi/Sotho Tswana relationship) (Esterhuysen & Smith 2007).

The Welgelegen Shelter on the banks of the Vaal River near Ermelo also reflects some relationship between EIA farmers who lived in this shelter and hunter-gatherers who manufactured stone tools and who occupied a less favourable overhang nearby during AD1200 (Schoonraad & Beaumont 1971).

EIA sites were also investigated at Sterkspruit near Lydenburg (AD720) and in Nelspruit where the provincial governmental offices were constructed. The most infamous EIA site in South Africa is the Lydenburg head site which provided two occupation dates, namely during AD600 and from AD900 to AD1100. At this site the Lydenburg terracotta heads were brought to light. Doornkop, located south of Lydenburg, dates from AD740 and AD810 (Evers 1981; Whitelaw 1996).

The LIA is well represented in Mpumalanga and stretches from AD1500 well into the nineteenth century and the Historical Period. Several spheres of influence, mostly associated with stone walled sites, can be distinguished in the region. Some of the historically well-known spheres of influence include the following:

- Early arrivals in the Mpumalanga Province such as Bakone clans who lived between Lydenburg, Badfontein and Machadodorp and Eastern Sotho clans such as the Pai, Pulana and Kutswe who established themselves in the

eastern parts of the province (Collett 1979, 1983; Delius 2007; Makhura 2007; Delius & Schoeman 2008).

- Swazi expansion into the Highveld and Lowveld of the Mpumalanga Province occurred during the reign of Sobhuza (AD1815 to 1836/39) and Mswati (AD1845 to 1868) while Shangaan clans entered the province across the Lembombo Mountains in the east during the second half of the nineteenth century (Delius 2007; Makhura 2007.).
- The Bakgatla (Pedi) chiefdom in the Steelpoort Valley rose to prominence under Thulare during the early 1800's and was later ruled by Sekwati and Sekhukune from the village of Tsjate in the Leolo Mountains. The Pedi maintained an extended sphere of influence across the Limpopo and Mpumalanga Provinces during the nineteenth century (Mönnig 1978; Delius 1984).
- The Ndzundza-Ndebele established settlements at the foot of the Bothasberge (Kwa Maza and Esikhunjini) in the 1700's and lived at Erholweni from AD1839 to AD1883 where the Ndzundza-Ndebele's sphere of influence known as KoNomthjarhelo stretched across the Steenkampsberge.
- The Bakopa lived at Maleoskop (1840 to 1864) where they were massacred by the Swazi while the Bantwane live in the greater Groblersdal and Marble Hall areas.
- Corbelled stone huts which are associated with ancestors of the Sotho on Tafelkop near Davel which date from the AD1700's into the nineteenth century (Hoernle 1930).
- Stone walled settlements spread out along the eastern edge of the Groot Dwarsriver Valley served as the early abode for smaller clans such as the Choma and Phetla communities which date from the nineteenth century.

8.3 The Historical Period

Historical towns closest to the project area include Delmas, Leandra, Kinross and Devon.

Delmas was laid out in 1907 on the farm Witklip (‘white stone’) which was divided into 192 residential stands, 48 smallholdings of 4 ha each and a commonage of 138ha. The farm belonged to Frank Dumat who originated from France where his grandfather had a small farm. He named the town Delmas which is derived from ‘mas’ which means a small farm in a southern dialect of French. In 1909 the government added another 5 500 ha to Frank Dumat’s original rural settlement.

The town of Leandra’s name is derived from two townships, Leslie and Eendrag, which are incorporated in this mining village.

Kinross, about 20 km east of Leandra, is the railhead for the township of Leandra and four gold mines in the region, namely Winkelhaak, Leslie, Bracken and Kinross which all opened in the 1950's.

The village was proclaimed in the 1915 and named after Kinross in Scotland by the engineers who constructed the railway line between Springs and Breyton. Kinross is near the watershed that separates the rivers flowing towards the Indian Ocean in the east and the rivers flowing towards the Atlantic Ocean in the west.

Devon is one of a number of small towns on the Eastern Highveld located approximately 40km to the south-east of Springs. The town gives the impression of a scarce number of scattered buildings held together by a giant grain silo. The town's name is derived from the hometown of the surveyor, namely Devon in England. Nearby, but inaccessible to everybody but the military, is the underground nerve centre of the country's northern radar defence system.

8.4 A coal mining heritage

Coal mining on the eastern Highveld is now older than one century and has become the most important coal mining region in South Africa**.** Whilst millions of tons of high-grade coal are annually exported overseas more than 80% of the country’s electricity is generated on low-grade coal in Eskom’s power stations such as Duvha, Matla and Arnot situated near coal mines on the eastern Highveld.

The earliest use of coal (charcoal) in South Africa was during the Iron Age (300-1880AD) when metal workers used charcoal, iron and copper ores and fluxes (quartzite stone and bone) to smelt iron and copper in clay furnaces.

Colonists are said to have discovered coal in the French Hoek Valley near Stellenbosch in the Cape Province in 1699. The first reported discovery of coal in the interior of South Africa was in the mid-1830s when coal was mined in Kwa-Zulu/Natal.

The first exploitation for coal was probably in Kwa-Zulu/Natal as documentary evidence refers to a wagon load of coal brought to Pietermaritzburg to be sold in 1842. In 1860 the coal trade started in Dundee when a certain Pieter Smith charged ten shillings for a load of coal dug by the buyer from a coal outcrop in a stream. In 1864 a coal mine was opened in Molteno. The explorer, Thomas Baines mentioned that farmers worked coal deposits in the neighbourhood of Bethal (Transvaal) in 1868. Until the discovery of diamonds in 1867 and gold on the Witwatersrand in 1886, coal mining only satisfied a very small domestic demand.

With the discovery of gold in the Southern Transvaal and the development of the gold mining industry around Johannesburg came the exploitation of the Boksburg-Spring coal fields, which is now largely worked out. By 1899, at least four collieries were operating in the Middelburg-Witbank district, also supplying the gold mining industry. At this time coal mining also had started in Vereeniging. The Natal Collieries importance was boosted by the need to find an alternative for imported Welsh anthracite used by the Natal Government Railways.

By 1920 the output of all operating collieries in South Africa attained an annual figure of 9,5million tonnes. Total in-situ reserves were estimated to be 23 billion tonnes in Witbank-Springs, Natal and Vereeniging. The total in situ reserves today are calculated to be 121 billion tonnes. The largest consumers of coal are Sasol, Mittal and Eskom.

8.5 A vernacular stone architectural heritage

A unique stone architectural heritage was established in the eastern Highveld from the second half of the 19th century well into the early 20th century. During this time period stone was used to build farmsteads and dwellings, both in urban and in rural areas. Although a contemporary stone architecture also existed in the Karoo and in the Eastern Free State Province of South Africa a wider variety of stone types were used in the eastern Highveld. These included sandstone, ferricrete ('ouklip'), dolerite ('blouklip'), granite, shale and slate (Naude 1993).

The origins of a vernacular stone architecture in the eastern Highveld may be ascribed to various reasons of which the ecological characteristics of the region may be the most important. Whilst this region is generally devoid of any natural trees which could be used as timber in the construction of farmsteads, outbuildings, cattle enclosures and other structures, the scarcity of fire wood also prevented the manufacture of baked clay bricks. Consequently stone served as the most important building material in the eastern Highveld (Naude 1993, 2000). One of these historical structures was excavated and described after a heritage mitigation project was conducted for a coal mine (Pistorius 2005).

LIA Sotho, Pedi, Ndebele and Swazi communities contributed to the Eastern Highveld's stone walled architecture. The tradition set by these groups influenced settlers from Natal and the Cape Colony to utilise the same resources to construct dwellings and shelters. Farmers from Scottish, Irish, Dutch, German and Scandinavian descend settled and farmed in the eastern Highveld. They brought the knowledge of stone masonry from Europe. This compensated for the lack of fire wood on the Eastern Highveld which was necessary to bake clay bricks.

9 THE PHASE I HERITAGE IMPACT ASSESSMENT

9.1 The field survey

The field survey was conducted by means of following two track and other accessible routes in the project area in order to gain access to the proposed footprint of the Leslie 2 Project.

Figures 3 & 4- The project area is part of a landscape which mainly incorporates grasslands which are used for grazing (above). The rolling grasslands are here and there interspersed with infrastructure such as farmstead complexes and agricultural fields which are currently laying foul (below).

Figures 5 & 6- The project area between the R29 and N17 highway where the bulk of the mine infrastructure will be established has largely been disturbed as a result of quarrying and road and railway building activities (above and below).

Figures 7 & 8- The project area to the north of the N17 is generally more developed that the area to the south of the highway where larger stretches of undeveloped land occur (above and below).

9.2 Types and ranges of heritage resources

The Phase I HIA for the proposed project area revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in and near the project area, namely:

- Historical remains consisting of farmsteads with outbuildings.
- Graveyards and graves.

These heritage resources were geo-referenced and mapped (Figure 9a & 9b, Tables 1 & 2). Their significance is indicated as well as possible impacts on some of these heritage resources (Tables 4 & 5). The significance of the impact on the heritage resources were determined (Table 4). Mitigation measures are outlined for those heritage resources which may be affected by the Leslie 2 Project.

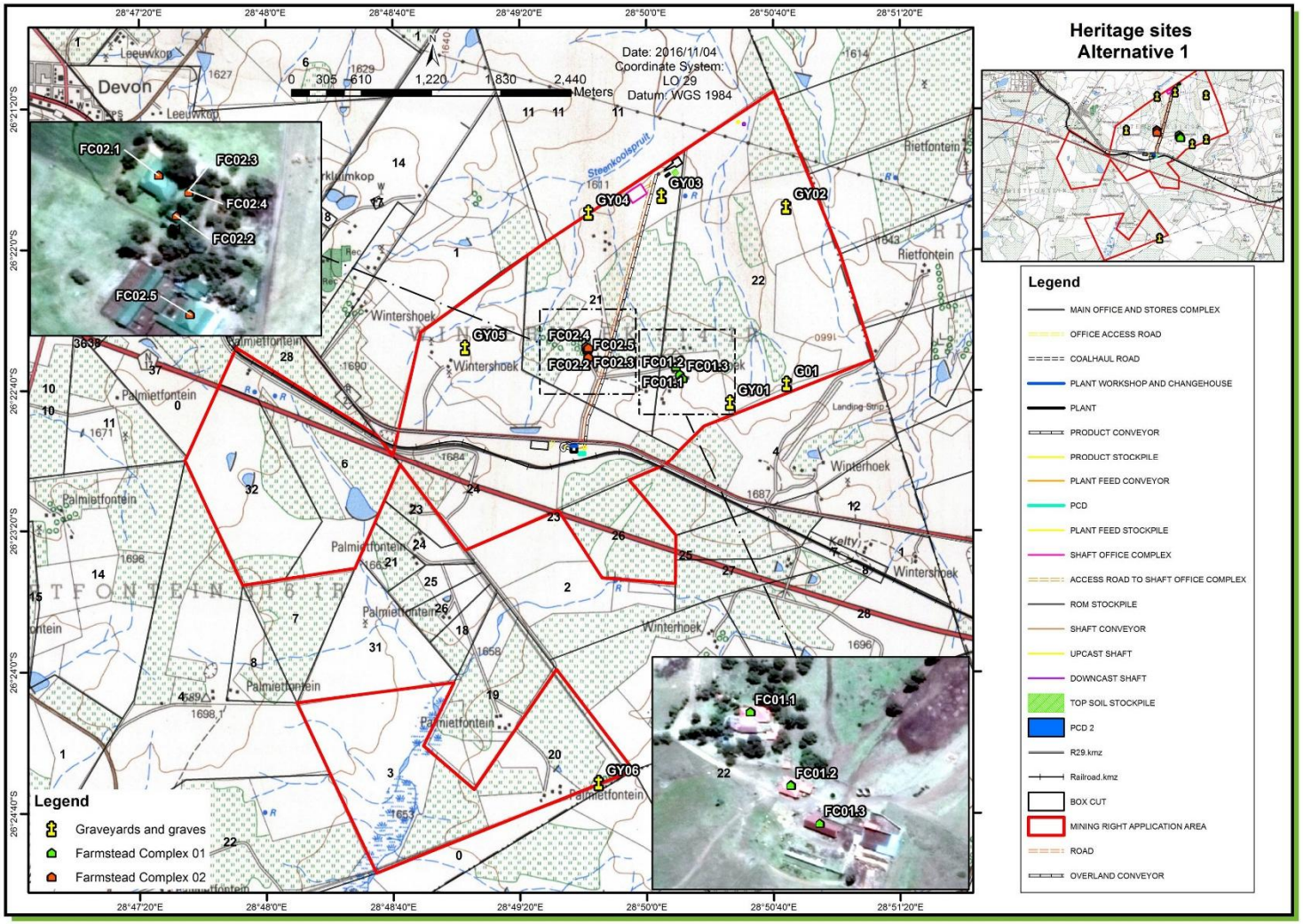


Figure 9(a) - The Leslie 2 Project with Plant Location Alternative 01 (PL01) on the eastern Highveld in the Gauteng Province. Note the presence of heritage resources such as historical remains and graveyards in and near the project area (above).

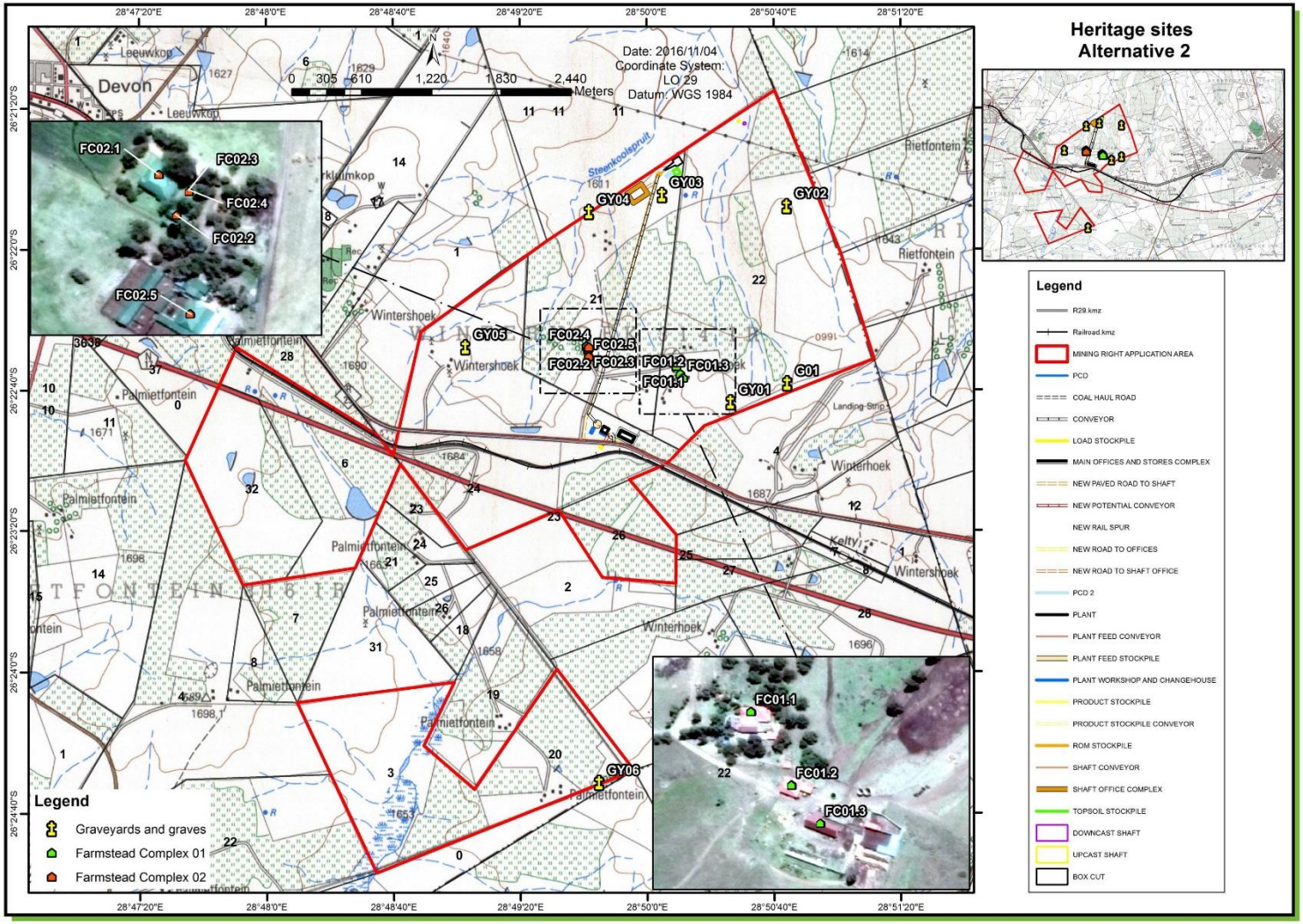


Figure 9(b) - The Leslie 2 Project with Plant Location Alternative 02 (PL02) on the eastern Highveld in the Gauteng Province. Note the presence of heritage resources such as historical remains and graveyards in and near the project area (above).

9.2.1 Historical remains

The project area at large is characterized by the presence of historical remains consisting of farmhouses with outbuildings which mostly relate to two periods from the past, namely sandstone residences with wagon sheds and cattle enclosures which date from the second half of the nineteenth century and farm houses with outbuildings which date from the more recent past, namely from the 1930/40's to the 1960/70's. The younger remains are more common than the earlier historical remains. Infrastructure from both these periods is sometimes associated with graveyards belonging to the owners of these remains and graveyards of farm workers who lived and worked on the farms.

These remains sometimes constitute cultural landscapes composed of various independent but interrelated infrastructure such as houses, wagon sheds, outbuildings, cattle enclosures, etc.. Some of these buildings and structures may either have collapsed or have been demolished. Most of the earlier historical remains are severely dilapidated as they have been abandoned for some time. These remains are seldom maintained nor are they renovated to be utilized by farming communities. Most of the younger remains which date from the 1930/40's have been modernised (or restored). In both instances this has resulted in the total transformation of buildings and structures and subsequently to the diminishing of these structures' historical significance.

9.2.1.1 Farmstead Complex 01

This farmstead complex (FC01) on Winterhoek 314IR (Portion 22) consists of a main residence and at least two sheds.

All three structures were constructed with clay bricks and are fitted with pitched corrugated iron roofs. These buildings probably date from the 1930's or the 1940's and are in a good state of repair.

Figure 10- The main residence (FC01.1) in FCO1 comprises a multi-room dwelling which was built with clay bricks and fitted with a pitched corrugated iron roof and steel window frames (above).

Figure 11- The two sheds (FC01.2, FC01.3) in FCO1 were both constructed with clay bricks and fitted with pitched corrugated iron roofs and steel window frames (above).

9.2.1.2 Farmstead Complex 02

Farmstead complex (FC02) on Winterhoek 314IR (Portion 21) consists of a main residence (FC02.1) and three associated outbuildings (FC02.2, FC02.3 and FC02.4). A shed which serves as a core to which several structures were added complete the inventory for structures that are part of this complex (FC02.5).

The main residence (FC02.1) and two outbuildings (FC02.2, FC02.3) were constructed with dressed dolerite stone and cement and fitted with pitched corrugated iron roofs. The main residence is a multi-roomed structure with steel window frames, the first and second outbuildings are elongated structures constructed with the same building material whilst the fourth structure comprises a rondavel which was constructed with dolerite stone and covered with a pitched grass roof (FC02.4).

Although some of these structures may be older than sixty years it seems as if they all were altered, upgraded and modernised. A heap with dressed and undressed dolerite stone in close proximity of the structures suggests that some of the renovations were done in the more recent past.

Figure 12- The main residence (FC02.1) in FCO2 was constructed with dressed dolerite stone and is a multi-roomed structure with steel window frames which was covered with a pitched corrugated iron roof (above).

Figure 13- The main residence (FC02.1) (right) and an elongated outbuilding (FC02.1) which was constructed with the same material (left) (above). Note the dump with dresses and undressed dolerite stone suggesting that the complex of buildings was recently altered and upgraded (above).

Figure 14- The second outbuildings in FC02 (FC02.1) has a near square ground plan and was constructed with dressed dolerite stone, fitted with steel window frames and steel door and is covered with a with pitched corrugated iron roof (above).

Figure 15- The rondavel (FC02.4) near the main residence. It was constructed with dolerite and fitted with a pitched grass roof (above).

A shed with added on structures (FC02.5) comprises an irregular shaped complex of structures which was built with dolerite stone, clay and possibly cement bricks and fitted with a pitched corrugated iron roof.

The structures that were consolidated and added to this shed were built with clay bricks and possibly with cement bricks as well. (The latter could not be ascertained due to the fact that some buildings are painted green).

Although the core of this compact group of structures contains a dolerite building fitted with a pitched corrugated iron roof the larger part of the add-on buildings were constructed with bricks and covered with flat corrugated iron roofs.

Some of the construction work was probably also done in the more recent past.

Figure 16- The shed complex (FC02.5) that is part of FC02 comprises several structures that were added to a main shed which was constructed with dolerite stone. The extended, plastered structures were constructed with clay bricks and perhaps with cement bricks as well. The fitted window and door frames were manufactured from steel (above).

Figure 17- One of the extensions of FC02.5 was constructed with clay bricks and plastered with cement and is fitted with a low-pitched corrugated iron roof (above).

9.2.2 Graveyards and graves

The following graveyards and a possible grave were observed in and near the project area, namely:

9.2.2.1 Graveyard 01

GY01 is located on a rise overlooking the area to the north. It is neglected and overgrown with tall graves which prevent the identification of possible undecorated graves. Five graves were identified but more may exist. The graves are merely covered with slabs of stone although one grave is covered with a cement slab.

No inscriptions are visible on the cement slab.

It is highly likely that the graveyard is older than sixty years.

Figure 18- GY01 holds the remains of at least five individuals and is located on a rise in open veld. It is covered with tall grass. Due to the tall grass and neglected state of the graves the graveyard is barely visible and more graves than those recorded may occur (above).

Figure 19- G02 holds the remains of at least forty individuals whose remains are covered with piles of stone (above).

9.2.2.2 Graveyard 02

This graveyard (GY02) is located on a ridge overlooking the area to the north. It holds as many as forty graves. Most are covered with piles of stone. A few graves are fitted with cement headstones. At least one grave is decorated with a granite headstone with the following inscription:

- 'Linah Masilela Mahlangu' * 1899-04-01 † 1965-12-08'

9.2.2.3 Graveyard 03

GY03 is located in open veld and holds as many as twenty two graves. Four of the graves are decorated with granite headstones and trimmings. The remainder are covered with piles of dolerite stone. This graveyard is probably older than sixty years. Some headstones bear the following inscriptions, namely:

- 'In loving memory of Paulina Bongani Mnguni. Born 1935-07-21 Died 1980-12-27 Sadly missed by your family'
- In loving memory of Martha Zondi Mnguni. Sadly missed by your family'
- In loving memory of Solomon Ndyambani Mnguni. Sadly missed by your family'

Figure 20- G03 holds the remains of at least forty individuals most of which are covered with piles of stone. Four graves are fitted with granite headstones (above).

9.2.2.4 Graveyard 04

This graveyard (GY04) contains approximately twenty graves most of which are covered with piles of stone while a few are fitted with cement headstones and edged with clay bricks.

Two granite headstones with inscriptions occur, namely:

- 'Nomadlozi Johannes Skhosana *1924-02-10 †1987-02-04 God had mercy on her soul'.
- 'Abraham Sanyana Skhosana 1912-05-10 1979-10-27'

GY04 is probably older than sixty years.

Figure 21- G04 holds the remains of approximately twenty individuals. Two of the graves are decorated with granite headstones and trimmings (above).

9.2.2.5 Graveyard 05

GY05 holds approximately twenty one graves most of which are covered with piles of stone while a few are edged with clay bricks.

No headstones with inscriptions occur. GY05 most likely is older than sixty years.

Figure 22- G05 is located on a slight rise and contains at least twenty one graves which are older than sixty years (above).

9.2.2.6 Graveyard 06

GY06 holds approximately twenty two graves most of which are edged with bricks and covered with stones. A few graves are edged with clay bricks.

Two headstones with inscriptions occur, namely:

- 'In loving memory of our mother Johanna Marama'
- 'Hans Mahlangu 1984-23' (sic).

It is highly likely that GY06 is older than sixty years.

9.2.2.8 Grave 01

A possible grave occurs in context with evidence for rudimentary residential remains of no significance (G01). The location of the grave is indicated by the presence of an iron framework with the outline of a coffin.

If G01 does in fact represent a grave it is possibly older than sixty years.

Figure 23- G06 holds approximately twenty two graves which are severely neglected (above).

Figure 24- A steel framework on lines of bricks indicates the position of a possible grave (G01) (above).

9.3 Tables

Table 1 - Coordinates and significance rating for historical remains (below).

HISTORICAL REMAINS		
	Coordinates	**Significance**
Farmstead Complex 01		
FC01.1. Main residence dating from the 1930/40's	26º 22 33.33's 28º 50 09.33'e	**Medium**
FC01.2. Outbuilding dating from the 1930/40's	26º 22 35.49's 28º 50 10.53'e	**Medium**
FC01.3. Outbuilding dating from the 1930/40's	26º 22 36.61's 28º 50 11.38'e	**Medium**
Farmstead Complex 02		
FC02.1. Main residence totally altered	26º 22 27.50s 28º 49 40.99e	**Medium**
FC02.2. Outbuilding totally altered or newly built	26º 22 28.39's 28º 49 41.38'e	**Medium**

FC01.3. Outbuilding totally altered	26º 22 27.87's 28º 49 41.65'e	**Medium**
FC01.4. Rondavel	26º 22 27.87's 28º 49 41.65'e	**Medium**
FC01.5. Shed complex with extension structures	26º 22 30.56's 28º 49 41.68e'	**Medium**

Table 2 - Coordinates and significance rating for graveyards (below).

GRAVEYARDS AND GRAVES		
	Coordinates	**Significance**
GY01. Approximately 5 graves	26º 22.726's 28º 50.439'e	**HIGH**
GY02. Forty graves	26º 21.798's 28º 50.735'e	**HIGH**
GY03. Twenty two graves	26º 21.745's 28º 50.080'e	**HIGH**
GY04. Twenty graves	26º 21.825's 28º 49.697'e	**HIGH**
GY05. Approximately 21 graves	26º 22.464's 28º 49.046'e	**HIGH**
GY06. Approximately 22 graves	26º 24.525's 28º 49.746'e	**HIGH**
G01. Possible grave associated with steel framework.	26º 22.637's 28º 50.737'e	**HIGH**

9.4 Consultation process undertaken and comments received from stakeholders

No specific consultation process was undertaken for the purposes of the HIA as the stakeholder consultation for the project is being done by Shangoni and Nemai Consulting as part of the overall EIA process. Should any heritage resources of significance others than those which were identified during this heritage study be exposed during the Leslie 2 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.

10 THE SIGNIFICANCE, POSSIBLE IMPACT ON AND MITIGATION OF THE HERITAGE RESOURCES

10.1 The significance of the heritage resources

The Leslie 2 Project may impact on some of the heritage resources. The significance of the historical remains and the graveyards and grave therefore has to be determined in order to establish the significance of the impact on these remains as well as to propose conservation, mitigation and management measures for heritage resources that may be affected by the Leslie 2 Project.

10.1.1 The significance of the historical remains

These remains comprise of two farmstead complexes (FC01, FC02) which are older than sixty years and which are protected by the National Heritage Resources Act (No 25 of 1999) (Table 1).

The medium-high level of significance for the historical remains was determined by means of various criteria which qualify places and objects as part of the national estate if they have cultural significance or other special value as outlined in Section 3 of the NHRA (Act No 25 of 1999) (see Box 1) (Table 1). This medium-high level of significance also corresponds with the rating of the historical remains as Grade IIIB Local Resources with medium-high significance (Table 3)

The significance of both farmstead complexes (FC01, FC02) can be rated as medium-high when considering criteria such as the following (Table 1):

- The historical remains can contribute to a better understanding of the lifeways of early inhabitants on the eastern Highveld in Mpumalanga.
- The historical remains are under threat due to an established agro-economic industry and an expanding coal mining complex on the eastern Highveld of Mpumalanga.
- The historical remains provide opportunities to be utilized in tourism, education and research particularly if further studied, renovated and applications to be utilized (e.g. in the tourism or leisure industry) can be implemented.

- The historical remains are relatively young as they date from the last six to seven decades.
- Some of the historical remains have been altered significantly in the more recent past and their historical core cannot be recognised any longer.
- The historical remains' architectural style is still common in the region as a considerable number of these structures and outbuildings still exist.

Grade 1 National Resource

This sites are to be nominated as such (mention must be made of any relevant international ranking). A protected buffer zone must be proposed. These sites must be maintained in situ. A CMP must be recommended for the in situ conservation of these sites.

Grade II Provincial Resource

This site is considered to be of Field Rating/Grade II and must be nominated as such, a protected buffer zone must be considered, these sites must be maintained in situ and a CMP must be recommended for the in situ conservation of the site;

Grade IIIA Local Resource

These site must be retained as a heritage register site (High significance) and so mitigation as part of the development process is not advised, a protected buffer zone must be considered, these sites must be maintained in situ and a CMP must be recommended for the in situ conservation of the site;

Grade IIIB Local Resource

These sites can be mitigated and (partly) retained as a heritage register site (High/Medium significance), Mitigation of these sites must be subject to a formal permit application process lodged with the relevant heritage resources authority;

Grade IIIC Local Resource

These are sites are assigned a Low field rating which, once adequately described in the Phase I assessment, may be granted destruction authorisation at the discretion of the relevant heritage authority outside of the formal permitting process,

Table 3- Field rating (grading) for historical remains in the project area

10.1.2 The significance of the graveyards and grave

All graveyards and graves can be considered to be of high significance and are protected by various laws (Table 2). Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (NHRA) (Act No 25 of 1999) in instances where graves are older than sixty years. It is highly likely that all the graves and

graveyards in the project area are older than sixty years and if some of the graves are not this age they are approaching this time range as is laid down by the NHRA (Act No 25 of 1999). Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

10.2 Possible impact on the heritage resources

The proposed Leslie 2 Project may impact on those heritage resources which are located closest to the footprint of the proposed Leslie 2 Project, namely: (Figures 9a & 9b):

- GY03 which are located approximately 85m to the east of the conveyor route.
- FC02.1 and FC02.5 which both are located approximately 180m to the west of the conveyor route. These two structures are part of a complex of structures which constitute FC02.

10.3 The significance of the impact on the heritage resources

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.

10.3.1 Impacts on the historical remains

FC02.1 and FC02.5 are located approximately 180m to the west of the conveyor route. These two structures are part of a complex of structures which constitute FC02 which will not be directly impacted by the conveyer route (Figures 9a & 9b; Table 4).

The significance of any impact on these remains is low and will remain low if the proposed mitigation measures are implemented (Table 4).

Table 4- The significance of potential impacts on FC02 (below).

	Probability of impact	Magnitude of impact	Duration of impact	Scale	Significance points	Significance rating	Significance after mitigation
FC02.1	**3**	**6**	**5**	**1**	**36**	**Low**	**Low**
FC02.5	**3**	**6**	**5**	**1**	**36**	**Low**	**Low**

10.3.2 Impacts on the graveyards and grave

GY03 is located approximately 85m to the east of the conveyor route. This graveyard therefore will not be directly impacted by the conveyor route (Figures 9a & 9b; Table 5).

The significance of any impact on GY03 therefore is low and will remain low if the proposed mitigation measures are implemented (Table 5).

Table 5- The significance of potential impacts on the graveyard (below).

	Probability of impact	Magnitude of impact	Duration of impact	Scale	Significance points	Significance rating	Significance after management
GY03	**3**	**6**	**5**	**1**	**36**	**Low**	**Low**

10.4 Mitigating and managing the heritage resources

The following mitigation and management measures are outlined for those heritage resources which may be affected by the Leslie 2 Project, namely:

10.4.1 Mitigating the impacts on the historical remains

Although FC02) have been altered significantly during the more recent past the original historical core of the complex of structures may inform about the historical significance and meaning of these structures before they may be altered to suit the mine's needs or be demolished.

FC02 has to be studied and documented by a historical architect before any of these remains may be affected in any way, e.g. to be altered or to be demolished as a result of the implementation of the Leslie 2 Project. The South African Heritage Resources Agency (SAHRA) will require that the historical structures to be affected (and the complex as such) have be studied and documented by the conservation architect before SAHRA will make any recommendations regarding the future existence of FC02.

The significance of any impact on FC02 therefore will be low after the mitigation measures have been implemented (Table 3).

10.4.2 Mitigating the impact on the graveyards

No mitigation measures are needed for GY03. However precautionary measures should be taken not to disturb the graveyards during the construction phase of the project. This can be prevented by demarcating GY03 with red cautionary tape and by placing 'Danger Graveyard' signposts in order to avoid that the graveyard be damaged by construction personnel or their vehicles.

The significance of any possible impact on GY03 after precautionary measures have been implemented will be low (Table 4).

10.4.3 Managing graveyards that remain unaffected

Graveyards that remain unaffected should be managed (by Anglo Operations) to ensure their future unaffected existence during the construction, operation and decommissioning phases of its mining operations. The following mitigation measures are recommended:

- Graveyards must be demarcated with fences or with walls and should be fitted with access gates.
- Regulated visitor hours should be implemented that is compatible with mine safety rules. This will not be necessary when graveyards are located next to national roads.

- Corridors of at least 20m should be maintained between graveyard's fences and any developmental components such as roads or other infrastructure that may be developed in the future.
- Graveyard should be inspected every three months. Inspections should be noted in an inspection register. The register should outline the state of the graveyards during each inspection. Reports on damages to any of the graves or to the graveyards (fences, walls, gates) should be followed with the necessary maintenance work. Maintenance work should be recorded in in the inspection register.
- Graveyards should be kept tidy from any invader weeds and any other refuse.

Summary

There is no reason from a heritage point of view why Anglo's proposed Leslie 2 Project with all possible alternatives (haul road, new road to the offices, plant locations and conveyor alignment) cannot proceed after the appropriate mitigation measures outlined for historical remains and for graveyards have been implemented.

11 CONCLUSION AND RECOMMENDATIONS

The Phase I HIA for the proposed project area revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in and near the project area, namely:

- Historical remains consisting of farmsteads with outbuildings.
- Graveyards and graves.

These heritage resources were geo-referenced and mapped (Figures 9a & 9b, Tables 1 & 2). Their significance is indicated (Tables 1 & 2) as well as possible impacts on some of these heritage resources. The significance of the impact on the heritage resources were determined (Tables 4 & 5). Mitigation measures are outlined for those heritage resources which may be affected by the Leslie 2 Project.

The significance of the heritage resources

The Leslie 2 Project may impact on some of the heritage resources. The significance of the historical remains and the graveyards and grave therefore has to be determined in

order to establish the significance of the impact on these remains as well as to propose conservation, mitigation and management measures for heritage resources that may be affected by the Leslie 2 Project.

The significance of the historical remains

These remains comprise of two farmstead complexes (FC01, FC02) which are older than sixty years and which are protected by the National Heritage Resources Act (No 25 of 1999) (Table 1).

The medium-high level of significance for the historical remains was determined by means of various criteria which qualify places and objects as part of the national estate if they have cultural significance or other special value as outlined in Section 3 of the NHRA (Act No 25 of 1999) (see Box 1) (Table 1). This medium-high level of significance also corresponds with the rating of the historical remains as Grade IIIB Local Resources with medium-high significance (Table 3)

The significance of both farmstead complexes (FC01, FC02) can be rated as medium-high when considering criteria such as the following (Table 1):

- The historical remains can contribute to a better understanding of the lifeways of early inhabitants on the eastern Highveld in Mpumalanga.
- The historical remains are under threat due to an established agro-economic industry and an expanding coal mining complex on the eastern Highveld of Mpumalanga.
- The historical remains provide opportunities to be utilized in tourism, education and research particularly if further studied, renovated and applications to be utilized (e.g. in the tourism or leisure industry) can be implemented.
- The historical remains are relatively young as they date from the last six to seven decades.
- Some of the historical remains have been altered significantly in the more recent past and their historical core cannot be recognised any longer.
- The historical remains' architectural style is still common in the region as a considerable number of these structures and outbuildings still exist.

The significance of the graveyards and grave

All graveyards and graves can be considered to be of high significance and are protected by various laws (Table 2). Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (NHRA) (Act No 25 of 1999) in instances where graves are older than sixty years. It is highly likely that all the graves and graveyards in the project area are older than sixty years and if some of the graves are not this age they are approaching this time range as is laid down by the NHRA (Act No 25 of 1999). Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

Possible impact on the heritage resources

The proposed Leslie 2 Project may impact on those heritage resources which are located closest to the footprint of the proposed Leslie 2 Project, namely: (Figures 9a & 9b):

- GY03 which are located approximately 85m to the east of the conveyor route.
- FC02.1 and FC02.5 are located approximately 180m to the west of the conveyor route. These two structures are part of a complex of structures which constitute FC02.

The significance of the impact on the heritage resources

The significance of possible impacts on the heritage resources was determined using a ranking scale based on various criteria.

Impacts on the historical remains

FC02.1 and FC02.5 are located approximately 180m to the west of the conveyor route. These two structures are part of a complex of structures which together constitute FC02 which will not be directly impacted by the conveyer route (Figures 9a & 9b; Table 4).

The significance of any impact on these remains is low and will remain low if the proposed mitigation measures are implemented (Table 4).

Impacts on the graveyards and grave

GY03 is located approximately 85m to the east of the conveyor route. This graveyard therefore will not be directly impacted by the conveyor route (Figures 9a & 9b; Table 5).

The significance of any impact on GY03 therefore is low and will remain low if the proposed mitigation measures are implemented (Table 5).

Mitigating and managing the heritage resources

The following mitigation and management measures are outlined for those heritage resources which may be affected by the Leslie 2 Project, namely:

Mitigating the impacts on the historical remains

Although FC02) have been altered significantly during the more recent past the original historical core of the complex of structures may inform about the historical significance and meaning of these structures before they may be altered to suit the mine's needs or be demolished.

FC02 has to be studied and documented by a historical architect before any of these remains may be affected in any way, e.g. to be altered or to be demolished as a result of the implementation of the Leslie 2 Project. The South African Heritage Resources Agency (SAHRA) will require that the historical structures to be affected (and the complex as such) have be studied and documented by the conservation architect before SAHRA will make any recommendations regarding the future existence of FC02.

The significance of any impact on FC02 therefore will be low after the mitigation measures have been implemented (Table 3).

Mitigating the impact on the graveyards

No mitigation measures are needed for GY03. However precautionary measures should be taken not to disturb the graveyards during the construction phase of the project. This can be prevented by demarcating GY03 with red cautionary tape and by

placing ‘Danger Graveyard’ signposts in order to avoid that the graveyard be damaged by construction personnel or their vehicles.

The significance of any possible impact on GY03 after precautionary measures have been implemented will be low (Table 4).

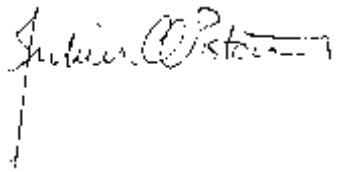
Managing graveyards that remain unaffected

Graveyards that remain unaffected should be managed (by Anglo Operations) to ensure their future unaffected existence during the construction, operation and decommissioning phases of its mining operations. The following mitigation measures are recommended:

- Graveyards must be demarcated with fences or with walls and should be fitted with access gates.
- Regulated visitor hours should be implemented that is compatible with mine safety rules. This will not be necessary when graveyards are located next to national roads.
- Corridors of at least 20m should be maintained between graveyard’s fences and any developmental components such as roads or other infrastructure that may be developed in the future.
- Graveyard should be inspected every three months. Inspections should be noted in an inspection register. The register should outline the state of the graveyards during each inspection. Reports on damages to any of the graves or to the graveyards (fences, walls, gates) should be followed with the necessary maintenance work. Maintenance work should be recorded in in the inspection register.
- Graveyards should be kept tidy from any invader weeds and any other refuse.

Summary

There is no reason from a heritage point of view why Anglo's proposed Leslie 2 Project with all possible alternatives cannot proceed after the appropriate mitigation measures outlined for historical remains and for graveyards have been implemented.



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14 SPOKESPERSONS CONSULTED

Michael Clinton Pedro. Farm owner on Palmietfontein 316IR.

Lucas Cornelius Muller. Farm owner on Palmietfontein 316IR and Winterhoek 314IR.

Barbara Lang. Farm owner on Palmietfontein 316R.

Stefan Kruger. Farm owner on Winterhoek 314IR.

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Sam Matshabisa. Farm worker on Winterhoek 314IR.