

**HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED
CONSTRUCTION AND OPERATION OF A CAUSTIC-SODA MAKE-UP PLANT, IN
KEMPTON PARK AT CITY OF EKURHULENI MUNICIPALITY, GAUTENG
PROVINCE SOUTH AFRICA**

AUGUST 2021

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1. REPORT DETAILS

PROJECT NAME: CONSTRUCTION AND OPERATION OF A CAUSTIC-SODA MAKE-UP PLANT IN KEMPTON PARK , EKURHULENI MUNICIPALITY OF GAUTENG PROVINCE, SOUTH AFRICA

REPORT TITLE: HERITAGE IMPACT ASSESSMENT (HIA) REPORT FOR THE PROPOSED CONSTRUCTION AND OPERATION OF A CAUSTIC-SODA MAKE-UP PLANT IN KEMPTON PARK, EKURHULENI MUNICIPALITY, GAUTENG PROVINCE SOUTH AFRICA

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2. PROFESSIONAL SERVICE PROVIDER (PSP)

The report was compile by *Mulaifa Development Project cc (PSP)* with due consideration of all processes information and specific conditions outlined by *Batach Holdings* in their Background Information Document (BID).

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4. EXECUTIVE SUMMARY

African Chemicals (Pty) Ltd, has appointed *Batach Holdings* to conduct a basic assessment study for the proposed construction of facilities. *Mulaifa Development Projects cc* was then commissioned by *Batach Holdings* to conduct a detailed Heritage Impact Assessment and investigation of possible Heritage resources associated within the proposed construction and operation of a caustic Soda Plant, in the Chloorokop area of Kempton Park, in the city of Ekurhuleni, South Africa. The proposed development aims to operate autonomously with its own slip road, security access, weighbridge, warehouse, production facility, tank farm, staff and technology.

African Chemicals proposes to construct and operate a Caustic-Make-up plant with the proposed construction and operation intended to take place at Erf Number 198, Chloorokop IR within the City of Ekurhuleni Metropolitan in Gauteng Province. The area proposed as the proposed make-up plant has a development footprint of 18758.67 square meters (m²). It is located on the north eastern boundary tip of the NCP Chlorchem Properties, Chloorokop, South Africa. Access to the site is via a well-maintained public tar road (Ossewa Street) that turns off from the motorway M39 (Zuurfontein Road) The address being No 1 Hytor Street, Chloorokop, Kempton Park, Gauteng Province, Ekurhuleni Metropolitan, South Africa.

Mulaifa Development Projects cc has been commissioned to conduct an Archaeological and Heritage Impact Assessment (A/HIA) specialist studies for the proposed development as part of an Environmental Basic Assessment report. The findings of the study are aimed at providing a specialist assessment, professional opinion and provide recommendations in relation to possible impacts associated to the development study area; in accordance with the National Heritage Resources Act 25 of 1999. This HIA has provided a comprehensive assessment of the potential heritage impacts associated with the proposed plant development.

The impacts identified by the field team specialists provided that, no heritage resources exists within the project receiving area that maybe adversely affected or impacted upon by proposed infrastructure development. There are no environmental or social impacts of high significance that would prevent the establishment of the proposed project, it is therefore recommended that the project should proceed with adequate mitigation measures implemented to identify any subsurface heritage features, objects or material remains.

It is *Mulaifa Development Projects cc* professional opinion that the proposed development does not present any fatal flaws in terms of adverse or negative impacts to heritage and cultural resources, as none where identifiable topographically, and therefore will not have any significant detrimental impacts to render the project unfeasible, at the time of the compilation of this document. No sub-surface reconnaissance was conducted, should any heritage resources be uncovered, their significance and impacts will need to be assessed accordingly.

5. CAVEAT

This investigative report was prepared for Batach Holdings (Pty) Ltd for the expressed purpose of fulfilling the requirements of the National Heritage Resources Act (NHRA) Act 25 of 1999 and ensuring compliance with the South African Heritage Resources Agency (SAHRA) Heritage regulations in terms of Section 38.

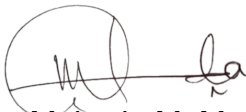
Copyright: This report and the information it contains is subject to copyright and may not be copied in whole or part without written consent of the author except that the Report may be reproduced by *Batach Holdings (Pty) Ltd*, the South African Heritage Resources Agency (SAHRA) and Gauteng Provincial Heritage Resources Authority (GPHRA) to the extent that this is required for the purposes of the Archaeological and Heritage Management in accordance with National Heritage Resources Act, Act 25 of 1999.

Geographic Co-ordinate Information: All associated geographic information and site co-ordinate details contained herein were obtained using a hand-held Garmin Global Positioning System device. The manufacturer states that these devices are accurate to within +/- 5 m.

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This Heritage Impact Assessment Investigation was carried out within the context of tangible and intangible cultural heritage resources as defined by the NHRA and the SAHRA Regulations and Guidelines for the authorization for the proposed construction of *Caustic Soda Make-up Plant*.

Signed by:

A handwritten signature in black ink, appearing to read 'M. Moses', written over a circular stamp or mark.

Mr. Mabuda M. Moses, August 2021.

For and/ on behalf of *Mulaifa Development Projects cc*

6. SPECIALIST DECLARATION

No part of this report may be reproduced or transmitted in any form or by any means, unless in full and with the exclusive permission, in writing, from the author.

Mulaifa Development Projects (cc) declares that –

- it acts as an independent specialist.

- all results and related data have been obtained through careful and precise execution of recognized methods of evaluation and are related to the scope of work covered in this report and of prevailing conditions at the time of the assessment.

- the opinions and interpretations are embraced through judgment, discernment and comprehension to the best of available knowledge and are outside the scope of any accreditation.

- it performed the work relating to this project in an objective manner, notwithstanding the results, views and findings.

- it has expertise in conducting the specialist report relevant to this project, including knowledge of the framework, protocol, legislation, regulations and strategies that may have relevance.

- it complies with the applicable framework, protocol, legislation, regulations and strategies.

- it has no, and will not engage in, conflicting interests in the undertaking of the activity.

- it undertakes to disclose to the client and authorities all material information it possesses that reasonably has or may have the potential of objectively influencing any decision based on the results and findings of this project.

- all the particulars furnished by Mulaifa Development Projects in this report are true and correct; and any false declaration is a punishable offence

7. ABBREVIATIONS

AIA	Archaeological Impact Assessment
BID	Background Information Document
C	Contractor
CARA	Conservation of Agricultural Resources Act, 1983 (Act No 43
CECO	Construction Environmental Conservation Officer
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DSR	Draft Scoping Report
DWA	Department of Water Affairs
EAP	Environmental Assessment Practitioner
ECA	Environmental Conservation Act
ECO	Environmental Conservation Officer
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EM	Environmental Manager
EMP	Environmental Management Plan
EMPr	Environmental Management Programme
EMPR	Environmental Management Programme Report
EMS	Environmental Management System
FC	Farming Community
GN	General Notice
GNR	General Notice Regulation
Ha	Hectares
HIA	Heritage Impact Assessment
HMP	Heritage Management Plan
I&AP's	Interested and Affected Parties
IDP	Integrated Development Plan
IRR	Issues and Responses Report
LIA	Late Iron Age
LFC	Late Farming Community
LSA	Late Stone Age
MIA	Middle Iron Age

8. DEFINITIONS

The following terms used in this Archaeological or Heritage Impact Assessment are defined in the National Heritage Resources Act [NHRA], Act Nr. 25 of 1999, South African Heritage Resources Agency [SAHRA] Policies as well as the Australia ICOMOS Charter (*Burra Charter*):

Archaeological Material remains resulting from human activities, which are in a state of disuse and are in, or on, land and which are older than 100 years, including artefacts, human and hominid remains, and artificial features and structures.

Chance Finds means Archaeological artefacts, features, structures or historical cultural remains such as human burials that are found accidentally in context previously not identified during cultural heritage scoping, screening and assessment studies. Such finds are usually found during earth moving activities.

Compatible use means a use, which respects the cultural significance of a place. Such a use involves no, or minimal, impact on cultural significance.

Conservation means all the processes of looking after a place so as to retain its cultural significance.

Cultural Heritage Resources Same as *Heritage Resources* as defined and used in the National Heritage Resources Act (*Act No. 25 of 1999*). Refer to physical cultural properties such as archaeological and Palaeontological sites; historic and prehistoric places, buildings, structures and material remains; cultural sites such as places of ritual or religious importance and their associated materials; burial sites or graves and their associated materials; geological or natural features of cultural importance or scientific significance. *Cultural Heritage Resources* also include *intangible resources* such as religion practices, ritual ceremonies, oral histories, memories and indigenous knowledge.

Cultural significance means aesthetic, historic, scientific, social or spiritual value for past, present or future generations. Also encompasses the complexities of what makes a place, materials or intangible resources of value to society or part of, customarily assessed in terms of aesthetic, historical, scientific/research and social values.

Environmental Impact assessment or (EIA) refers to the process of identifying, predicting and assessing the potential positive and negative social, economic and biophysical impacts of any proposed project, plan, programme or policy which, requires authorisation of permission by law and which may significantly affect the environment. The EIA includes an evaluation of alternatives. As well as recommendations for appropriate mitigation measures for minimizing or avoiding negative impacts, measures enhancing the positive aspects of the proposal and environmental management and monitoring measures.

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

Heritage impact assessment or (HIA) refers to the process of identifying, predicting and assessing the potential positive and negative cultural, social, economic and biophysical impacts of any proposed project, plan, programme or policy which requires authorisation of permission by law and which may significantly affect the cultural and natural heritage resources. The HIA includes recommendations for appropriate mitigation measures for minimising or avoiding negative impacts, measures enhancing the positive aspects of the proposal and heritage management and monitoring measures.

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

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

In Situ material culture and surrounding deposits in their original location and context, for example an archaeological site that has not been disturbed by farming.

Interested and affected parties Individuals, communities or groups, other than the proponent or the authorities, whose interests may be positively or negatively affected by the proposal or activity and/ or who are concerned with a proposal or activity and its consequences.

Late Iron Age this period is associated with the development of complex societies and statesystems in southern Africa.

Material culture means buildings, structure, features, tools and other artefacts that constitute the remains from past societies.

Mitigate The implementation of practical measures to reduce adverse impacts or enhance beneficial impacts of an action.

Place means site, area, land, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views.

Public participation process means a process of involving the public in order to identify issues and concerns, and obtain feedback on options and impacts associated with a proposed project, programme or development. Public Participation Process in terms of NEMA refers to: a process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to specific matters.

Significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (*i.e. intensity, duration and likelihood*). Impact significance is the value placed on the change by different affected parties (*i.e. level of significance and acceptability*). It is an anthropocentric concept, which makes use of value judgments and science-based criteria (*i.e. biophysical, physical cultural, social and economic*).

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

Land use means the functions of a place, as well as the activities and practices that may occur at the place.

9. PROJECT BACKGROUND

Mulaifa Development projects cc was appointed to provide a comprehensive heritage impact assessment study on the proposed construction of *Caustic Soda Make-up plant in Chloorkop area of the City of Ekurhuleni Metropolitan, Gauteng Province*. *African Chemicals (AC)* proposes to construct and operate a Caustic-Make-up plant, who appointed *Batach Holdings (Pty) Ltd*. The proposed construction and operation will be situated at ERF No 198 IR, Chloorkop, within the City of Ekurhuleni metropolitan in Gauteng Province. The proposed development aims to operate autonomously with its own slip road, security access, weighbridge, warehouse, production facility, tank farm, staff and technology. The access to the site is via a well-maintained public tar road (Ossewa Street) that turns off from the motorway M39 (Zuurfontein Road). The address being No 2 Hytor Street, Chloorkop, Kempton Park, Gauteng Province – Ekurhuleni Metro – South Africa (see Map below).

The proposed development aims to operate autonomously with its own slip road, security access, weighbridge, warehouse, production facility, tank farm, staff and technology. The proposed project is located at Erf No 198 Chloorkop-IR within the City of Ekurhuleni Metropolitan, Gauteng Province, with site access from Ossewa Street. Chloorkop is a large industrial area that encompasses several existing and developing industrial parks; including the Chloorkop landfill, a quarry, and cement and brick plants. Surrounding this is light to medium industrial activities, such as logistics warehousing, automotive, chemical storage and manufacturing businesses. The proposed Caustic Make-up Plant process is expected to produce caustic lye at estimated 5000 tones per month at 45-50% weight by weight (w/w) desired caustic solution concentration. The plant will be the 5th largest source of caustic soda in Southern Africa and will service inland consumers and SADC countries.

Mulaifa Development projects cc was contracted by *Batach Holdings (Pty) Ltd* as independent heritage and archaeological consultants to undertake the heritage impact assessment for the proposed development. As South Africa's heritage resources are described as the 'national estate', comprise a wide range of sites, features, objects and beliefs. However, according to Section 27(18) of the National Heritage Resources Act (NHRA), Act No. 25 of 1999, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by *Batach Holdings* to conduct a cultural heritage assessment to determine if the proposed development will have an impact on any sites, features or objects of cultural heritage significance. This report forms part of the Environmental Impact Assessment (EIA) as required by the EIA Regulations in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended and is intended for submission to the South African Heritage Resources Agency (SAHRA).

10. NATURE OF PROPOSED DEVELOPMENT

The application processes for the proposed Caustic Soda Make-Up plant is guided by the national environmental management principles set out in section 2 of the National Environmental Management Act (1998) (NEMA), which serve as the overall framework within which environmental management and implementation plans are formulated. The environmental authorisation is comprised of a technical and a public participation processes

that requires relevant compliant specialist reports and opinions, including the Heritage Impact Assessment Report.

The Environmental Impact Assessment is triggered by the Notification of Intention to Develop (NID) protocols for the proposed development of *an Caustic Soda-Make-up plant in the Chloorkop area of City of Ekurhuleni Metropolitan, Gauteng Province*. The proposed project site is located within an existing facility which is highly disturbed by means of existing infrastructure.

11. PROJECT AREA

The site is located in Chloorkop area of Kempton-Park in the City of Ekurhuleni Metropolitan Municipality, on Klipfontein12 (2628 AA) in Gauteng Province of South Africa. The proposed project area is located in an extensively urban built up area where numerous developments have occurred in the immediate area (See site map below).



Figure 1: Site Map of Project area (provided by Batach Holdings)

An existing Industrial Park that offers manufacturing, storage and warehousing land uses with no noxious activities noted there. Evidence of previous access roads into the proposed development area as well as previously disturbed and degraded area within the existing infrastructure development footprint. All relevant services including water, electricity, sewage and storm water are expected to be available in the area and the proposed development is going to be part of NCP Chlorchem infrastructure development. The site is

located within an area that is ideal for industrial/commercial development as it forms a logical extension to the Chloorkop South area.

Historically the site was used for subsistence agricultural and/ rural residential land uses, with nearby evaporation dams directly adjacent to the proposed study area. There have been several studies, Draft Basic assessment reports and grave relocation projects identifying numerous graves and being identified within the surrounding area.

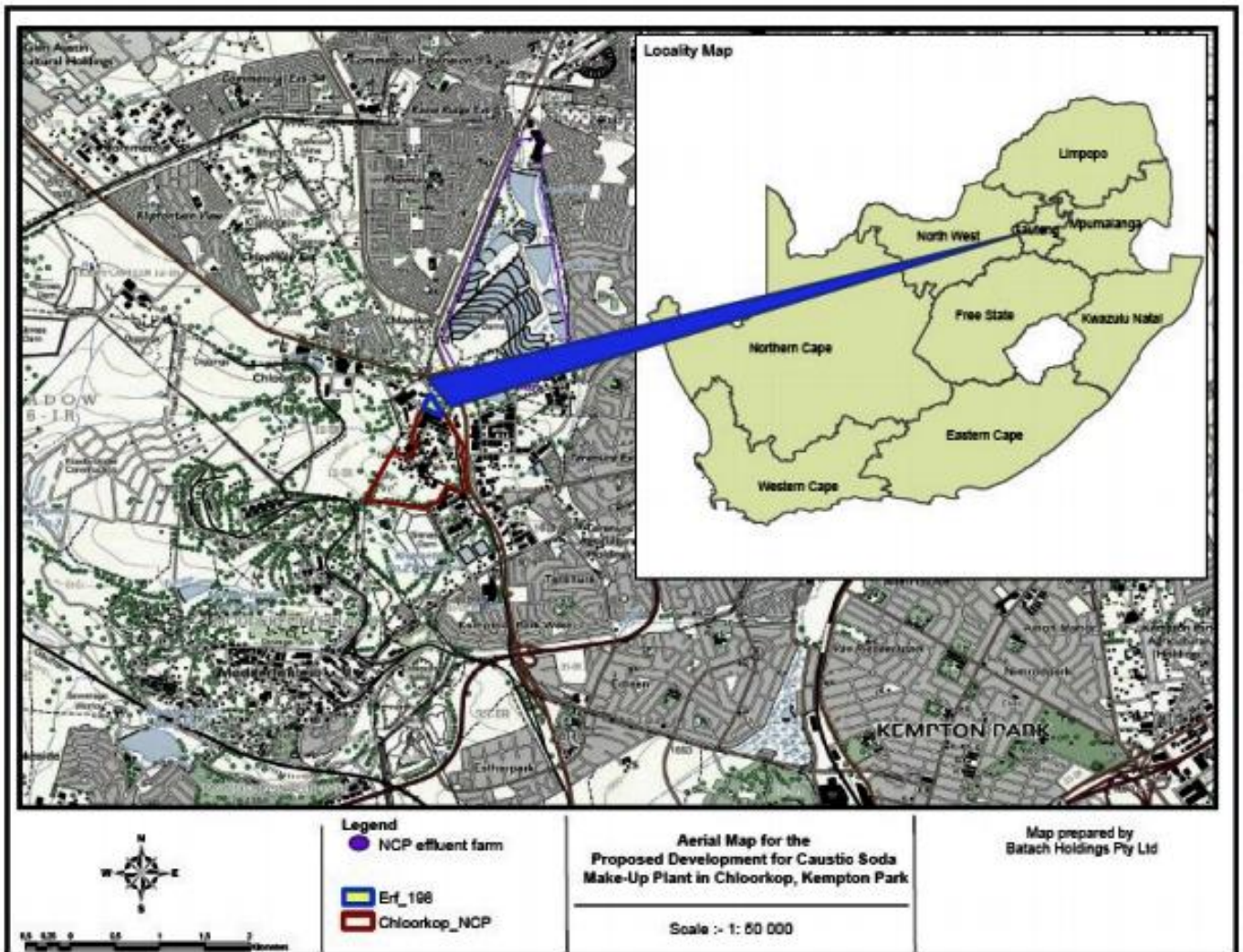


Figure 2: Locality Map of Project Receiving area (provided by Batach Holdings)

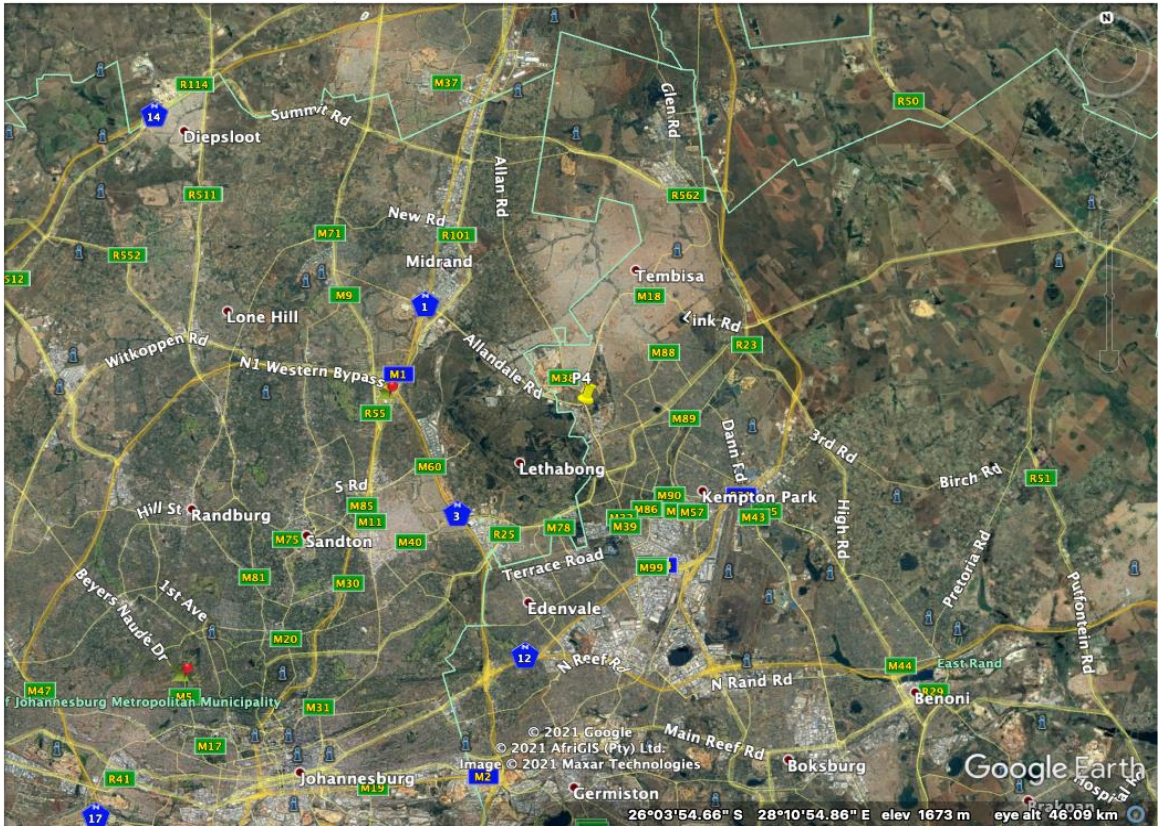


Figure 3: Site location indicated by yellow pin, note the largely transformed urban landscape

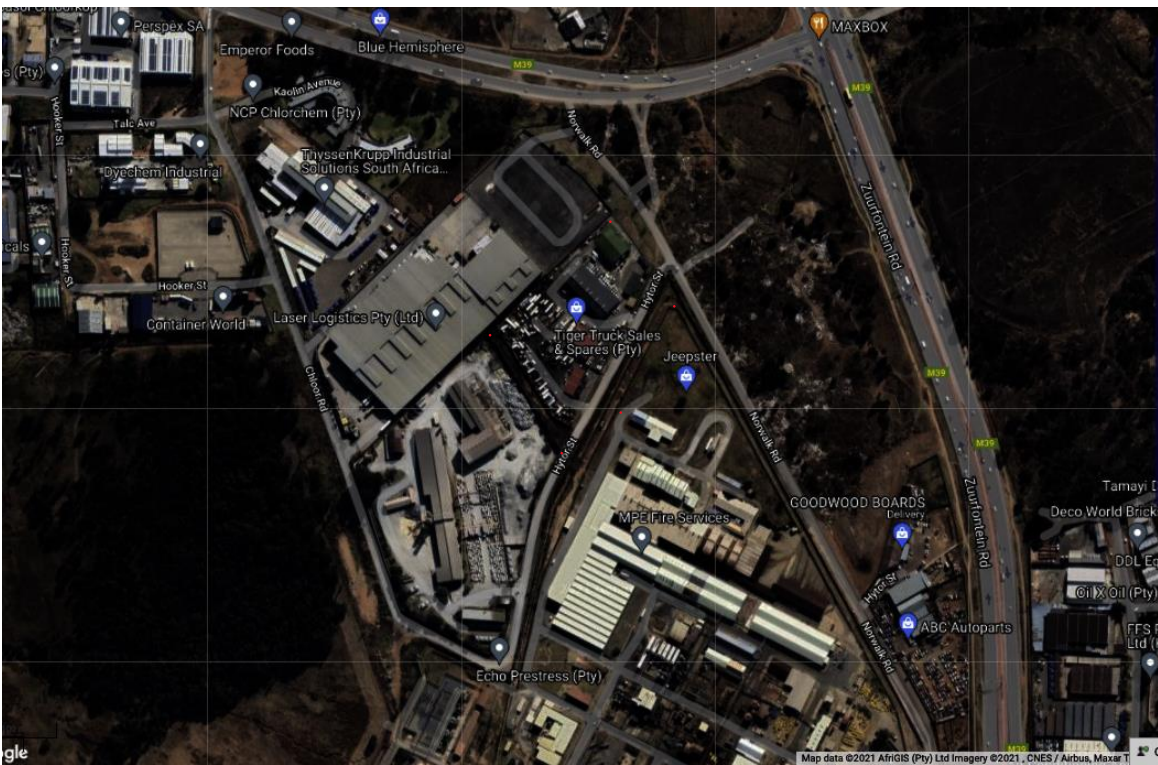


Figure 4: Aerial view of proposed project area within the urban cultural landscape



Figure 5: Street View Image of the proposed project area indicating trees and existing infrastructure, tarred road, street lights and transformed landscape in the background



Figure 6: Street View Image of the proposed area indicating vacant land and existing structures, note industrial infrastructure in the backdrop

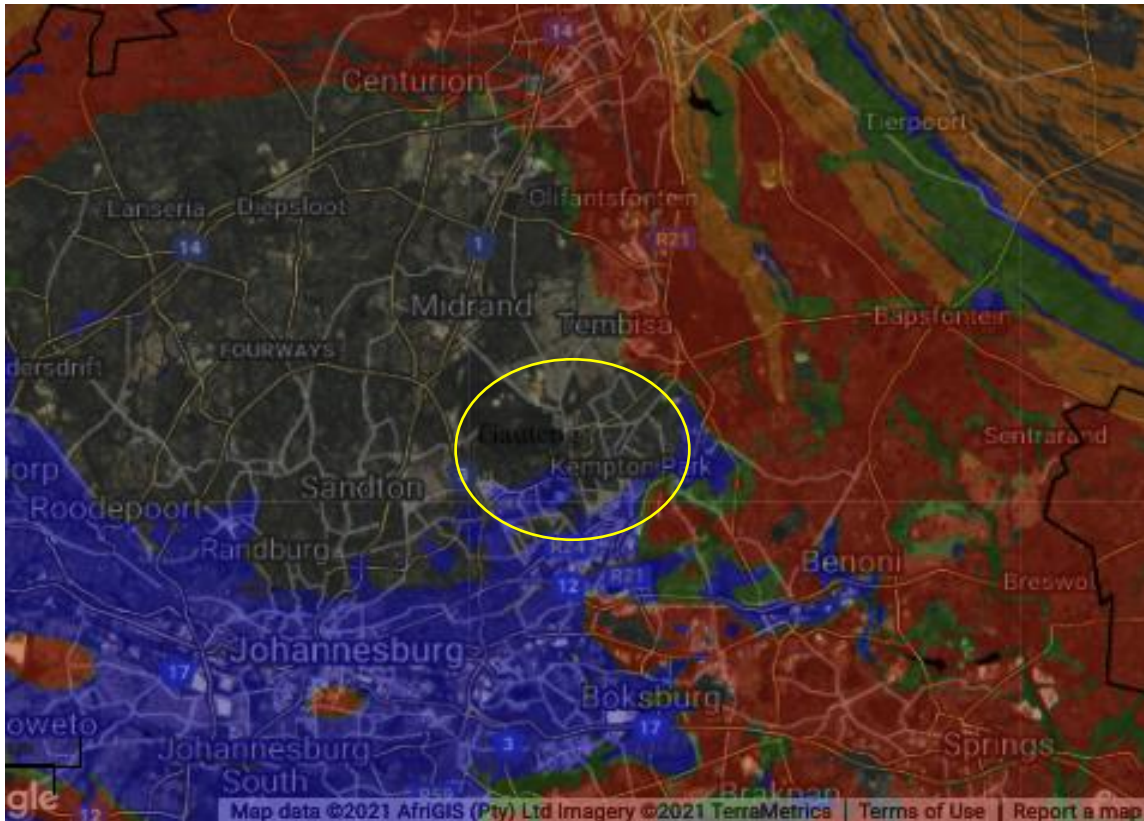


Figure 7: Map indicating Grey Palaeontological sensitivity of the proposed project area

The South African National Palaeontological fossil sensitivity map indicating the likelihood of fossil materials being uncovered in the project area as ***Insignificant/ Zero*** indicated by the area enclosed in the circle.

[Scale 1:250 000 geological formation layers]

TABLE 1: PALAEOLOGICAL SENSITIVITY INTERPRETATIVE TABLE

COLOUR	SENSITIVITY	REQUIRED ACTION
RED	Very High	Field assessment and protocol for chance finds is required
ORANGE/YELLOW	High	Desktop assessment is required and based on the outcomes of the desktop, a field assessment is likely
GREEN	Moderate	Desktop study is required
BLUE	Low	No palaeontological studies are required however a protocol for finds is required
GREY	Insignificant/zero	No palaeontological studies are required
WHITE/CLEAR	Unknown	These area will require a minimum of desktop study.

12. PROJECT SCOPE

The scope of work covers the construction of an *Caustic Soda Make-Up Plant* to be constructed within an existing NCP Chlorchem facility. The construction, storage, handling and processing, may trigger the identification of listed heritage assets as defined in terms of

National Heritage Resources Act, Act 25 No. 25 of 1999 (“NHRA”) This activity will require authorisation from relevant Heritage Authorities (Gauteng Provincial Heritage Resources Agency (GPHRA)).

The aim of this study is to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area earmarked for the proposed development. This study included:

1. Conducting a web-based desktop investigation of the area;
2. A physical field survey/ investigation of the proposed development site.

13. TERMS OF REFERENCE

The aim of the full Phase I HIA investigation is to provide an informed heritage-related opinion about the proposed development by heritage specialists. The objectives are to identify any heritage resources (involving site inspections, existing heritage data and additional heritage specialists if necessary); assess their significances; assess alternatives in order to promote heritage conservation issues; provide mitigatory recommendations for the management and conservation of identified resources and to assess the acceptability of the proposed development from a heritage perspective.

The result of this investigation is a heritage impact assessment report indicating the presence or absence of heritage resources and how to appropriately mitigate any impacts and manage them in the context of the proposed development. Depending on the GPHRA’s and SAHRA’s acceptance of this report, the developer will receive permissions and/ authorizations from the competent authority to proceed with the proposed development, on condition of the successful implementation of recommendations and proposed mitigation measures. Identify possible archaeological, cultural and historical objects and sites within the proposed development area(s);

1. Evaluate the potential impacts of construction, operation and maintenance of the proposed development on archaeological, cultural and historical resources;
2. Recommend mitigation measures to ameliorate any negative and adverse impacts on areas of archaeological, cultural or historical importance/significance.

14. ASSUMPTIONS AND LIMITATIONS

Some assumptions were made as part of the study and therefore some limitations, uncertainties and gaps in data and information would apply. It should however, be noted that these do not invalidate the findings of this study in any significant way:

- 14.1 The proposed development will be limited to specific proposed area(s) as detailed in development layout.
- 14.2 The construction team(s) at the development and service sites will use the existing formal access road(s) and there will be no deviations into undisturbed land parcel(s).
- 14.3 The site area has a very small natural undisturbed land parcel since it is within an existing infrastructure.
- 14.4 Given the extensively transformed nature of the affected project area, the area has a **LOW - MEDIUM** potential to yield highly significant *in situ* archaeological, paleontological, historical or physical cultural properties.

6.5. No sub-surface reconnaissance by means of excavations or topographic sampling was undertaken, as a permit from the relevant heritage authority is required to disturb a heritage resource. As such the results herein discussed are based on observable surface indicators. However, these surface observations concentrated on the areas physically accessible.

6.6. No Palaeontological study was conducted as part of this HIA, however a review of the Palaeontological sensitive map of South Africa provided that the proposed development area is in a very **NEGLIGIBLE-LOW** sensitive area for fossils and/ meteorites, therefore a detailed Palaeontological assessment is not recommended to identify and record any possible fossil materials.

6.7. This study did not include a social impact assessment aspect, and none were undertaken, no ethnographic and oral records/interviews were included. The existing studies from current and historic researches are accepted as adequate for the purposes of this Phase I HIA.

This investigation has been influenced by the following factors:

- It is assumed that the site details and description of the proposed project, provided by the client, is accurate, true and correct.
- The unpredictability of any subsurface material finds and/ buried archaeological material remains, objects and artefacts.
- No subsurface investigation (i.e. excavations or sampling) were undertaken, as a permit from SAHRA is required.
- It is assumed that the extensive public consultation process undertaken as part of the Environmental Impact Assessment (EIA) is sufficient and complies with the minimum requirements for the acceptability by the competent authority; and that it does not have to be repeated as part of the heritage impact assessment compilation.

15. SUMMARY RESULTS

African Chemicals (Pty) Ltd proposed to establish and operate the *Caustic Make-up Plant within the Chlorchem facilities* in the Chloorkop area of Kempton Park, Ekurhuleni Metropolitan of Gauteng province. In accordance with Section 38 of the NHRA, an independent heritage consultant, *Mulaifa Development Projects cc* was appointed to conduct a detailed cultural heritage impact assessment to determine if the proposed development will have an impact on any identifiable heritage resources, sites, features or objects of cultural heritage significance. The results of the concluded Heritage Impact Assessment study for the proposed project, provide that there is no identified cultural heritage sites (archaeological and/or historical) in the specific study area.

This report discusses the desktop results and field investigation and provides recommendations. No archaeological sites, features, objects, structures or materials were observed during the physical field assessment, while historical houses, buildings and associated structures deemed of **HIGH** Heritage Significance were noted within the larger area. None were noted within the immediate project extent. The greater cultural landscape provides for an industrial and urban area steaming from the early iron age to the historical

period, wherein the industrialization and urbanization of the area expanded within the last 150 years.

From a cultural heritage point of view the proposed development should therefore continue, taking into consideration the recommendations provided to specific issues as such the Chance find Protocols and/ watch-and-brief site monitoring approach to be implemented and adhered to. Should any heritage structures, sites, materials, objects, feature or graves be uncovered during earth-moving activities in the initial project earth-moving and construction phases., the specialist archaeologist to inspect the site upon all works in the immediate area ceasing.

This report described the methodology used, the limitations encountered, and the recommendations and mitigation measures proposed relevant to this. The Heritage Impact Assessment consist of an extensive desktop study (archival sources, database survey, maps and aerial imagery) and a physical survey that did not include the interviewing of people. It should be noted that the implementation of the mitigation measures provided, is subject to South African Heritage Resources Agency (SAHRA) or Gauteng Provincial Heritage Resources Agency's approval (GPHRA).

16. LEGISLATIVE FRAMEWORK

The report has made provision to accommodate all applicable legislation, policies and guidelines. The Environmental and Heritage legal requirements related to heritage specifically are specified and presented herein below. The site has not been given any formal protection by the SAHRA or the Provincial Heritage Resources Authority under the NHRA. For this proposed project, this cultural heritage impact assessment has determined that no sites, features or objects of heritage significance occur within the study area.

National Heritage Resources Act (NHRA Act 25 of 1999).

The purpose of the NHRA is to protect and promote good management of South Africa's heritage resources, and to encourage and enable communities to nurture and conserve their legacy so it is available to future generations.

The NHRA makes heritage resources of cultural significance or other special value part of the National Assets, and therefore places them under the care of the South African Heritage Resources Agency (SAHRA).

Heritage resources may include buildings, historic settlements, landscapes and natural features, burial grounds, graves and certain moveable objects, including objects of decorative art or scientific interest. The provincial and municipal authorities also play a role in managing provincial heritage resources and local-level functions i.e the designated provincial heritage resources agency in Gauteng to implement (GPHRA).

According to Section 38(1) under Heritage resources management of the National Heritage Resources Act, 25 of 1999, heritage resources in South Africa should be managed as follows:

(1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorized as-

- (a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- (b) the construction of a bridge or similar structure exceeding 50m in length;
- © any development or other activity which will change the character of a site-
 - (i) exceeding 5 000 m² in extent; or
 - (ii) involving three or more existing erven or subdivisions thereof; or
 - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
 - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- (d) the re-zoning of a site exceeding 10 000 m² in extent; or
- (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

If heritage features are identified during construction, as stated in the management recommendation, these finds would have to be assessed by a specialist, after which a decision will be made regarding the application for relevant permits. Reasoned opinion as to whether the proposed activity should be authorized:

- From a heritage point of view, it is recommended that the proposed development be allowed to continue on acceptance on the conditions proposed below. Conditions for inclusion in the environmental authorizations:
- Should archaeological sites or graves be exposed in other areas during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.
- Heritage Impact Assessments are governed by national legislation and standards and International Best Practice. These include:
 - South African Legislation: The National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA);
 - Mineral and Petroleum Resources Development Act, 2002 (Act No. 22 of 2002) (MPRDA);
 - National Environmental Management Act 1998 (Act No. 107 of 1998) (NEMA); and
 - National Water Act, 1998 (Act No. 36 of 1998) (NWA).
- Standards and Regulations of South African Heritage Resources Agency (SAHRA) Minimum Standards;
- Association of Southern African Professional Archaeologists (ASAPA) Constitution and Code of Ethics;
- Anthropological Association of Southern Africa Constitution and Code of Ethics.
- International Best Practice and Guidelines
- ICOMOS Standards (Guidance on Heritage Impact Assessments for Cultural World Heritage Properties); and
- The UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage (1972).

17. HERITAGE IMPACT ASSESSMENT STUDY

South Africa's unique and non-renewable archaeological and Palaeontological heritage sites are 'generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, Section 35) and may not be disturbed at all without a permit from the relevant heritage

resources authority. Impact analysis of cultural heritage resources under threat of the proposed development, is based on the present understanding of the development.

The National Heritage Resources Act (Act No. 25 of 1999, Section 38) provides guidelines for Cultural Resources Management and prospective developments with regards to;

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

(b) an assessment of the significance of such resources in terms of the heritage assessment criteria: no heritage resources were identified within the accessible areas within the site;

(c) an assessment of the impact of the development on such heritage resources; the project will have a low heritage impact as the area has already been subjected to intensive urbanization and numerous disturbances to subsurface structures in infrastructure developments and alterations;

(d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development; the project will indeed have a high impact on the sustainable social and economic benefits that coincide with the local area for improved health systems;

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

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

This heritage impact assessment (HIA) study report was segmented into sections, the previous section included the executive summary, historical background, the section below presents the second section. This second section includes the impact assessment study on the project receiving area (in line with the NHRA Act 25 Section 38) as well as; the heritage management recommendations for the immediate project receiving area covering the development, operation to closure phases of the project, historical review, impact ratings and results of the fieldwork exercise.

18. HERITAGE IMPACT ASSESMENT

An impact assessment was conducted after the field survey in order to determine the site significance. The proposed site of ERF 198 Chloorkop IR has a development footprint of 18758.67 square meters (m²), or 1.8 hectares, and falls within the city of Ekurhuleni Metropolitan Municipality. The larger study area has previously been extensively impacted on by urban developments, industrial and residential developments in the area, which would have destroyed any surface indicators of heritage sites and topographical features, commonly identifiable on relatively untransformed lands.

Although the Ekurhuleni region is known for its large number of historical buildings, some of which are nominated and declared provincial heritage sites, as well as sites of natural heritage significance, these would not be impacted on by the proposed development, as all the activities would take place within an existing infrastructural landscape. This Heritage and Palaeontological assessment is important to assist in identifying and determining the historical value of the site.

As no feasible sites, features or objects of cultural significance are known to exist in the development area, there would be no adverse impacts as a result of the proposed development. During the physical survey, no sites, features or objects of heritage or cultural significance were identified, and no heritage resources were identified therefore no **LOW and NEGLIGIBLE** significance and impacts are anticipated.

A watch-and-brief and/ chance finds protocol has been proposed as an effective mitigation and management approach to be implemented by the project Environmental Control Officer to ensure effective monitoring for any cultural remains that may be uncovered during excavation and earth-moving during construction phase.

19. HISTORICAL AND CULTURAL BACKGROUND

In the NHRA, Section 2 (vi), it is stated that “cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. This is determined in relation to a site or feature’s uniqueness, condition of preservation and research potential. According to Section 3(3) of the NHRA, a place or object is to be considered part of the national estate if it has cultural significance or other special value because:

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

The cultural landscape qualities of the larger Gauteng region are made up of a pre-colonial element consisting of limited Stone Age occupation and much more densely Iron Age occupation, as well as a much later colonial (farmer) component, which eventually gave rise to the modern urban component. The area boasts unique historical structures, houses and parks. Historical structures may not be affected (demolished, renovated, altered) by the proposed development prior to their investigation by a historical architect in good standing with the South African Heritage Resources Agency (SAHRA).

The historical architect has to acquire the relevant permit from the South African Heritage Resources Authority (SAHRA) prior to any of these structures been affected or altered (demolished, renovated) as a result of the proposed development. No buildings or structures older than 60 years will be affected in any way as such it will not be necessary to apply for a permit in terms of the National Heritage Resources Act 25 of 1999.



Figure 8: View of the proposed site with construction rubble dumped on the site



Figure 9: View of the proposed site earmarked for the proposed construction

The following coordinates mark the proposed area for development.

S26° 3' 51.3" E28° 10' 57.9"
S26° 3' 49.2" E28° 10' 54.9"

S26° 3' 47.8" E28° 10' 55.9"
S26° 3' 49.2" E28° 10' 56.1"



Figure 10: Areas of interest to be observed for possible sub-surface finds

The current land use, the quaternary catchment area is characterised by intense past land-use modifications from agriculture, mining, tourism, residential, recreational and industrial development activities. The primary area is bordered by mixed-use industrial developments as well as residential areas and open areas (refer to map above). The broader surrounding area contributes significantly to the storm water drainage that runs through the study site.

The developable land has a surface area of approximately 18 thousand square meters, although the area to be developed will be less (based on the required coverage factor). The terrain across the primary area is generally very flat with a gradual slope towards the south from an elevation of approximately 67 metres above mean sea level (mamsl) on the northern boundary to approximately 42 mamsl on the southern boundary.

During the physical assessment undertaken on 2 June 2021, provided that the ERF 198 site for proposed development is surrounded by industries and similar chemical industries, visual impact on the landscape is anticipated to be limited. The field assessment indicated that no features were denoted by the yellow pins co-ordinates (above map) were noted as areas of interest in the desktop assessment but did not reveal any resources during the physical survey. Google Earth and 1:50 000 maps of the area were utilised to identify possible places where sites of heritage significance are likely to be located. This likelihood assessment was not validated on site, and areas with probability of heritage resources did not provide any topographic indicators for features.

When the field-based investigation was undertaken we did not identify any cultural Heritage resources, no burial grounds or grave markers were observable topographically. No surface indicators of archaeological or palaeontological resources within the proposed area earmarked for the development of *Caustic-Soda Make-up Plant* were identified. The area is highly transformed with an access road and development of other existing structures on the property. Previous evidence of extensive mechanized earth-moving, dumping and vehicle tracks on the site. The greater area denotes a highly extensively disturbed environment within an industrial park. Due to the existence of other industrial operation in the vicinity of the site, the site is extensively disturbed and no direct archaeological, heritage or cultural resources impacts are anticipated.

There are also no heritage monuments within the vicinity of the proposed site that are listed on the National Heritage data base/inventor/registrar. The desktop assessment of the heritage map provided (below) also indicated that no heritage areas, declared local, national or provincial sites are within the immediate project area or the larger area. The greater project area does not include any sites with provisional protection.

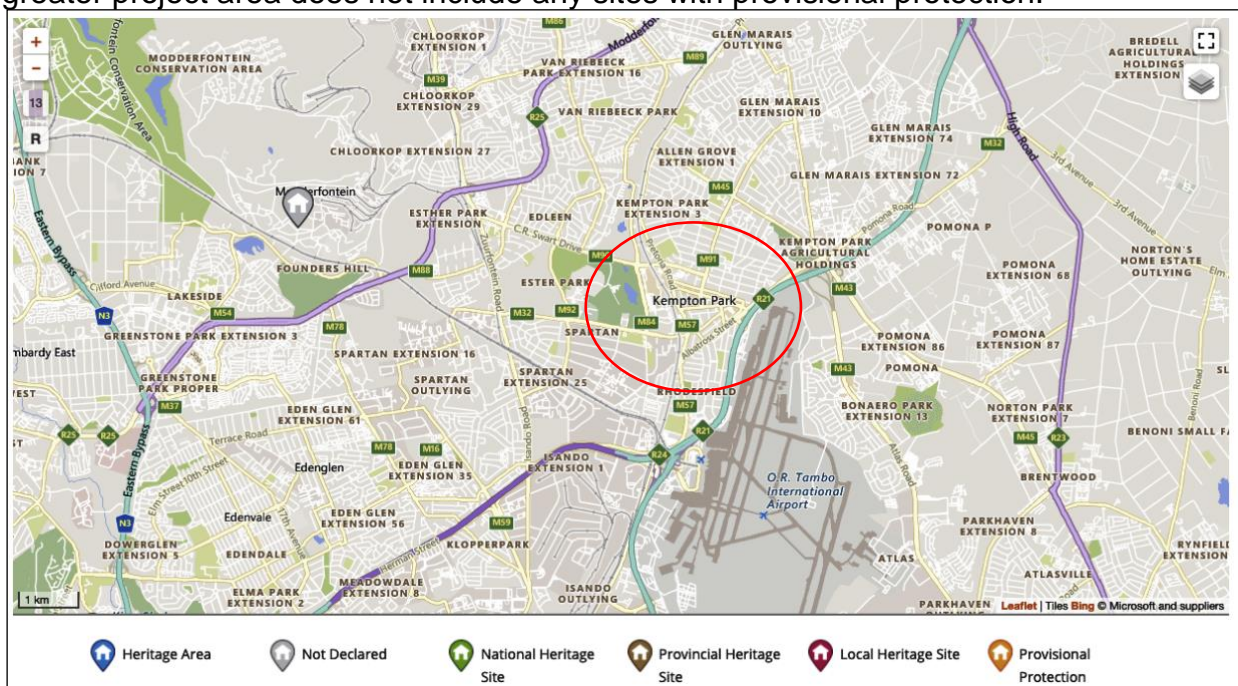


Figure 11: Heritage Map of greater project area

20. RESEARCH METHODOLOGY

The methodological approach presented here is specific to the terms of reference and the nature of this project. The project area is part of an existing and previously developed and disturbed landscape with formal tarred road networks and servitudes, urban office buildings, residential houses and both transmission and distribution power lines, and other auxiliary infrastructures dominate the extent area as well as the larger project area.

This survey and heritage impact assessment cover all facets of cultural heritage located within the study area as presented below:

20.1 Desktop (Web-based online) literature review- A survey of the relevant literature was conducted with the aim of reviewing the previous research done

and determining the potential of the area. In this regard, various anthropological, archaeological and historical resources were consulted.

20.2 Review of heritage impact assessments (HIAs) conducted for projects in the region by various heritage consultants was done with the aim of determining the heritage potential of the area – see list of bibliography as the information on sites and features in the larger region were obtained from these sources including SAHRIS, the Heritage Atlas Database, various SAHRA databases, the Environmental Potential Atlas, the Chief Surveyor General and the National Archives of South Africa were consulted.

20.3 Database surveys produced a number of sites located in the larger region of the proposed development, but none in the proposed project extent.

20.4 Other sources: Aerial photographs and topo-cadastral and other maps were also referenced.

21. DESKTOP SURVEY

- Geo-spatial data analysis

The geo-spatial landscape analysis of the study area was conducted through the analysis of various historical maps, Topo-cadastral maps and aerial photographs as well as survey general maps. To identify landscape forms, paleontological objects, natural features and structures that potentially have heritage significance or have associated features, structures or objects of heritage value and significance. The analysis of the studies conducted in this footprint area assist in understanding the heritage landscape and its associated landform types and heritage finds.

- Aerial Photography Review of Google satellite imagery as well as Google Earth Pro Street view assists in the identification of any man-made structures, infrastructure or landforms associated with settlement patterns of previous site occurrence.

22. FIELD SURVEY

The field survey was conducted in accordance with the general principles of Heritage Resource Management, as well as the generally accepted archaeological best practice methodologies, and was aimed at locating all possible and potential sites, objects and structures.

The area that had to be investigated was identified by *Batach Holdings Pty (Ltd)* by means of maps and .kml shape files indicating the development area. The field survey was conducted on the 18th of June 2021 and was investigated by accessing the proposed site for development. During the site investigation, topographic archaeological visibility was limited as the area is covered by natural grasses.

23. PROJECT DESCRIPTION

24. SITE LOCATION

The location history of this site is in a high-density urban development in the region, and it is very unlikely that any sites or features dating to the pre-colonial history of the region would still exist in the study area. However, the possibility of any isolated objects such as Stone

Age artefacts, and Iron Age artefacts and/ historical material remains or even human remains may be exposed sub-surface.

The cultural landscape qualities of the region essentially consist of an area dominated by human occupation is made up of a pre-colonial (Stone Age and Iron Age) occupation and a much later colonial (farmer) component. The second component is an urban one, most of which developed during the last 150 years or less.

25. FIELD INVESTIGATION RESULTS

During the survey no heritage sites of significance was recorded the general site conditions and features on sites were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were noted where heritage and cultural resources were identified and mitigation measures are proposed in the following report. This report must also be submitted to the GHRA for review.

During the physical survey (July 2021), no sites, features and objects of cultural significance were identified in the study area:

- Stone Age: No sites, features or objects of cultural significance dating to the Stone Age were identified in the study area
- Iron Age: No sites, features or objects of cultural significance dating to the Iron Age were identified in the study area.
- Historic period: No sites, features or objects of cultural significance dating to the historic period were identified in the study area.

Heritage impacts are categorized as (i) direct or physical impacts, implying alteration or destruction of heritage features within the project boundaries, (ii) indirect impacts, e.g. restriction of access or visual intrusion concerning the broader environment; (iii) cumulative impacts that are combinations of the above.

26. RESULTS

The sensitivity rating and impact assessments provides a low mitigation. No signs of culturally (aesthetic, social, spiritual, environmental) or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or Palaeontological sites, on or close (within 20m-100m) to the site were identified. Significance rating of impacts (positive or negative) is negligible regarding disturbance of heritage resources, there are no proposed mitigation measures and there are no risks of high impacts or mitigation not being implemented. As no sites, features or objects of cultural historic significance have been identified in the study area, there would be no impact as a result of the proposed development.

27. SIGNIFICANCE ASSESSMENT

The appropriate management of cultural heritage resources is usually determined on the basis of their assessed significance as well as the likely impacts of any proposed developments. Cultural significance is defined in the Burra Charter as meaning aesthetic, historic, scientific or social value for past, present and future generations (Article 1.2).

Social, religious, cultural and public significance are currently identified as baseline elements of this assessment, and it is through the combination of these elements that the overall cultural heritage values of the site of interest, associated place or area are resolved. Not all sites are equally significant and not all are worthy of equal consideration and management. The significance of a place is not fixed for all time, and what is considered of significance at the time of assessment may change as similar items are located, more research is undertaken and community values change.

The above observation does not lessen the value of the heritage approach, but enriches both the process and the long-term outcomes for future generations as the nature of what is conserved and why, also changes over time (Pearson and Sullivan 1995:7).

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

Significance ratings vary between **HIGH, MEDIUM and LOW**. The implementation of the aforementioned mitigation measures will reduce the impact rating to LOW or at least MEDIUM. The significance is determined through a synthesis of the characteristics described above (refer to the formula below) and can be assessed as low, medium or high:

$$S = (E+D+M) \times P$$

where S = Significance weighting, E = Extent, D = Duration, M = Magnitude, P = Probability.

The significance rating for the proposed project development of a *Caustic Soda Make up Plant* is thus **<30** and is weighted **LOW** rating. This provides that the impact would not have a direct influence on the decision to develop in the area.

As previously mentioned the area is highly disturbed and is of an urban nature the likelihood of unearthing any significant heritage resources is also **LOW**. The presence of known heritage resources and the areas in which the likelihood of longer and more expensive HIAs involving mitigation of heritage resources is weighted **MEDIUM- LOW**.

It should be noted that a heritage impact assessment (HIA) is required when it is anticipated that there will be impacts on significant heritage resources for a particular development proposal. The HIA contains a fieldwork component to ensure that any cultural heritage resources within the proposed area are physically identifiable and assessed. This differs from a heritage survey which identifies, records and grades heritage resources with no particular development project proposed.

17. HERITAGE MANAGEMENT RECOMMENDATIONS FOR IMMEDIATE PROJECT AREA COVERING THE DEVELOPMENT, OPERATION TO CLOSURE PHASES OF THE PROJECT

Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any adverse impact(s) upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the proposed development can be excavated/recorded and a management plan may be developed for future action, mitigation, conservation and management. Those sites that are not impacted on can be written into a heritage resource management plan, where they can be avoided or cared for in the future. The significance and impacts on these identified heritage resources is determined on the basis of their assessed likelihood of being adversely affected by the proposed development.

Potential sources of risks were considered with regards to development activities, as defined in Section 2(viii) of the NHRA that may be triggered and are summarized below, as they form the basis of the impact assessment in accordance with the various phases of the project below as it pertains to the "Chance find Protocol" to be implemented and adhered to should any heritage structures, materials, objects, features or graves uncovered during the earth-moving activities in the construction phase.

28. ASSESSMENT CRITERIA

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

Aesthetic Value

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

Adverse impacts on the sense of history, sense of place and heritage of the area and the sociocultural and cultural-historic characteristics and sensitivities of the area is not anticipated.

Historic Value

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

Scientific value

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

Social Value

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

29. EVALUATION OF HERITAGE RESOURCES

Based on the information from the SAHRA standards of best practice and minimum standards, principals of heritage conservation, data capture methods were implemented in the collection of data and information from the field through site condition survey and observations. After data was gathered from the field, it was combined with information from other sources deemed essential to establish the value and significance of individual sites as well as to identify any threats and potential risks to the heritage resource(s). The NHRA (Act 25 of 1999) grading scale was used to assess significance and provide the appropriate rating recommendation.

The general aim of the impact assessment is to determine the extent of the proposed project on the identified heritage resources and; through deduction attempt to predict any possible impacts on any of the unidentified heritage resources. All impacts are envisaged to occur during construction activities, during the surface earthwork.

A heritage resource with a high significance rating will have a much higher impact on the magnitude of impact on the developments affects can have on it. As a result, mitigation approaches and recommendations for these will be more extensive than those with a very low significance rating.

Significance ratings vary between **HIGH negative** and **MEDIUM negative**. The implementation of the aforementioned mitigation measures will reduce the impact rating to **LOW negative** or at least **MEDIUM negative**.

ICOMOS RATING

- ¥ Very high (World Heritage Sites)
- ¥ High (Nationally significant sites)
- ¥ Medium (regionally significant sites)
- ¥ Low (locally significant sites)

TABLE 2: TABLE INDICATING SIGNIFICANCE RATING SCALE AS PER INTERNATIONAL STANDARDS

RATING	SIGNIFICANCE DESCRIPTION
LOW	Locally significant sites for that area

MEDIUM	Regionally significant sites
HIGH	Nationally significant sites
VERY HIGH	Internationally significant sites &/ World heritage listing

30. NATIONAL HERITAGE RESOURCES ACT- SITE GRADING ASSESSMENT CRITERIA

National Heritage Sites (Grade 1), Grade 2 (Provincial Heritage Sites), Grade 3a burials
Grade 3b

¥ Negligible Grade 3c
¥ Unknown Grade 3a

TABLE 3: TABLE GRADING ASSESSMENT AS PER NHRA GUIDELINES

SCORE	GRADE	PROTECTION	RECOMMENDED HERITAGE MITIGATION
16-18	Grade I	National	Nomination for inclusion on the national estate register
13-15	Grade II	Provincial	Nomination as a provincial site/object, included in the national estate
10-12	Grade III A	Local	Nomination as a regional site/object, included in the national estate
7-9	Grade III B	Local	Heritage resources must be mitigated and partly conserved
4-6	Grade IV A	General	Heritage resources must be mitigated before destruction
1-3	Grade IV B	General	Heritage resources must be recorded before destruction
0	Grade IV C	General	No mitigation required (application for destruction permit maybe required)

The project area is recommended a **grading score 0 - Grade IV C** where general protection is provided for and no mitigation is required, and a destruction permit will not be required as no structures are being destroyed.

It is recommended that: the project environmental control officer be informed of the "Chance find Protocol" to be implemented and adhered to should any cultural heritage structures, objects, materials, features or graves be uncovered during earth-moving activities in the construction phase.

31. VALUE ASSESSMENT SPECIFIC TO THE PROJECT AREA

Historic Value

Although the entire project area is composed of various infrastructure development, no historical aspect of cultural significance were recorded on the direct path of an area earmarked for the proposed development.

Scientific value

Previous construction activities and associated roads, and other auxiliary infrastructure developments and disturbance within the HIA study area associated with the proposed development have resulted in limited intact significant cultural landscapes with the potential to retain intact large scale or highly significant open archaeological site deposits. However, should intact archaeological sites be recorded within the proposed site earmarked for Caustic Soda Plant development and immediate surrounding areas, they may retain scientific evidence that may add value to the local and regional history.

Social Value

Under normal circumstances, any site possesses some certain status of social significance at a particular time in a society. The overall area has social value for the local community, as is the case with any populated landscape. The land provides the canvas upon which daily socio-cultural activities are created. All these factors put together confirm the social significance of the project area. However, this social significance is not going to be adversely impacted by the proposed construction and operation of the caustic soda (known as sodium hydroxide) make-up plant. The development will add value to the human settlements and activities already taking place. In addition the area is already affected by development and this project is an addition to already existing infrastructure such as roads, and other infrastructure developments.

32. CUMULATIVE IMPACTS

There are no archaeological, cultural or heritage resources observed within the project area. Given the developmental landscape nature of the proposed project area, there are no cumulative impacts that are of concern on this site. Monitoring may not be necessary during construction phase of the development, due to the nature of excavation of the current landscape (there will be very limited excavation) within an earmarked for development. Regardless, monitoring is still recommended due to the sub-surface nature of heritage and archaeological resources, as such no further action is required.

33. CHANCE FINDS/ WATCH & BRIEF

The HIA is in no way a detailed heritage management plan for implementation at project completion, as this falls outside the project scope. No mitigatory recommendations provided herein speak to this context, as such these may only be provided by means of a physical investigative survey should any Heritage, Archaeological or Palaeontological sites, material or features be unearthed.

These guidelines are provided to be assisted at every stage of development are prescriptive as a preventative measure or risk management tool. Heritage risks refer to potential issues that could affect the Project. Potential heritage risks are associated with:

- Unidentified, significant heritage resources; and
- Heritage impacts that may have repercussions i.e. graves, human remains
- Palaeontological and fossil finds/ materials

The degree to which the impact can be mitigated for the current study, as no sites, features, materials or objects of cultural historic significance have been identified in the study area, no mitigation measures are proposed beyond a watch-and-brief and/ chance finds protocol. Impacts can be managed through one or a combination of the following mitigation measures:

Avoidance/Preserve: This is viewed to be the primary form of mitigation and applies where any type of development occurs within a formally protected or significant or sensitive heritage context and is likely to have a high negative impact. This measure often includes the change / alteration of development planning and therefore impact zones in order not to impact on resources. The site should be retained in situ and a buffer zone should be created around it, either temporary (by means of danger tape) or permanently (wire fence or built wall). Depending on the type of site, the buffer zone can vary from 0 10 metres for a single grave, or a built structure, to 0 50 metres where the boundaries are less obvious, e.g. a Late Iron Age site.

Archaeological investigation/Relocation of graves: This option can be implemented with additional design and construction inputs. This is appropriate where development occurs in a context of heritage significance and where the impact is such that it can be mitigated. Mitigation is to excavate the site by archaeological techniques, document the site (map and photograph) and analyze the recovered material to acceptable standards. This can only be done by a suitably qualified archaeologist. This option should be implemented when it is impossible to avoid impacting on an identified site or feature. This also applies for graves older than 60 years that are to be relocated. For graves younger than 60 years a permit from SAHRA is not required. However, all other legal requirements must be adhered to.

Rehabilitation: When features, e.g. buildings or other structures are to be re-used. Rehabilitation is considered in heritage management terms as an intervention typically involving the adding of a new heritage layer to enable a new sustainable use.

The heritage resource is degraded or in the process of degradation and would benefit from rehabilitation. Where rehabilitation implies appropriate conservation interventions, i.e. adaptive re-use, repair and maintenance, consolidation and minimal loss of historical fabric. Conservation measures would be to record the buildings/structures as they are (at a particular point in time). The records and recordings would then become the 'artefacts' to be preserved and managed as heritage features or (movable) objects. This approach automatically also leads to the enhancement of the sites or features that are re-used.

Mitigation is also possible with additional design and construction inputs. Although linked to the previous measure (rehabilitation) a secondary though 'indirect' conservation measure would be to use the existing architectural 'vocabulary' of the structure as guideline for any new designs. The following principle should be considered: heritage informs design. This approach automatically also leads to the enhancement of the sites or features that are re-used.

No further action required: This is applicable only where sites or features have been rated to be of such low significance that it does not warrant further documentation, as it is viewed to be fully documented after inclusion in this report. Site monitoring during development, by an ECO or the heritage specialist are often added to this recommendation in order to ensure that no undetected heritage/remains are destroyed.

34. CHANCE FINDS PROTOCOL

All work must cease immediately, if any human remains and/or other Archaeological, Palaeontological and Cultural or Historical material are uncovered. Such material, if exposed, must be reported to the heritage specialist, archaeologist or palaeontologist (or the South African Police Services), and the provincial heritage resources agency so that a systematic and professional investigation can be undertaken.

Sufficient time should be allowed for the removal or collection of such material before development recommences as a permit and authorizations will need to be obtained prior to any works being conducted. Where significant subsurface heritage resources occur, Environmental Control Officer (ECO) will need to be made aware of and become familiar with identifying such resources, in order to prevent loss of highly significant palaeontological, archaeological and palaeo-anthropological resources. The excavation teams should be inducted in the identification of cultural heritage objects and materials and pay specific attention to the areas of interest identified in this report where sub-surface material finds may occur. Particular attention is drawn to the appendices of this document.

35. CONCLUSION

African Chemicals proposed the development and operation of an *Caustic -Soda Make up Plant in the Chlorokop area of Ekurhuleni Metro in Gauteng Province*. The proposed site has been severely actively disturbed due to similar industrial activities on the same site. A chlorine producing industry is also located adjacent to the proposed site on the industrial zone. There are no watercourses or other sensitive environmental features located on, or within close proximity to the proposed site. This location was therefore chosen as the proposed site due to its degraded state and its proximity to the similar industrial activity and upgraded roads.

This report describes the methodology used, the limitations encountered, the significance of heritage features and the recommendations and mitigation measures proposed relevant to this. The HIA consisted of a desktop study (archival sources, database survey, maps and aerial imagery) and a physical survey that included the interviewing of relevant people. It should be noted that the implementation of the mitigation measures is subject to SAHRA and/ GPHRA's approval.

The cultural landscape qualities of the region are made up of a pre-colonial element consisting of limited Stone Age occupation and much more densely Iron Age occupation, as well as a much later colonial (farmer) component, which eventually gave rise to the current urban component. The study area has been extensively impacted on by industrial and residential developments in the area. Some modern structures are found on site, these structures do not have any historical or architectural significance and no evidence could be found that the structures are older than 60 years and no further mitigation is necessary for this site.

Impact analysis of cultural heritage resources under threat of the proposed development, is based on the present understanding of the development type. Although the region is known for its large number of old houses, some of which are declared provincial heritage sites, as well as sites of natural heritage significance, these would not be impacted on by the proposed development, as all the activities would take place within an already developed landscape. As such no sites, features or objects of cultural significance are known to exist in the development area, there would be no impact as a result of the proposed development and methods of construction.

From a heritage point of view, *it is recommended that the proposed development be allowed to continue on acceptance of ensuring a chance finds protocol is adhered to should any heritage resources be unearthed or identified.* No further action is required beyond a watch an brief approach and the implementation of the recommended chance finds protocol when necessary. This includes that should archaeological sites or graves be exposed in other areas during construction work, works must cease immediately and it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.

The presence of sub-surface heritage resources has not been confirmed through the web-based archival, historical and geo-spatial assessment conducted. This evaluation provided the basis for the recommendation that the project continues provided, effective monitoring for unidentified heritage resources is conducted as topographic identification of heritage resources provided for none.

The literature review, field research and subsequent impact assessment confirmed that the project area is situated within a historical and contemporary cultural landscape dotted with settlements that have long local history. Field survey was conducted during which it was established that the entire project site is degraded by existing and previous land use activities and developments. *Mulaifa Development Projects cc* is of the professional opinion that the listed project development and its associated activities will have a very limited impact upon cultural heritage resources within the site specific study area.

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37. APPENDIX A: HUMAN REMAINS AND BURIALS IN DEVELOPMENT CONTEXT

Developers, land use planners and professional specialist service providers often encounter difficult situations with regards to burial grounds, cemeteries and graves that may be encountered in development contexts. This may be before or during a development project. There are different procedures that need to be followed when a development is considered on an area that will impact upon or destroy existing burial grounds, cemeteries or individual graves. In contexts where human remains are accidentally found during development work such as road construction or building construction, there are different sets of intervention regulations that should be instigated. This brief is an attempt to highlight the relevant regulations with emphasis on procedures to be followed when burial grounds, cemeteries and graves are found in development planning and development work contexts. The applicable regulations operate within the national heritage and local government legislations and ordinances passed in this regard. These guidelines assist you to follow the legal pathway.

1. First, establish the context of the burial:
 - A. Are the remains less than 60 years old? If so, they may be subject to provisions of the Human Tissue Act, Cemeteries Ordinance(s) and to local, regional, or municipal regulations, which vary from place to place. The finding of such remains must be reported to the police but are not automatically protected by the National Heritage Resources Act (Act 25 of 1999).
 - B. Is this the grave of a victim of conflict? If so, it is protected by the National Heritage Resources Act (Section 36(3a)). (Relevant extracts from the Act and Regulations are included below).
 - C. Is it a grave or burial ground older than 60 years which is situated outside a formal substation administered by a local authority? If so, it is protected by the National Heritage Resources Act (Section 36(3b)).

D. Are the human or hominid remains older than 100 years? If so, they are protected by the National Heritage Resources Act (Section 35(4), see also definition of “archaeological” in Section 2).

2. Second, refer to the terms of the National Heritage Resources Act most appropriate to the situation, or to other Acts and Ordinances:

A. Human remains that are NOT protected in terms of the National Heritage Resources Act (i.e. less than 60 years old and not a grave of a victim of conflict or of cultural significance) are subject to provisions of the Human Tissue Act and to local and regional regulations, for example Cemeteries Ordinances applicable in different Provincial and local Authorities.

B). All finds of human remains must be reported to the nearest police station to ascertain whether or not a crime has been committed.

C). If there is no evidence for a crime having been committed, and if the person cannot be identified so that their relatives can be contacted, the remains may be kept in an institution where certain conditions are fulfilled. These conditions are laid down in the Human Tissue Act (Act No. 65 of 1983). In contexts where the local traditional authorities given their consent to the unknown remains to be re-buried in their area, such re-interment may be conducted under the same regulations as would apply for known human remains.

3. In the event that a graveyard is to be moved or developed for another purpose, it is incumbent on the local authority to publish a list of the names of all the persons buried in the graveyard if there are gravestones or simply a notification that graves in the relevant graveyard are to be disturbed. Such a list would have to be compiled from the names on the gravestones or from parish or other records. The published list would call on the relatives of the deceased to react within a certain period to claim the remains for re- interment. If the relatives do not react to the advertisement, the remains may be re- interred at the discretion of the local authority.

A. However, it is the responsibility of the developer to ensure that none of the affected graves within the development site are burials of victims of conflict. The applicant is

also required in line with the heritage legislation to verify that the graves have no social significance to the local communities.

- B. It is illegal in terms of the Human Tissue Act for individuals to keep human remains, even if they have a permit, and even if the material was found on their own land.
- 4. The Exhumations Ordinance (Ordinance No. 12 of 1980 and as amended) is also relevant. Its purpose is “To prohibit the desecration, destruction and damaging of graves in cemeteries and receptacles containing bodies; to regulate the exhumation, disturbance, removal and re-interment of bodies, and to provide for matters incidental thereto”. This ordinance is supplemented and support by local authorities regulations, municipality by- laws and ordinances.

DEFINITIONS AND APPLICABLE REGULATIONS

- 1). A “Municipality” is defined as any land, whether public or private, containing one or more graves.
- 2). A “grave” includes “(a) any place, whether wholly or partly above or below the level of ground and whether public or private, in which a body is permanently interred or intended to be permanently interred, whether in a coffin or other receptacle or not, and (b) any monument, tombstone, cross, inscription, rail, fence, chain, erection or other structure of whatsoever nature forming part of or appurtenant to a grave.
- 3). No person shall desecrate, destroy or damage any grave in a cemetery, or any coffin or urn without written approval of the Administrator.
- 4). No person shall exhume, disturb, remove or re-inter anybody in a cemetery, or any coffin or urn without written approval of the Administrator.
- 5). Application must be made for such approval in writing, together with:
 - a). A statement of where the body is to be re-interred.
 - b). Why it is to be exhumed.
- c). The methods proposed for exhumation.

- d). Written permission from local authorities, nearest available relatives and their religious body owning or managing the cemetery, and where all such permission cannot be obtained, the application must give reasons why not.
 - 6). The Administrator has the power to vary any conditions and to impose additional conditions.
 - 7). Anyone found guilty and convicted is liable for a maximum fine of R200 and maximum prison sentence of six months.
5. Human remains from the graves of victims of conflict, or any burial ground or part thereof which contains such graves and any other graves that are deemed to be of cultural significance may not be destroyed, damaged, altered, exhumed or removed from their original positions without a permit from the National Heritage Resources Agency. They are administered by the Graves of Conflict Division at the SAHRA offices in Johannesburg. "Victims of Conflict" are:
- a). Those who died in this country as a result of any war or conflict but excluding those covered by the Commonwealth War Graves Act, 1992 (Act No. 8 of 1992).
 - b). Members of the forces of Great Britain and the former British Empire who died in active service before 4 August 1914.
 - c). Those who, during the Anglo Boer War (1899-1902) were removed from South Africa's prisoners and died outside South Africa, and,
 - d). Those people, as defined in the regulations, who died in the "liberation struggle" both within and outside South Africa.
6. Any burial that is older than 60 years, which is outside a formal cemetery administered by a local authority, is protected in terms of Section 36(3b) of the National Heritage Resources Act. No person shall destroy damage, alter, exhume or remove from its original position, remove from its original site or export from the Republic any such grave without a permit from the SAHRA.

There are some important new considerations applicable to B & C (above).

SAHRA may, for various reasons, issue a permit to disturb a burial that is known to be a grave of conflict or older than 65 years, or to use, at a burial ground, equipment for excavation or the detection or the recovery of metals.

(Permit applications must be made on the official form Application for Permit: Burial Grounds and Graves available from SAHRA or provincial heritage resources authorities.) Before doing so, however, SAHRA must be satisfied that the applicant:

- a). Has made satisfactory arrangements for the exhumation and re- interment of the contents of such a grave at the cost of the applicant.
- b). Has made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such a grave and,
- c). Has reached an agreement with these communities and individuals regarding the future of such a grave or burial ground.

PROCEDURE FOR CONSULTATION

The regulations in the schedule describe the procedure of consultation regarding the burial grounds and graves. These apply to anyone who intends to apply for a permit to destroy damage, alter, remove from its original position or otherwise disturb any grave or burial ground older than 60 years that is situated outside a formal cemetery administered by a local authority. The applicant must make a concerted effort to identify the descendants and family members of the persons buried in and/or any other person or community by tradition concerned with such grave or burial ground by:

- 1). Archival and documentary research regarding the origin of the grave or burial ground;
- 2). Direct consultation with local community organizations and/or members;
- 3). The erection for at least 60 days of a notice at the grave or burial ground, displaying in all the official languages of the province concerned, information about the proposals affecting the site, the telephone number and address at which the applicant can be contacted by any interested person and the date by which contact must be made, which must be at least 7 days after the end of the period of erection of the notice; and

- 4). Advertising in the local press, at least 2 newspapers, classifieds sections, in 2 official languages (preferably of those predominantly spoken in that area).

The applicant must keep records of the actions undertaken, including the names and contact details of all persons and organizations contacted and their response, and a copy of such records must be submitted to the provincial heritage resources authority with the application.

Unless otherwise agreed by the interested parties, the applicant is responsible for the cost of any remedial action required.

If the consultation fails to reach an agreement, the applicant must submit records of the consultation and the comments of all interested parties as part of the application to the provincial heritage resources authority.

In the case of a burial discovered by accident, the regulations state that when a grave is discovered accidentally in the course of development or other activity:

- a). SAHRA or the provincial heritage resources authority (or delegated representative) must, in co-operation with the Police, inspect the grave and decide whether it is likely to be older than 60 years or otherwise protected in terms of the Act; and whether any further graves exist in the vicinity.
- b). If the grave is likely to be so protected, no activity may be resumed in the immediate vicinity of the grave, without due investigation approved by SAHRA or the provincial heritage resources authority; and
- c). SAHRA or the provincial heritage resources authority may at its discretion modify these provisions in order to expedite the satisfactory resolution of the matter.
- d). Archaeological material, which includes human and hominid remains that are older than 100 years (see definition in section 2 of the Act), is protected by the National Heritage

Resources Act (Section 35(4)), which states that no person may, without a permit issued by the responsible heritage resources authority - destroy, damage, excavate, alter or remove from its original site any archaeological or palaeontological material.

The implications are that anyone who has removed human remains of this description from the original site must have a permit to do so. If they do not have a permit, and if they are convicted of an offence in terms of the National Heritage Resources Act as a result, they must be liable to a maximum fine of R100 000 or five years imprisonment, or both.

TREAT HUMAN REMAINS WITH RESPECT

- a). Every attempt should be made to conserve graves in situ. Graves should not be moved unless this is the only means of ensuring their conservation.
- b). The removal of any grave or graveyard or the exhumation of any remains should be preceded by an historical and archaeological report and a complete recording of original location, layout, appearance and inscriptions by means of measured drawings and photographs. The report and recording should be placed in a permanent archive.
- c). Where the site is to be re-used, it is essential that all human and other remains be properly exhumed and the site left completely clear.
- d). Exhumations should be done under the supervision of an archaeologist, who would assist with the identification, classification, recording and preservation of the remains.
- e). No buried artifacts should be removed from any protected grave or graveyard without the prior approval of SAHRA. All artifacts should be re-buried with the remains with which they are associated. If this is not possible, proper arrangements should be made for the storage of such relics with the approval of SAHRA.
- f). The remains from each grave should be placed in individual caskets or other suitable containers, permanently marked for identification.
- g). The site, layout and design of the area for re-interment should take into account the history and culture associated with, and the design of, the original grave or graveyard.
- h). Re-burials in mass graves and the use of common vaults are not recommended.

- i). Remains from each grave should be re-buried individually and marked with the original grave markers and surrounds.
- j). Grouping of graves, e.g. in families, should be retained in the new layout.
- k). Material from the original grave or graveyard such as chains, kerb stones, railing and should be re-used at the new site wherever possible.
- l). A plaque recording the origin of the graves should be erected at the site of re-burial.
- m). Individuals or groups related to the deceased who claim the return of human remains in museums and other institutions should be assisted to obtain documentary proof of their ancestral linkages.

38. APPENDIX B: LEGAL BACKGROUND AND PRINCIPLES OF HERITAGE RESOURCES MANAGEMENT IN SOUTH AFRICA

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

General principles for heritage resources management

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

- (a) Heritage resources have lasting value in their own right and provide evidence of the origins of South African society and as they are valuable, finite, non-renewable and irreplaceable they must be carefully managed to ensure their survival; (b) every generation has a moral responsibility to act as trustee of the national heritage for succeeding generations and the State has an obligation to manage heritage resources in the interests of all South Africans;
- (c) heritage resources have the capacity to promote reconciliation, understanding and respect, and contribute to the development of a unifying South African identity; and
- (d) heritage resources management must guard against the use of heritage for sectarian purposes or political gain.

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

- (a) the skills and capacities of persons and communities involved in heritage resources management must be developed; and
- (b) provision must be made for the ongoing education and training of existing and new heritage resources management workers.

(3) Laws, procedures and administrative practices must—

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

- (b) in addition to serving as regulatory measures, also provide guidance and information to those affected thereby; and
 - (c) give further content to the fundamental rights set out in the Constitution.
- (4) Heritage resources form an important part of the history and beliefs of communities and must be managed in a way that acknowledges the right of affected communities to be consulted and to participate in their management.
- (5) Heritage resources contribute significantly to research, education and tourism and they must be developed and presented for these purposes in a way that ensures dignity and respect for cultural values.
- (6) Policy, administrative practice and legislation must promote the integration of heritage resources conservation in urban and rural planning and social and economic development.
- (7) The identification, assessment and management of the heritage resources of South Africa must—
- (a) take account of all relevant cultural values and indigenous knowledge systems;
 - (b) take account of material or cultural heritage value and involve the least possible alteration or loss of it;
 - (c) promote the use and enjoyment of and access to heritage resources, in a way consistent with their cultural significance and conservation needs;
 - (d) contribute to social and economic development;
 - (e) safeguard the options of present and future generations; and
 - (f) be fully researched, documented and recorded.

BURIAL GROUNDS AND GRAVES

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

- (2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.
- (3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—
- (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
 - (b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
 - (c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.
- (4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.
- (5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority—
- (a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and
 - (b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.

- (6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority—
- (a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and
 - (b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.
- (7)(a) SAHRA must, over a period of five years from the commencement of this Act, submit to the Minister for his or her approval lists of graves and burial grounds of persons connected with the liberation struggle and who died in exile or as a result of the action of State security forces or agents provocateur and which, after a process of public consultation, it believes should be included among those protected under this section.
- (b) The Minister must publish such lists as he or she approves in the Gazette.
- (8) Subject to section 56(2), SAHRA has the power, with respect to the graves of victims of conflict outside the Republic, to perform any function of a provincial heritage resources authority in terms of this section.
- (9) SAHRA must assist other State Departments in identifying graves in a foreign country of victims of conflict connected with the liberation struggle and, following negotiations with the next of kin, or relevant authorities, it may re-inter the remains of that person in a prominent place in the capital of the Republic.

GENERAL POLICY

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

- (a) must, within three years after the commencement of this Act, adopt statements of general policy for the management of all heritage resources owned or controlled by it or vested in it; and
- (b) may from time to time amend such statements so that they are adapted to changing circumstances or in accordance with increased knowledge; and
- (c) must review any such statement within 10 years after its adoption.

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

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

(4) Regulations by the heritage resources authority concerned must provide for a process whereby, prior to the adoption or amendment of any statement of general policy or any conservation management plan, the public and interested organisations are notified of the availability of a draft statement or plan for inspection, and comment is invited and considered by the heritage resources authority concerned.

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

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