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LEAP

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Comet Extension 17 (Comet Village) – Township Establishment GAUTENG Provincial Heritage Resources Agency Gauteng (PHRAG)

Phase 2 HIA Report

as a requirement in terms of the Section 38(1) and 38(3) for a
decision in terms of Section 38(4)

Not for NEMA or MPRDA application.

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Management summary

The scope of work of the Phase 1 comprised the heritage evaluation of the old ERPM mine town in Boksburg.

In order to compile an impact assessment of the proposed development on heritage resources the assessment included the services of an archaeologist, historian and conservation architect. It is important to note that the scope of work only deal with the Phase 1 of the HIA and did not include any mitigation work in order for the development to proceed.

This phase 2 will comprise the mitigation measures required to complete the HIA for review by the Gauteng PHRA and SHARA. The Phase 1 report identified the following aspects to be addressed by this Phase 2 component.

- Evaluation of the impact of the development on cultural resources
- Recommendations including mitigation measures

Current historical buildings, parts of buildings, artefacts that could still be found inside the homes are valuable and could be older than 100 years. During anticipated construction activities, these and other archaeological and palaeontological artefacts could accidentally be discovered. A preliminary Status Quo did not identify any archaeological and palaeontological artefacts, but, in line with heritage legislation and regulation, the construction project managers suspended work on affected site pending the outcome of a site investigation by a qualified archaeologist and/or a palaeontologist.

The general mitigation measures for the Site to be used include:

- a) Prior identification and recording of the all the significant features, finishes, fittings and contents in the existing buildings, and assessment of their vulnerability during construction. This should include for instance the recording of historic doors which are vulnerable to damage if left in situ or carelessly removed and stored.
- b) Permanent or temporary removal off site of loose or vulnerable items.
- c) Preparation of a schedule of protection works to preserve or secure items and finishes remaining in situ during construction.
- d) Preparation of a schedule of protection measures to the exteriors and interiors of the buildings to be put in place before the enabling and investigation works during design stage or before the construction operations. Ensuring the responsible contractor understands the significance and vulnerabilities of the building structures, constructions, features and finishes prior to starting the work to avoid overloading or inappropriate storage or construction activities.
- e) Use of appropriate heritage related construction methods for the modification and refurbishment works.
- f) New underground services are proposed should be subjected to an archaeological scan after the tranches are dug and should be conducted in construction phase,

- g) The need for archaeological investigation and subsequent impact assessment due to the new underground services should be reassessed if any archaeological artefacts are found in the service trenches.
- h) If considered necessary, appropriate mitigation measures should be provided.

ASAPA - Association of Southern African Professional Archaeologists

BID - Background Information Document

DMs - District Municipalities

DWS - Department of Water and Sanitation

GPHRA – Gauteng Provincial Heritage Resources Agency

EIA - Environmental Impact Assessment

HIA - Heritage Impact Assessment

NEMA - National Environmental Management Act 107 of 1998, as amended

NHRA - National Heritage Resources Act 25 of 1999, as amended

SAHRA - South African Heritage Resources Agency

Applicable legislation

The Constitution of the Republic of South Africa Act 108 of 1996 is the source of all legislation. Within the Constitution the Bill of Rights is fundamental, with the principle that the environment should be protected for present and future generations by preventing pollution, promoting conservation and practising ecologically sustainable development. With regard to spatial planning and related legislation at national and provincial levels the following legislation may be relevant:

- a) Physical Planning Act 125 of 1991
- b) Municipal Structures Act 117 of 1998
- c) Municipal Systems Act 32 of 2000
- d) SPLUMA
- e) National Environmental Management Act 107 of 1998
- f) National Heritage Resources Act 25 of 1999
- g) Minerals and Petroleum Resources Development Act 28 of 2002

Assumptions and Limitations

The assumptions and limitations of this HIA are as follows:

- a) The description of the proposed project, provided by the client, is accurate.
- b) At the time of fieldwork only the data for the preferred full supply levels of the dams was available. Consequently we were unable to assess the impacts of appurtenant infrastructure, and have recommended that such assessment take place once the necessary surveys are complete.
- c) Fieldwork was constrained by the presence of vegetation over a large part of the study area, especially where crops were standing in fields where Iron Age archaeological sites could be expected. In such areas staff members focused on exposed soil surfaces in tracks and paths.

- d) Soil surface visibility was non-existent to moderate. Heritage resources might be present below the surface or in areas of dense vegetation and we remind the client that the NHRA requires that a developer cease all work immediately and notify SAHRA should any heritage resources, as defined in the Act, be discovered during the course of development activities.
- e) No subsurface investigation (including excavations or sampling) were undertaken, since a permit from SAHRA is required to disturb a heritage resource.
- f) A key concept in the management of heritage resources is that of non-renewability: damage to or destruction of most resources, including that caused by bona fide research endeavours, cannot be reversed or undone. Accordingly, management recommendations for heritage resources in the context of development are as conservative as possible, according to the precautionary principle.
- g) Human sciences are necessarily both subjective and objective in nature.
- h) Staff members involved in this project have no vested interest in it; are qualified to undertake the tasks as described in the terms of reference; and comply at all times with the Codes of Ethics and Conduct of ASAPA.
- i) GPHRA and SAHRA staff members take no personal or professional responsibility for the misuse of the information contained in this report, although they take all reasonable precautions against such misuse.

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INTRODUCTION

As described in numerous guidelines in this regard, the heritage resources of South Africa have lasting value in their own right and provide evidence of the origins of South African society. These heritage resources are valuable, finite, non-renewable and irreplaceable and they must be carefully managed to ensure their survival (National Heritage Resources Act (No. 25 of 1999) s. 5(1)(a)).

The National Heritage Resources Act (NHRA) has introduced an integrated system for the identification, assessment and management of the heritage resources of South Africa. The NHRA makes provision for the general protection of heritage resources:

- Section 34 in respect of the built environment;
- Section 35 in respect of archaeology, palaeontology and meteorites; and
- Section 36 in respect of graves and burial grounds.

Section 38 sets out guidelines for Heritage Resources Management and the conditions under which heritage impact assessments are required when developments impact upon heritage resources. If disturbance is permitted by the appropriate authority, the impacts on heritage resource/s affected must be mitigated to ensure the recovery and recording of information about that site.

Reports resulting from the assessment of impacts to heritage resources, or their mitigation, are part of the management of these resources and it is necessary to ensure that the quality and content of such reports accurately identify and describe the resources prior to alteration or destruction, reflect the significance of the heritage resources and provide a narrative and record of their alteration.

1.1 Section 38 Application Procedure.

This report is compiled in terms of the requirement of section 38 of the NHRA. The process that has been completed to date are:

- a. **NEMA application** – in 2013, an application was lodged with GDRAD who confirmed that a Environmental Authorisation for the development of Comet x17 is not required. **Annexure A** – Statutory Status Quo Documents.
- b. **SAHRA comment** – January 2013 - Phase 1 Heritage impact assessment for the proposed development of the EMPR mine village, Boksburg Gauteng. **Annexure A** – Statutory Status Quo Documents.

In the preparation documents and in the decision by SAHRA, it is evident that the site has heritage value and the proposed development will have an impact on this heritage value.

In this instance, the authority is the City of Ekurhuleni town planning section. GDARD has made a decision

that a NEMA application is not required. (**Annexure A**)

2. THE PURPOSE OF PART B OF THE HIA

The scope of work of the original phase 1 comprised the heritage evaluation of the old ERPM mine town in Boksburg. In order to compile an impact assessment of the proposed development on heritage resources the assessment included the services of an archaeologist, historian and conservation architect. It is important to note that the scope of work only deal with the Phase 1 of the HIA and did not include any mitigation work in order for the development to proceed.

Section 38(1) states that any HIA submitted, must satisfy the requirements of section 38(3) of the NHRA. In this regard, this Heritage Impact Assessment provides insight into the impact of the proposed development on heritage resources and provide mitigation measures to limit the effect of the impact. The HIA provides the heritage authority with sufficient information to adequately assess the significance of resources on the site and to understand the short, medium and long term consequences of the proposed development on heritage resources. With the information, the heritage authority can make an informed decision (section 38(4)) on the impacts of a proposed development.

This phase 2 will comprise the mitigation measures required to complete the HIA for review by the Gauteng PHRA and SHARA. The Phase 1 report identified the following aspects to be addressed by this Phase 2 component.

- Evaluation of the impact of the development on cultural resources
- Recommendations including mitigation measures

3. PROJECT DESCRIPTION

For the purpose of identifying structures of distinctive character, the study area was divided into three Precincts – refer to Figure 1.

3.1 Precinct 1:

This precinct represents the original rectangular village with single-storey, semi-detached dwelling units arranged around a central open space, with sizeable double-storey semi-detached dwelling units arranged directly behind these units and associated with the architectural firm of Baker & Masey (the firm through which Sir Herbert Baker worked). The structures of this precinct were constructed more than 100 years ago and the authors note that a unique aspect of this precinct is the placing of four dwelling units with a side gable of each facing towards a central open space. Only half of the single-storey units still exist. The precinct also includes a sports clubhouse and ruined ablution facilities. Some of the original street lighting still exists.

3.2 Precinct 2:

This precinct is represented by a cluster of 16 semi-detached units of four households under the same roof, each with its own yard. Central to this cluster is a wide boulevard dividing the village into two portions. Dwellings along the boulevard face towards each other irrespective of the north-south orientation and able to house 64 families resided in this complex. The authors note that this complex as a whole was built before 1910.

3.3 Precinct 3:

This precinct is represented by a complex of married quarters, constructed for married employees of colour, employed by ERPM. Sections of this precinct were already in existence during 1910. The authors note that this is the most extensively built cluster containing the oldest and simplest types, but also the most contemporary types of dwellings. In addition to the semi-detached, single-storey dwellings are several other buildings, including the remains of a school, ablution facilities, shop buildings and two churches, one of which is the corrugated iron-built Comet Methodist Church. The authors are of the opinion that, from a heritage point of view, due to its singular character and architectural fabric, the mining village is unique within South Africa

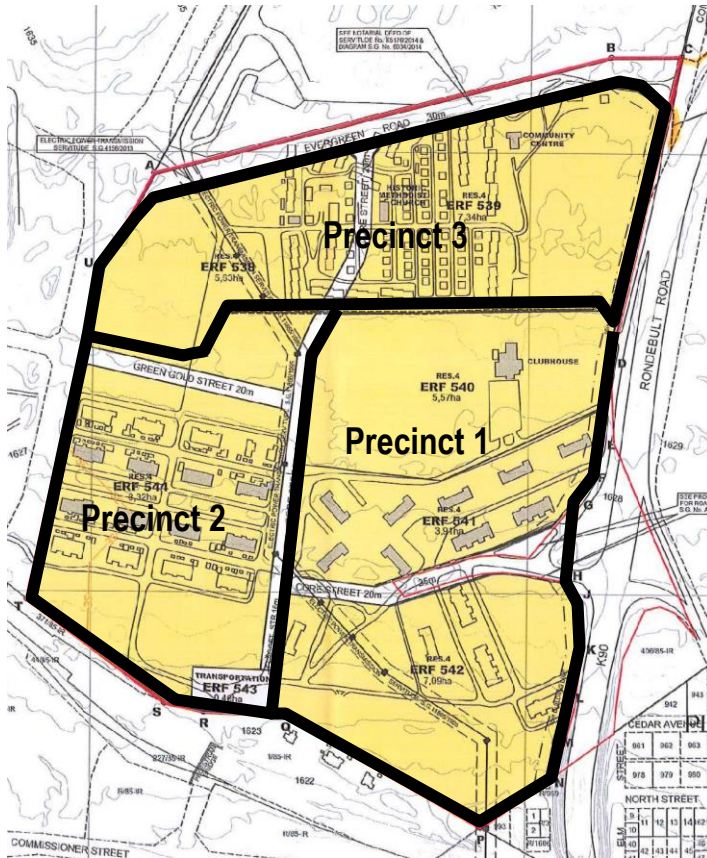


Figure 1: Comet x17 with 3 distinctive precincts.

4. PROPOSED DEVELOPMENT

The Ekurhuleni Human Settlement Department (EHSD) identified the land as a development area for housing in the Metro. The development proposal is as follows:

- Phase 1 - RDP Walk up Buildings
- Phase 2 - RDP Walk up buildings
- Phase 2 – Social Housing
- Phase 2 – Heritage buildings
- Phase 3 - RDP Walk up Buildings

These phases will comprise of a combination of different building types:

- RDP Walk up units 3520
- Social Housing units 1114
- Total **4634**

The retained and renovated heritage buildings will house the social facilities such as a community hall, an early learning centre, a clinic and the church. These are incorporated in the fabric of the proposed township.

5. PHASING OF HERITAGE IMPACT ASSESSMENTS

Due to the complexity of the development applications, this HIA application was submitted in phases. In this instance the following documents were compiled:

- a. 2006 – Heritage Scoping report for the proposed development of the old EMPR Mine Village, Boksburg, Gauteng.
- b. May 2012 – Phase 1 Heritage impact assessment for the Proposed Development of the EMPR Mine Village, Boksburg, Gauteng.

5.1 Recommendations of the specialists

Based on these documents the SAHRA required that recommendation of the specialists be implemented. The feedback and recommendation of Phase 2 is provided in **Table 1**:

Table 1: Status Quo of

SAHRA recommendations	Comment and Status Quo
Recommendations for Precinct 1	

SAHRA recommendations	Comment and Status Quo
Buildings	
(a) Record each building type that occurs in the precinct prior to any design, development (demolition or re-use).	<p>Completed in Phase 1 HIA The following types were identified and recorded.</p> <p>Precinct 1</p> <ol style="list-style-type: none"> 1. Single storey semi-detached dwelling units – 5 buildings remain - Medium 2. Larger double storey semi-detached dwelling units - 3 individual buildings of which nine are located within the study area 3. Corrugated iron outbuildings located on the extreme periphery away from the backdoors. 4. Clubhouse and bowling green 5. Ablution building 6. Ablution building 7. Transformer building 8. Soccer field 9. Lamp posts
(b) Each dwelling unit needs to be investigated individually to determine its structural and architectural integrity prior to making any decision regarding demolition and re-use.	Investigation of the individual houses, to determine its structural and architectural integrity must happen after the residents have moved. Since the units are all inhabited, the investigation of each unit cannot happen while the people live in the units.
(c) Retain and re-use (selectively) the single storey semi-detached dwellings that used to form part of the original rectangular design layout.	Figure 2 shows the units that must be retained. This plan is still supported. The need for new housing and the number of units required by EMM is not enough reason to demolish these buildings.
(d) Retain and re-use all the Baker and Masey designed double storey housing units	The buildings that must be retained are indicated on Figure 2 . The EHSD require the demolition of more of the existing units to provide more high density units.
(e) Upgrade and modernize services of all retained housing units	The documentation of the buildings to be re-used must be completed in order to modernize the services, carpentry, roof and windows of the buildings.
(f) Demolish outbuildings	The outbuildings are an integral part of the erf of each housing unit. It is possible to retain character on a photographic record and display it in the community centre, or another suitable place in the community.
(g) Redesign and alter sizes of erfs if and where necessary	Completed as part of the town planning process.
(h) Add garages and other services	Indicated on the Site Development plan prepared for the proposed

SAHRA recommendations	Comment and Status Quo
as part of 'new work' projects	development
(i) Retain the historic core building of the sports club (alter and re-use according to needs of the new uses)	Club house is retained and will be used as the community building.
Urban design and infrastructure	
- Record each building type that occurs in the precinct prior to any design, development, demolition or reuse.	Record of every building type has been completed. Reuse of the buildings to be retained are assigned according to the best use for the building.
- Each dwelling unit indicated to be retained in the approved spatial development plan needs to be investigated individually to determine its structural and architectural integrity prior to making any decisions regarding any demolition, alteration or re-use	The preliminary assessment indicated that the buildings to be retained are structurally reasonable intact. As soon as the residents can be moved into their new homes the existing buildings will be assessed further for wet services upgrading, structural and roof replacement etc.
- Selective retention and re-use of the single storey semi-detached dwellings that formed part of the original rectangular design layout.	Some of the single storey semi-detached dwellings that formed part of the original rectangular design layout will be retained.
- Retention and re-use of a selection of the Baker & Masey designed double storey housing units.	Some of the selection of the Baker & Masey designed double storey housing units will be retained.
- Sensitive, appropriate upgrading and modernizing of all services of retained housing/residential units.	Buildings to be retained will be assessed after the residents move out by the architects and engineers to provide a solution to the replacement of services.
- Demolishing of outbuildings.	The outbuildings must be offered for sale. Rather than demolishing it, the buildings can be used as rental units in other parts of the City.
- Redesign and alteration of the sizes of erven if and where necessary.	13 erven are established
- Adding garages and other services as part of 'new work' projects.	The recommendation of adding garages, cannot be accommodated in the project. It is not the policy of the EMM to provide garages for affordable housing projects.

SAHRA recommendations	Comment and Status Quo
<ul style="list-style-type: none"> - Retaining the historic core building of the sports club, altered and re-used according to needs of the new user. 	<p>Club house is retained and will be used as the community building.</p>
<ul style="list-style-type: none"> - The re-use and redesigning of the Baker & Masey units for future use must be submitted to the Provincial Heritage Resources Agency for approval prior to any alteration. 	<p>As part of the submission of building plans, the documentation of the Baker & Masey will be conducted. The documentation cannot be done with the residents occupying the buildings.</p>
<p>Precinct 1: Urban design and infrastructure</p>	
<ul style="list-style-type: none"> - Retain and incorporate the large rectangular urban layout plan that used to form part of the original intent of the spatial design framework. 	<p>The square between four of the buildings are retained and it forms part of the urban design of the proposed layout.</p>
<ul style="list-style-type: none"> - Incorporate sporting facilities into the open space framework 	<p>The required sport facilities are included in the proposed project. The requirements are not a logical assessment since there isn't an open space framework for the proposed development.</p>
<ul style="list-style-type: none"> - Do not 'decontextualise' the facades of dwelling units by introducing infrastructure such as streets that do not retain the historic interface between dwellings and streetscapes. 	<p>This is unfortunately no possible to retain the full area as built. The context of precinct 1 will be retained to the extent possible in the main square, but the following buildings will also be removed B14, B16, B20, B21, B21.</p>
<ul style="list-style-type: none"> - Upgrade and modernize services of all retained housing units. 	<p>As soon as the residents can be moved into their new homes the existing buildings will be assessed further for wet services upgrading, structural and roof replacement etc.</p>
<ul style="list-style-type: none"> - Adding of garages and other services as part of 'new work' projects. 	<p>The recommendation of adding garages, cannot be accommodated in the project. It is not the policy of the EMM to provide garages for affordable housing projects</p>
<ul style="list-style-type: none"> - Retain the historic street lights 	<p>The historic street lights will be salvaged and r=installed in the square.</p>
<p>Precinct 2: Buildings</p>	
<ul style="list-style-type: none"> - Record each building type that occurs in the precinct prior to any design, development, demolition or reuse. 	<p>Completed in Phase 1 HIA The following types were identified and recorded. Precinct 2 10. Type 1 Semi-detached units – Five examples of this building type were identified within the precinct.</p>

SAHRA recommendations	Comment and Status Quo
	<p>11. Type 2 Semi detached units - Eleven examples of this building type were identified within the precinct.</p> <p>12. Outbuildings - numerous</p>
<p>- Each dwelling unit indicated to be retained in the approved spatial development plan needs to be investigated individually to determine its structural and architectural integrity prior to making any decisions regarding any demolition, alteration or re-use.</p>	<p>The structural integrity of the units are sound.</p> <p>Since the units becoming social housing, the inhabitants has not maintained the units. Thus all the buildings need pain, the gutters must be replaced. The electricity and services reticulation must be replaced, But the wall and roofs are structurally sound.</p> <p>Since it was not possible to enter the roofs, the roof beams were not inspected.</p>
<p>- Selectively retaining those dwelling units that are structurally and architecturally sound. The authors note that no design proposal has been submitted yet and until such point in time, no further selection can be made.</p>	<p>It is proposed that the layout of the urban design is required prior to deciding which buildings must be retained.</p> <p>It is thus proposed to retain building 13 as indicated on Figure 2. The layout of the road system is being retained as a reflection of the historic settlement patterns.</p>
<p>- Upgrading and modernizing of all services in retained housing/residential units.</p>	<p>Building will be assessed after the residents move out by the architects and engineers to provide a solution to the replacement of services.</p>
<p>- Demolishing of outbuildings.</p>	<p>The outbuildings must be offered for sale. Rather than demolishing it, the buildings can be used as rental units in other parts of the City.</p>
<p>- Redesign and alteration of the sizes of erven if and where necessary.</p>	<p>13 erven are established</p>
<p>- Adding garages and other services as part of 'new work' projects.</p>	<p>The recommendation of adding garages, cannot be accommodated in the project. It is not the policy of the EMM to provide garages for affordable housing projects.</p>
<p>Precinct 2: Urban design and infrastructure</p>	
<p>- Do not 'decontextualise' the facades of dwelling units by introducing infra-structure such as streets that do not retain the historic interface between dwellings and streetscapes. Upgrade and modernize services of all retained</p>	<p>The road pattern is being retained to reflect the historic layout. Building 13 will be retained, however the following buildings will also be removed: B6, B7, B8, B9, B10, B11, B12.</p>

SAHRA recommendations	Comment and Status Quo
housing units.	
<ul style="list-style-type: none"> - Retain the boulevard dividing the precinct into two portions as well as the street (south to north) dividing the precinct into two portions. 	<p>The boulevard will be retained in its position. However due to the traffic and roads requirement to widen the road, the trees on the one side will be removed. The trees on the eastern side will be retained.</p>
Precinct 3: Buildings	
<ul style="list-style-type: none"> - Record each building type that occurs in the precinct prior to any design, development, demolition or reuse. 	<p>Completed in Phase 1 HIA The following types were identified and recorded.</p> <p>Precinct 3</p> <ol style="list-style-type: none"> 13. Old entrance building – 1 building 14. Small shop with veranda – 1 building 15. Annex to the small shop building across the street.- 1 building 16. Tuck shop or office on school grounds – 3 buildings 17. Pitched roof prefabricated asbestos cement building – 1 building 18. Single storey plastered brick school building -1 building 19. Comet Methodist Church corrugated iron – 1 building 20. Semi-detached single storey dwelling units -12 buildings 21. Semi-detached single storey dwelling units – 9 buildings 22. Original old square dwelling units – 43 buildings 23. Small independent (detached) housing unit – 4 buildings 24. Small independent (detached) housing unit – 3 buildings 25. Community centre functioning as concert hall, clinic and any other functions associated with the community – 1 building 26. Single storey church brick building – 1 building 27. Small dwelling behind the church next to brick church – 1 building 28. Ruins of an ablution complex. – 1 building 29. Building used as a shop serving – 1 building 30. Communal ablution facility – 1 building 31. Urban design layout of precinct 1 32. Tree lane in Precinct 2
<ul style="list-style-type: none"> - Each dwelling unit indicated to be retained in the approved spatial development plan needs to be investigated individually to determine its structural and architectural integrity prior to making any decisions regarding 	<p>Investigation of the individual houses, to determine its structural and architectural integrity must happen after the residents have moved. Since the units are all inhabited, the investigation of each unit cannot happen while the people live in the units.</p>

SAHRA recommendations	Comment and Status Quo
any demolition, alteration or re-use.	
- Retain and re-use the community centre as well as the second church building.	Building B2 as shown on Figure 2, will be retained, renovated and used as a church.
- Retain and restore the Methodist church building.	Building B3 as shown on Figure 2, will be retained, renovated and continued to be used as a church.
- Selective retention and re-use of some of the dwellings along the west-east road route. If not, an example of each type must be reconstructed at an appropriate location on the site where the public will have access to view and celebrate the historic significance of the site and its history.	Buildings D1 to D8 must be moved to the square in precinct 1 or to the area adjacent to the original clubhouse. These buildings must be reconstructed to reflect the various stages of construction that is found in precinct 3.
- Only one or two of the very old historic worker units can be preserved and or re-used. This would also form part of the appropriate memorialisation of the dwelling type but it can only be done selectively.	Buildings D1 to D8 must be moved to the square in precinct 1 or to the area adjacent to the original clubhouse. These buildings must be reconstructed to reflect the various stages of construction that is found in precinct 3. This will ensure that the very old historic worker units are preserved.
- Selective retaining and re-use of some of the unplastered brick dwelling units or reconstruction of an example at the place of appropriate memorialisation.	Buildings D1 to D8 must be moved to the square in precinct 1 or to the area adjacent to the original clubhouse. These buildings must be reconstructed to reflect the various stages of construction that is found in precinct 3. This will ensure that the unplastered brick dwelling units are preserved.
Precinct 3: Urban design and infrastructure	
- Do not 'decontextualise' the facades of dwelling units by introducing infra-structure such as streets that do not retain the historic interface between dwellings and streetscapes.	The main street is retained as a reflection of the historic street pattern. Also the units face onto the street as a reflection of the historic street character.
- Retain and celebrate the west-east street that serves the central part of the precinct as part of the appropriate memorialisation of the	The East West street is retained.

SAHRA recommendations	Comment and Status Quo
village.	
<ul style="list-style-type: none"> - Retain and celebrate the south-north street along the eastern façade of the Methodist church that crosses the main arterial route from west to east and use the crossing of the above mentioned streets as an urban 'point of memorialisation' in the proposed urban design framework. 	<p>The north south street is retained.</p> <p>The intersection will be celebrated as an urban 'point of memorialisation' in the proposed urban design framework.</p> <p>Signs and plans of the urban patterns will be erected here.</p>
General Recommendations	
<ul style="list-style-type: none"> - Detailed information with regard to the re-use of the buildings that are earmarked for preservation must be addressed as part of the Conservation Management Plan of the Project that must be drafted. 	<p>The Conservation Management Plan provides the detailed information with regard to the re-use of the buildings that are earmarked for preservation. The CMP is attached as Annexure A</p>
<ul style="list-style-type: none"> - Drafting of rehabilitation guidelines for all the protected heritage buildings. 	<p>Rehabilitation guidelines for all the protected heritage buildings are attached as Annexure B</p>
<ul style="list-style-type: none"> - Hard copies of photographs, diagrams and documents produced as part of the mitigation process must be lodged with SAHRA. 	<p>Hard copies of photographs, diagrams and documents produced as part of the mitigation process have been lodged with SAHRA</p>
<ul style="list-style-type: none"> - The developer must sign a document stipulating their responsibilities in terms of the preservation of buildings and landscapes that are to be retained. 	<p>The EMM have sign a document stipulating their responsibilities in terms of the preservation of buildings and landscapes that are to be retained.</p> <p>Attached as Annexure C</p>
<ul style="list-style-type: none"> - A portion of land from within the study area must be set aside for the commemoration and memorialisation of aspects, with the most suitable area being close to building B23. 	<p>A portion of land adjacent to building B23 is set aside for the commemoration and memorialisation of the settlement.</p>
<ul style="list-style-type: none"> - Whenever possible, architectural detailing on buildings earmarked for demolition must be preserved. 	<p>Architectural detailing on buildings earmarked for demolition will be preserved as specified in the CMP, attached as Annexure A.</p>
<ul style="list-style-type: none"> - The East Rand is known for 	<p>If any remains are exposed during construction operations will be</p>

SAHRA recommendations	Comment and Status Quo
<p>unmarked cemeteries containing the remains of Chinese and indigenous people that used to work on the mines. If any remains are exposed during construction operations must be stopped immediately and an archaeologist must be contacted to assess the finds.</p>	<p>stopped immediately and an archaeologist will be contacted to assess the finds.</p>
<p>- An archaeological watching brief must be implemented during the construction phase of the development to ensure that no human remains or archaeological sites and material are lost due to the construction.</p>	<p>An archaeological watching brief will be implemented during the construction phase of the development to ensure that no human remains or archaeological sites and material are lost due to the construction. The watch brief is included in the CMP, attached as Annexure A.</p>
<p>- No sites of pre-Colonial archaeological significance were identified and no palaeontological impact assessment was undertaken for this project.</p>	<p>Although no pre-colonial significance are described, a palaeontological watching brief will be implemented during the construction phase of the development to identify any and to ensure that no palaeontological sites and material are lost due to the construction.</p>

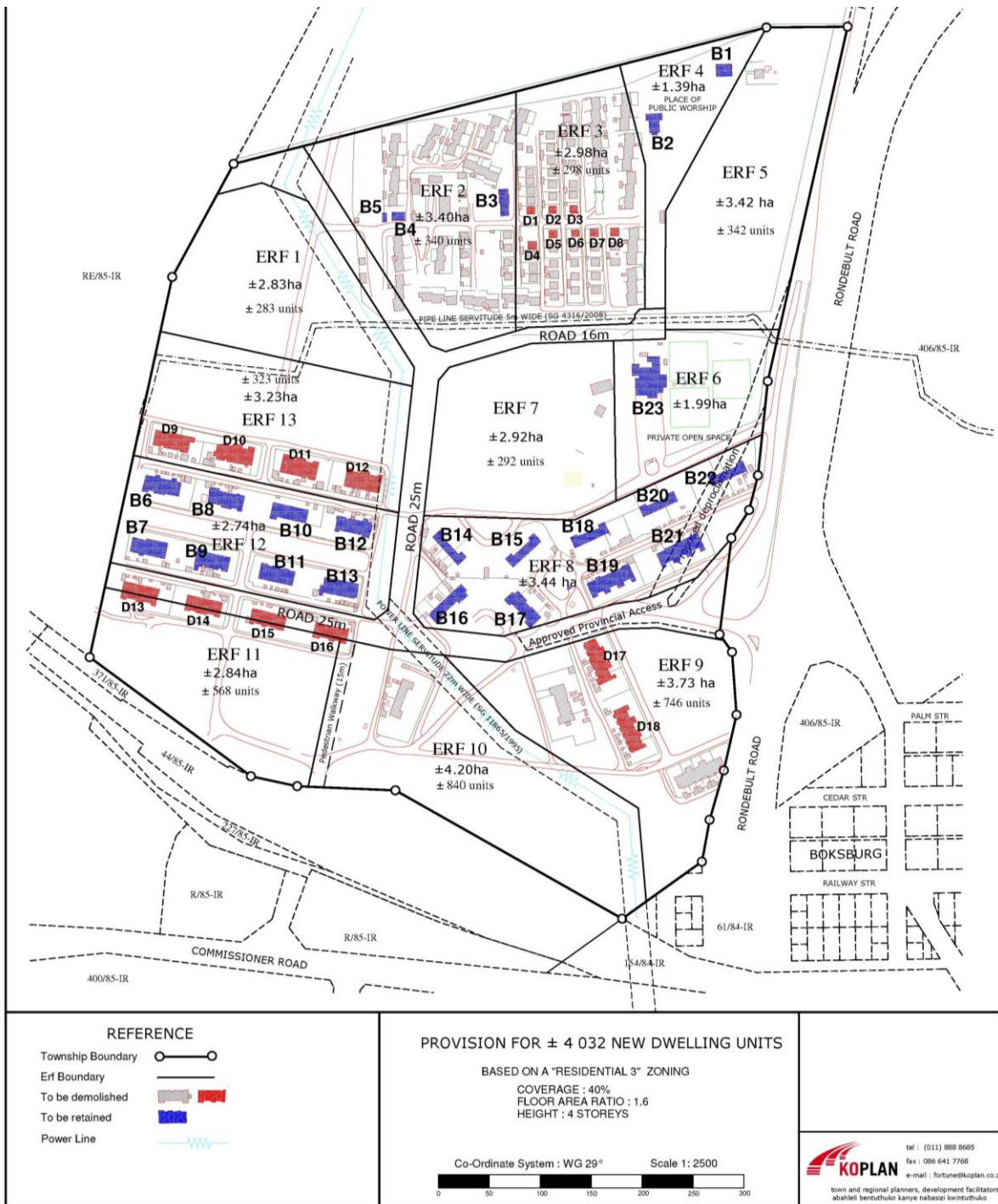


Figure 2: Plan recommending the buildings that must be retained.

5.2 Case Decision by SAHRA

SAHRA recommends that:

- a. Considering that the mining village is older than 100 years and that the buildings are derelict, as stated by the authors, the village is defined as 'archaeological' according to the Definitions (Section 2) of the National Heritage Resources Act (No. 25 of 1999) and therefore comments and possible future permitting must be obtained from the SAHRA APM Unit.

The Gauteng Provincial Heritage Resources Authority must comment on structural younger than 100 years.

As required by the SAHRA Archaeology, Palaeontology and Meteorites Unit a palaeontological investigation will be conducted before any construction activities start. However the area does not fall within the geological zone of palaeontological value.

During the construction phases of the proposed development vegetation clearance as well as bedrock excavations within the footprints of the site, stormwater detention facility and bulk services are likely to disturb, damage, destroy and / or seal-in fossil remains (e.g. petrified wood, dinosaur bones, fossil shells) that are already exposed at the ground surface, mantled by soil or dense thicket vegetation, or buried beneath the surface. The overall significance of impacts on fossil heritage before mitigation is assessed as low for this project. Regardless of the low significance, negative impacts are probable, site-specific and permanent. However, they can be partially offset by positive impacts - viz. an increased understanding of local fossil heritage resources – provided that the proposed mitigation measures are implemented.

These measures comprise:

1. Pre-construction recording and sampling of fossil remains already exposed within or close to (< 100 m) the final development footprint by a professional palaeontologist, to be contracted by the developer;
2. Recording and sampling of fossil remains exposed by vegetation clearance and by substantial (> 1 m deep) excavations within the development footprint by a professional palaeontologist;
3. Regular monitoring of all bedrock excavations for fossil material by the ECO. Substantial fossil finds are to be reported to the Gauteng Provincial Heritage Resources Agency (GPHRA) for professional mitigation.

The environmental control officer responsible for this development should:

- (a) be alerted to the palaeontological sensitivity of surface gravels and bedrocks in the area,
- (b) familiarize themselves with the sort of fossils that might be encountered during development through museum displays and using illustrated reports, such as the present one.

The palaeontologist involved in mitigation work will need to obtain a fossil collection permit from SAHRA and to make arrangements with an approved repository (e.g. museum, university) to store and curate any fossil material collected. All palaeontological specialist work should conform to the minimum standards for Phase 2 palaeontological studies developed by SAHRA (2013).

SAHRA recommended that if the palaeontologist deems it unnecessary, a letter of exemption from further palaeontological study may suffice. The report or the letter must be then submitted to SAHRA APM Unit for further comments.

If any new evidence of archaeological sites or artefacts, palaeontological fossils, graves or other heritage resources are found during development, construction or mining, SAHRA or an archaeologist will be alerted immediately.

6. PROPOSED MITIGATION MEASURES

This chapter describes the project-wide potential cultural heritage (archaeological and oral tradition) impacts associated with the construction and operation of the Comet x17 housing development. Measures that will be implemented to mitigate these impacts and the predicted residual impacts are also described.

Due to the fact that most cultural remains may occur below surface, the possibility exists that some features or artefacts may not have been discovered/ recorded during the survey. They are probably the most directly English inspiration of all Baker mining house work and relate very much to the model working class housing of the era in form, plan and detail'.

The housing units designed by the firm of Baker & Masey can be considered of exceptional significance as the firm was not primarily known for designing mine houses or units for mining housing complexes

6.1 Impact Assessment Approach

The assessment of potential impacts on cultural heritage sites builds on and extends the work of previous heritage impact assessments and surveys. The goal of the surveys conducted in phase 1 has been to determine the location, extent and nature of cultural heritage sites within and near the footprints of the proposed project facilities and infrastructure, to assess their significance, to predict (given available knowledge) the scope for impact on each site in the event of the project proceeding, and to devise appropriate mitigation measures to manage potential impacts.

6.2 Assessment of Significance

Assessments of significance reflect different perspectives on the importance of individual sites, including:

- The 'internal' perspective of local communities, for whom oral tradition sites, together with sites that directly relate to their own immediate community history, are likely to be of greater significance than other sites.

- Several forms of 'external' perspective, reflecting the views and interests of the broader region, and international points of reference (the latter two, for example, likely to attribute greater significance to very early archaeological sites than the former).

Both views have been considered in significance assessments and their attributions of significance are cumulative; i.e., the low significance accorded to an important early archaeological site by the local community does not necessarily negate the high significance attached to the site by external perspectives. This becomes relevant where, for example, local landowners might consent to the destruction of an archaeological site, but where national interests might seek its preservation. Equally, a relatively recent ritual site identified as highly significant by the local community is treated as such, despite the fact that it may not be highly significant in a national context; that is, local, regional, national and international levels of site significance do not form a hierarchy of value.

Cultural heritage significance is the value of cultural heritage sites to society and is assessed by assigning a relative value ranging from low to very high at the local, provincial or national level under five major criteria:

- Social and political significance – whether sites are important in maintaining a community's integrity and sense of belonging to a particular area as a cultural group.
- Scientific significance – a site's ability to provide data and insight to the history of cultural activities and/or environmental conditions.
- Historical significance – a site's level of association with important persons, events or themes.
- Educational and economic significance – whether sites can provide opportunities for people to visit, examine and gain an appreciation for the nature of these sites.
- Aesthetic significance – the visual appeal of the site.

Phase 1 recommended several buildings to be retained. However, after consideration of the social importance of the site the following recommendations are made – refer to Figure 3. Retain the following buildings and sites indicated on the map. These areas do not jeopardise the development of the first phase of the social housing development.

- Site 1 - B3 – church
- Site 2 - B2 - Community hall as a church
- Site 3 - Relocated buildings D1 ,D2,D3, D4, D5, D6, D7 to the community hall (building B23)
- Site 4 –Spine boulevard
- Site 5 - B13 – residential building as an early learning centre
- Site 6 - B15, B17 and B19 around the square and incorporate the square into the urban design and to be used as social facilities.
- Site 7 – B23 – community buildings
- Site 8 – large trees to be pruned and incorporated a tree lane.

A display of the full plan, history and photographs as indicated in the Conservation management plan must be installed in the community centre.



Figure 3: Buildings and sites to be conserved, rehabilitated and reused.

6.3 Impact Matrix

The cultural heritage assessments conducted have predicted impacts. These are measures against the following: :

- predicted impacts (positive or negative),
- nature of impact (direct, indirect or cumulative),
- duration,
- extent,
- magnitude and
- likelihood

6.4 Issues to be Addressed

6.4.1 Damage to or Destruction of Cultural Heritage Sites

Project development will potentially impact cultural heritage sites through direct ground disturbance during construction and where indirect disturbance occurs outside the project area from increased access by people and vehicles. Direct disturbance will occur in the areas within:

- a) The undeveloped areas of the site.
- b) The footprint of the temporary facilities.
- c) The footprint of the permanent marine facilities.
- d) Access roads.

There is also potential for disturbance to sites located along project roads and access tracks as well as sections of public roads that will be upgraded by the proponent.

Sites have the potential to be damaged or destroyed, as follows:

- Within the direct disturbance areas due to on-ground works (e.g., levelling ground, excavating trenches, etc.) and construction of facilities.
- Within the direct disturbance areas due to movements of people and vehicles (e.g., erosion, removal of artefacts, etc.).
- Outside the direct disturbance areas due to the associated increase in person and vehicle traffic.

6.4.2 Disconnection of Communities from Cultural Heritage Sites and Loss of Sites from Oral Tradition

There is potential for the loss of story sites to disconnect communities from a part of their oral tradition. Such activities include:

- Direct disturbance where buildings are damaged or destroyed, which has the potential to result in the permanent loss of the cultural heritage, and social or religious practices associated with the site.
- Restriction of access to sites.
- Visual modification to the land such that some buildings may disappear from living memory and, hence, from the oral tradition.
- Disturbance to ecosystems through impacts on landform and soils, water resources and hydrology, and biodiversity, which have the potential to affect the utility of cultural heritage sites (particularly economic sites, which can be directly affected by impacts on ecosystems and indirectly affected by impacts on spirit sites).

6.5 Mitigation and Management Measures

Mitigation and management measures are derived from the recommendations made in the cultural heritage specialist reports, and the social impact assessment. The project-wide Conservation Management Plan will be developed as part of the project construction environmental management plan. The CMP will meet all applicable environmental laws and regulations and apply appropriate standards where laws or regulations do not exist.

The main elements in the cultural heritage management plan, to protect or salvage the hundreds of known cultural artefacts and to identify and develop appropriate mitigation and management measures for the artefacts yet to be discovered, are presented below. All the cultural heritage mitigation and management measures, including those for individual or groups of sites are provided. The construction environmental management plans will include these measures and tactical routing to avoid cultural heritage sites will be conducted as part of the preconstruction surveys.

6.5.1 Site Recording and Mapping

Systematic documentation and mapping of sites within the areas of disturbance will be conducted as part of preconstruction surveys where:

- Infill surveys are required to clarify recorded site locations or to complete surveys in areas where access was previously hindered (for example by unexploded ordnance or tribal disputes).
- The definition of the locations of some minor permanent facilities and temporary facilities (e.g., outbuildings, access roads, artefacts) are confirmed as the project advances through detailed design.
- Further research of appropriate sources is required to ascertain the existence or location of historic sites.

6.5.2 Management Programs

The cultural heritage management plan will make provision for

- a) Management of cultural heritage sites within the area of disturbance of the project, and the documentation and storage of salvaged materials.
- b) Management of sites in the vicinity of, but outside, the area of disturbance of the project that may be indirectly impacted by project activities or by the activities of others.
- c) Measures will include procedures to increase cultural awareness and set standards of behaviour for project personnel to prevent illegal acquisition, misuse and export of cultural heritage materials.

6.5.3 Stakeholder Consultation

The consultation activities to be set out in the plan will include the following:

- a) Social scientists and cultural heritage specialists will involve local communities in the protection and salvage of sites.
- b) Consideration will also be given to the cultural heritage recommendations to involve communities in the cultural awareness activities.
- c) Consultation with the GPHRA heritage organisation and cultural heritage specialists (including archaeologists).

6.5.4 Salvage of Cultural Heritage Materials

The aim of the NHRA is to avoid cultural heritage sites (and, through appropriate planning and design, has largely been able to avoid what appear to be the more important buildings), but the disturbance to some sites within the project footprint will be unavoidable (and new sites may be discovered during preconstruction surveys that can only be conducted after the residents have been relocated). These will be selectively salvaged and recorded, which could involve the following:

- a) Engagement of cultural heritage specialists, heritage architect (including archaeologists) with appropriate qualifications or suitable training to coordinate survey and salvage activities in consultation with the GPHRA and SAHRA as required.
- b) Salvage and relocation of locally important materials, according to local customs, using a method that is agreed to by local communities, with the communities undertaking the relocation work where appropriate.
- c) Salvage and Relocation of locally important artefacts, using a method that is agreed to by GPHRA and SAHRA, with the communities undertaking the relocation work where appropriate.
- d) Development of a protocol describing the method for relocating and/or salvaging materials from burials that are discovered during construction, which will be developed in consultation with and approved by the GPHRA and SAHRA and the consent of affected communities.
- e) Protocols and methods for salvage will be set out in the conservation management plan.
Protocols and methods for salvage will be set out in the cultural heritage management plan.

6.5.5 Avoidance of building and sites to be retained.

A number of buildings have been identified as highly significant and will be avoided during construction. The details of buildings to be avoided will be documented in the conservation management plan for implementation during final design and construction.

6.5.6 Monitoring of Early Works and Construction Activities

- a) Engagement of cultural heritage specialists (including archaeologists) to monitor construction activities, to oversee appropriate treatment of any sites not yet identified that are discovered during construction works.
- b) Periodic monitoring of cultural sites during construction within the facilities to ensure sites outside the area of disturbance are not being indirectly disturbed by project personnel.

- c) Monitoring during offshore dredging for the presence of submerged prehistoric and post-colonial artefacts.
- d) Consultation with the GPHRA and SAHRA on the implementation of the agreed protocols during construction activities.

6.5.7 Disconnection of Communities from Cultural Heritage Sites and Loss of Sites from Oral Tradition.

The mitigation and management measures described above, particularly the involvement of local communities and the documentation and salvage of cultural heritage materials, will assist in recording stories for the future reference of the communities concerned.

6.5.8 Site Specific Mitigation and Management Measures

The mitigation and management measures for cultural heritage sites identified to date (and for those that may yet be identified) have been classed under the main management methods

a) Discovery of Artefacts	Should any Cultural / Archaeological artefacts be discovered during construction activities, construction shall immediately cease and the National, Cultural and History Museum shall be contacted for investigation. The area must be barrier taped immediately until the environmental control officer or the SHEQ manager can communicate appropriate methods of protection to the contactor.
b) Fencing	Any archaeological sites present on site shall be fenced and at least 5 metres around it should be safeguarded from construction and development.
c) Structures older than 60 years	No buildings / structures older than 60 years shall be damaged / demolished, or archaeological artefacts removed, without written authorisation from SAHRA.
d) Burial grounds	Any burial ground or grave found on site will be reported immediately to the Contractor, ECO and Project Manager. An undertaker must also be contacted who will place advertisements in the newspapers. This should be investigated by a specialist and recommendations made.
e) Suspicious artefacts	The ECO will be notified of any suspicious artefacts prior to it being moved or removed.
f. Artefacts and items inside the buildings	No artefacts shall be damaged / demolished, or archaeological artefacts removed, without a preconstruction and demolition audit and without written authorisation from SAHRA

6.6 Residual Impacts

The avoidance of sites of high past and contemporary significance has been planned by an iterative exchange of project planning and engineering information and the cultural heritage results from all the field surveys and interviews conducted between 2005 and 2008. This has enabled project engineers to take timely account of cultural heritage constraints when routing pipelines and determining facility locations. This process of iteration between the social, cultural, environmental and engineering design disciplines of the project will continue into the detailed design phase and will focus on the avoidance of sites where practicable.

Despite avoiding the known highly significant sites, some other sites will be unavoidably damaged or destroyed. These buildings will be identified before construction and managed in accordance with the relevant laws and guidelines. In these instances, disturbance will be limited to sites that cannot be avoided and disturbance will be considered in consultation with all stakeholders.

Avoidance of buildings and sites and implementation of the mitigation measures of the cultural heritage management plan are expected to lower the scale and magnitude of the residual impacts to the following:

- a) Destruction of sites with low significance (with consent from landowners following documentation and salvage).
- b) Modification of some sites with high significance (following documentation and salvage).
- c) Potential for increased risk of disturbance to sites with high significance that have been flagged for avoidance (due to improved access for locals and non-project personnel to the sites).

Residual cultural heritage impacts will be both positive (as documentation and salvage of sites will preserve information that may otherwise have been lost over time) and negative (through damage or loss of sites).

In circumstances where salvage is required, the conversion of sites from in situ-physical features, sometimes associated with oral traditions, into records and artefacts, may disconnect people from some of their oral traditions and change how local culture develops in the future. The project will also examine other initiatives to support cultural heritage through broader community benefits that will be implemented via the project's social benefit plan.