



## **NGT ESHS Solutions**

### **PROJECT TITLE:**

BASIC ASSESSMENT FOR THE PROPOSED DEVELOPMENT OF A PLACE OF WORSHIP FOR HOPE RESTORATION MINISTRIES PROJECT ON PORTION 31 AND 32 OF THE FARM BLUE HILLS 397 JR, GAUTENG PROVINCE, SOUTH AFRICA

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Heritage Impact Assessment for the Proposed Development of a Place of Worship for Hope Restoration Ministries Project on Portion 31 And 32 of the Farm Blue Hills 397 JR, Gauteng Province, South Africa.

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**DECLARATION OF INDEPENDENCE**

Cherene de Bruyn for NGT has compiled this report. The views expressed in this report are entirely those of the author and no other interest was displayed during the decision-making process for the project.

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## EXECUTIVE SUMMARY

NGT was appointed by PENSU Environmental as an independent Cultural Resources Management (CRM) firm to conduct an HIA for the proposed establishment of a place of worship (church) on the Portions 31 and 32 of the Farm Blue Hills 397 JR located in Midrand, Gauteng Province, South Africa. This HIA report forms part of the BAR and it also informs the EMPr report on the management and conservation of cultural heritage resources. This study is conducted independently in terms of Section 38 (3) of the National Heritage Resources Act (NHRA), No. 25 of 1999.

The standard NGT HIA study process entailed conducting a detailed background information search of the receiving environment. The search assesses among other forms of data, previous studies conducted in and around the proposed study area or the development area. This also includes conducting an onsite investigation (survey) to identify and map out heritage resources on site and assess impacts of the proposed development on the identified heritage resources. Recommendations are then made with regards to how the identified heritage resources should be managed and/or mitigated to avoid being negatively impacted by development activities. Furthermore, recommendations are made on how the positive project benefits can be enhanced, to ensure a long-term strategy for the conservation and promotion of heritage resources, if any are found.

Three physical surveys of the project area (footprint) were conducted.

- The first survey was conducted on Friday the 09th of February 2018 by Ms. Janishta Daya (Candidate Archaeology and Heritage Consultant - NGT), Ms. Taryn Aspeling (Socio-economic Consultant – NGT), Ms. Sisipho Bongwana (Candidate Human Resources – NGT) and Mr. Nkosinathi Tomose (Principle Archaeologist and Heritage Consultant – NGT).
- The second survey was conducted Thursday the 12th of April 2018 by Mr. Nkosinathi Tomose.
- A third physical survey of the project area (footprint) was conducted on Thursday, the 13th of September 2018. The survey was conducted by Mr. Nkosinathi Tomose, Miss Cherene de Bruyn (Archaeology and Heritage Consultant – NGT) and Ms Nosiphiwo Nodada (Environmentalist and Social Impact Specialist – NGT). These findings are discussed in detail in this HIA report.

All surveys were conducted on foot and a vehicle was used to gain access on to the property through a number of undeveloped roads within and outside the development footprint. The physical surveys of the project footprint identified a total of six cultural heritage resources in form of places of prayer and worship (open air churches) belonging to various denominations. The churches have been assigned unique IDs, namely:

- Open Air Church 01;
- Open Air Church 02;
- Open Air Church 03;
- Open Air Church 04;
- Open Air Church 05;
- Open Air Church 06 and;
- a cemetery (Blue Hills Cem-01) with 6 graves.

Four of the five open air churches fell within close proximity of the proposed development site; with one church falling in the development footprint (i.e. Open Air Church 05). The three other open-air churches fall within 100m of the development footprint (i.e. Open Air Churches: 03, 04 & 06). The cemetery site (Blue Hills Cem-01) falls within the development footprint and is located near a wetland. Based on the results of literature review, field survey and the assessment of identified heritage resources the following conclusions and recommendations are made in terms of the National Heritage Act about the proposed development:

#### **Conclusions:**

- The portion of the 15-hectare farm selected for development has been previously disturbed by previous agricultural activities, thus making it highly unlikely that any resources of Heritage or Archaeological significance will be found in their original context.
- The cemetery and Open-Air Churches identified in the project area are of medium to high significance.
- During the survey:
  - One open air church falls within the fence line of the development footprint and it will be directly impacted by the proposed development (Open Air Church 05); with the other churches falling outside the development footprint, but within 500m zone of influence (Open Air Churches: 03, 04, 06). The three churches that are outside the development area will not be directly impacted by the proposed development and

will experience secondary impacts. The two Open Air Churches (01 and 02) are located on a different property.

- An informal cemetery with six graves were identified (Blue Hills Cem-01). The cemetery contains approximately 6 unmarked graves are located in the project area and within the 500m zone of influence.
- No other archaeological or historical resources were identified in the project area.
- During the survey no other graves or burial grounds were visible on the surface area, as graves are subterranean in nature and might not have been identified during the initial site visit and survey.
- In terms of SAHRA Paleontological Sensitivity Layer, the area is within an insignificant or zero sensitivity area.

## **Recommendations**

Based on the above conclusions made about the nature and the type of heritage resources found within the project area, the following recommendations have been made:

- It is recommended that the five open air churches located outside the development footprint should be avoided and treated as No-Go areas.
- It is recommended that there be an engagement with leaders of Open Air Church 05 to request them to move their church to a nearby location due to it being directly impacted by the proposed development. The costs to clear the new ground and compact it should be carried by the developer. This will ease any potential conflict between the developer and the church.
- During the BAR public participation process the issue of churches and how they will be indirectly impacted by the proposed development from a social impact assessment perspective should be discussed.
- The historical/recent cemetery and graves were rated as medium to high significance and are protected as a in terms of Section 36 of the NHRA, No. 25 of 1999. As such it is recommended that the site should be fenced of and no machinery or site camp associated with the proposed development activities should be established near the graves. The site should be treated as a No-Go-Area and a cemetery management plan should be developed.
- A detailed grave search should be conducted, (with a Grave digger) in the proposed development area to identify the extent of the burial site. On completion of this exercise, a fence should be erected to demarcate the graves from the rest of development activities.

- Should the developer change his mind about keeping the graves *in situ* and the proposed development activities encroach on the graves, they should be relocated to a municipal designated cemetery. This should only be done after obtaining the necessary permission from the families and acquiring the relevant permits from the SAHRA Burial Grounds and Graves (BGG) Unit, the Gauteng Department of Health and the Gauteng Department of Human Settlements as well as informing the SAPS (South African Police Services).
- However, it should be noted that some archaeological material, including artefacts and graves can be buried underground and as such, may not have been identified during the initial survey and site visits. In the case where the proposed development activities bring these materials to the surface, they should be treated as Chance Finds. Should such resources be unearthed it is recommended that, the prospecting activities be stopped immediately, and an archaeologist be contacted to conduct a site visits and make recommendations on the mitigation of the finds. SAHRA and PHRA-G should also be informed immediately on such finds.
- In terms of the SAHRA Paleontological Sensitivity Layer the area falls within a region defined as an insignificant or zero sensitivity area as such, no palaeontological studies are required.



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**LIST OF ABBREVIATIONS**

<b>ACRONYMS</b>	<b>DESCRIPTION</b>
<b>AUTHORITIES</b>	
ASAPA	Association of South African Professional Archaeologists
CoJMM	City of Johannesburg Metropolitan Municipality
DEA	Department of Environmental Affairs
GDARD	Gauteng Department of Agriculture and Rural Development
NGT	Nurture, Grow, Treasure
PHRA-G	Provincial Heritage Resources Authority Gauteng
SADC	Southern African Developing Community
SAHRA	South African Heritage Resources Agency
SAHRIS	South Africa Heritage Resources Information Systems
<b>DISCIPLINE</b>	
AIA	Archaeological Impact Assessment
AIC	African initiated church
CMP	Cultural Management Plan
ESA	Early Stone Age
EIAs	Environmental Impact Assessment
EMPr	Environmental Management Programme
EIA	Early Iron Age
HCMP	Heritage Cultural Management Plan Report
HIA	Heritage Impact Assessment
LIA	Late Iron Age
LSA	Late Stone Age
MIA	Middle Iron Age
MSA	Middle Stone Age
ZCC	Zion Christian Church
<b>LEGAL</b>	
NEMA	National Environmental Management Act
NHRA	National Heritage Resources Act

## **TERMS AND DEFINITIONS**

### ***Archaeological resources***

These include:

- 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;
- Rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;
- Wrecks, being any vessel or aircraft, or any part thereof which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation;
- Features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

### ***Palaeontological***

This means any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial.

### ***Cultural significance***

This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

### ***Development***

This means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of the heritage authority in any way result in the change to the nature, appearance or physical nature of a place or influence its stability and future well-being, including:

- Construction, alteration, demolition, removal or change in use of a place or a structure at a place;
- Carrying out any works on or over or under a place;
- Subdivision or consolidation of land comprising a place, including the structures or airspace of a place;

- Constructing or putting up for display signs or boards; any change to the natural or existing condition or topography of land;
- And any removal or destruction of trees, or removal of vegetation or topsoil.

**Heritage resources:** This means any place or object of cultural significance

## 1. INTRODUCTION

### 1.1. Background Information of Project

NGT was appointed by PENSU to conduct an HIA study for the proposed development of a Place of Worship for Hope Restoration Ministries Project on Portion 31 And 32 of the Farm Blue Hills 397 JR, in the City of Johannesburg Metropolitan Municipality (CoJMM) within the Gauteng Province, South Africa. The total size of the area proposed development is 15 hectares. However only 2.5 hectares of the 15-hectare property is actually available for development as a result of the wetlands that occur in the area.

The HIA will investigate the potential impacts of the proposed development activities on any heritage resources identified within the receiving environment such as archaeological artefacts, burial grounds and historical features of the built environment. The overall objective of the HIA is to give advice on the management of the heritage resources in and around the proposed project area in terms of known heritage resources management measures in line with the NHRA, No. 25 of 1999.

### 1.2. Project Location

The project footprint is located north-west of the Johannesburg Central Business District (CBD) and falls within the CoJMM in the Gauteng Province. It is situated directly south-west of Olievenhoutbosch Plaza and south of Olievenhoutbosch residential area to the north.

#### Description

- The project area is located near Midrand in the CoJMM, situated in the Gauteng, South Africa (*Table. 1, and Figure 1 and 2*).
- Project area covers an area of approximately 2.5 hectares.
- It is located in between the towns Midrand, Diepsloot and Centurion (*Figure. 3*).

#### Access

- Get on Ben Schoeman Fwy/De Villiers Graaff Motorway/M1 in Syferfontein 51-Ir, Johannesburg from M20
- Take exit 29 for R55/Woodmead Drive, which lies east of the study area
- Turn left onto Jakkalsbessie St
- Summit Road which lies south of the study area (*Figure. 4*).





Figure 1: Locality map indicating the proposed project area (in green), located close to Olievenhoutbosch and west of the R55 Road.



Figure 2: Google Earth map of the project area (red).

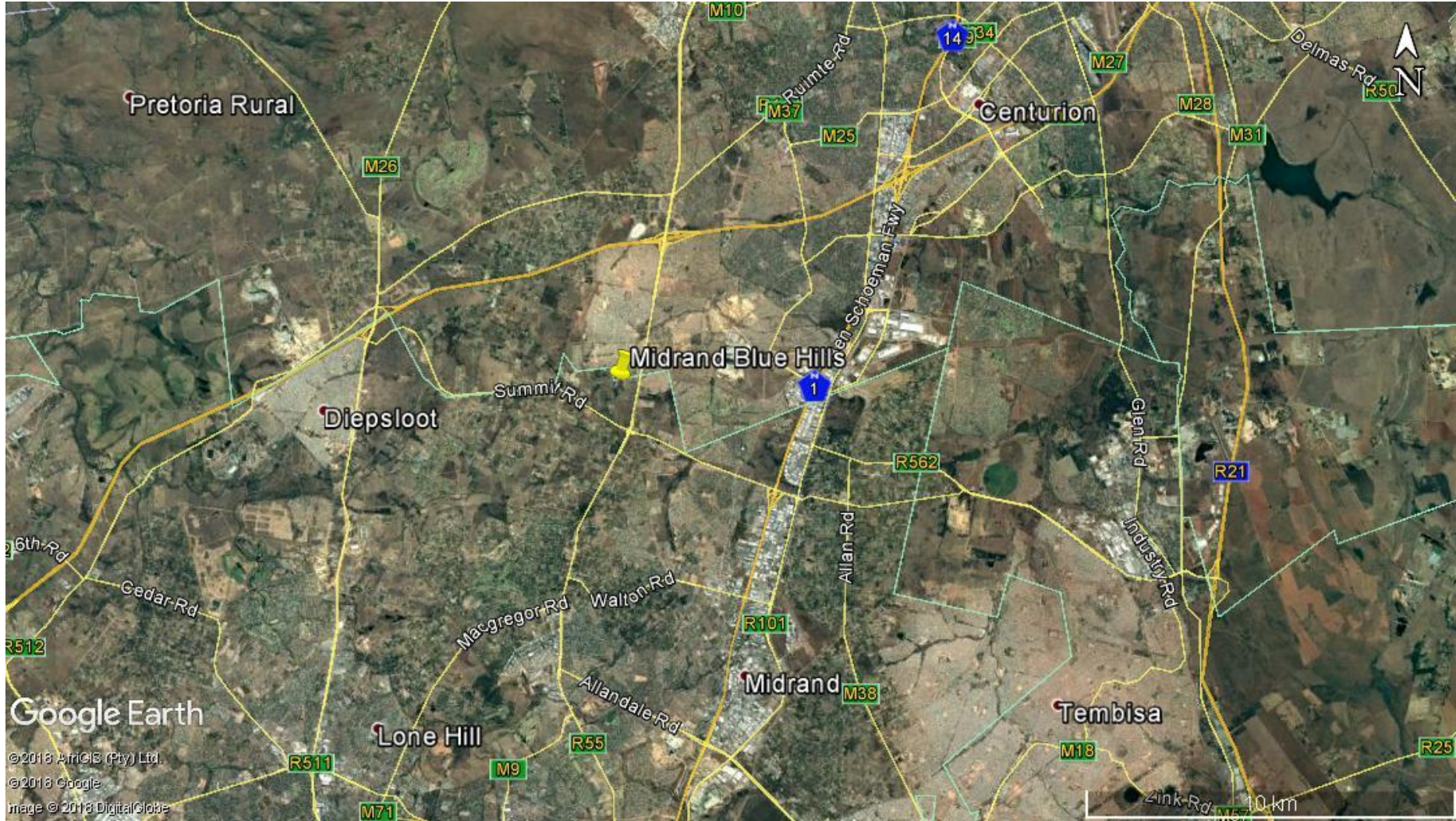


Figure 3: Google Earth image indicating the project area located in between the towns Midrand, Diepsloot and Centurion.

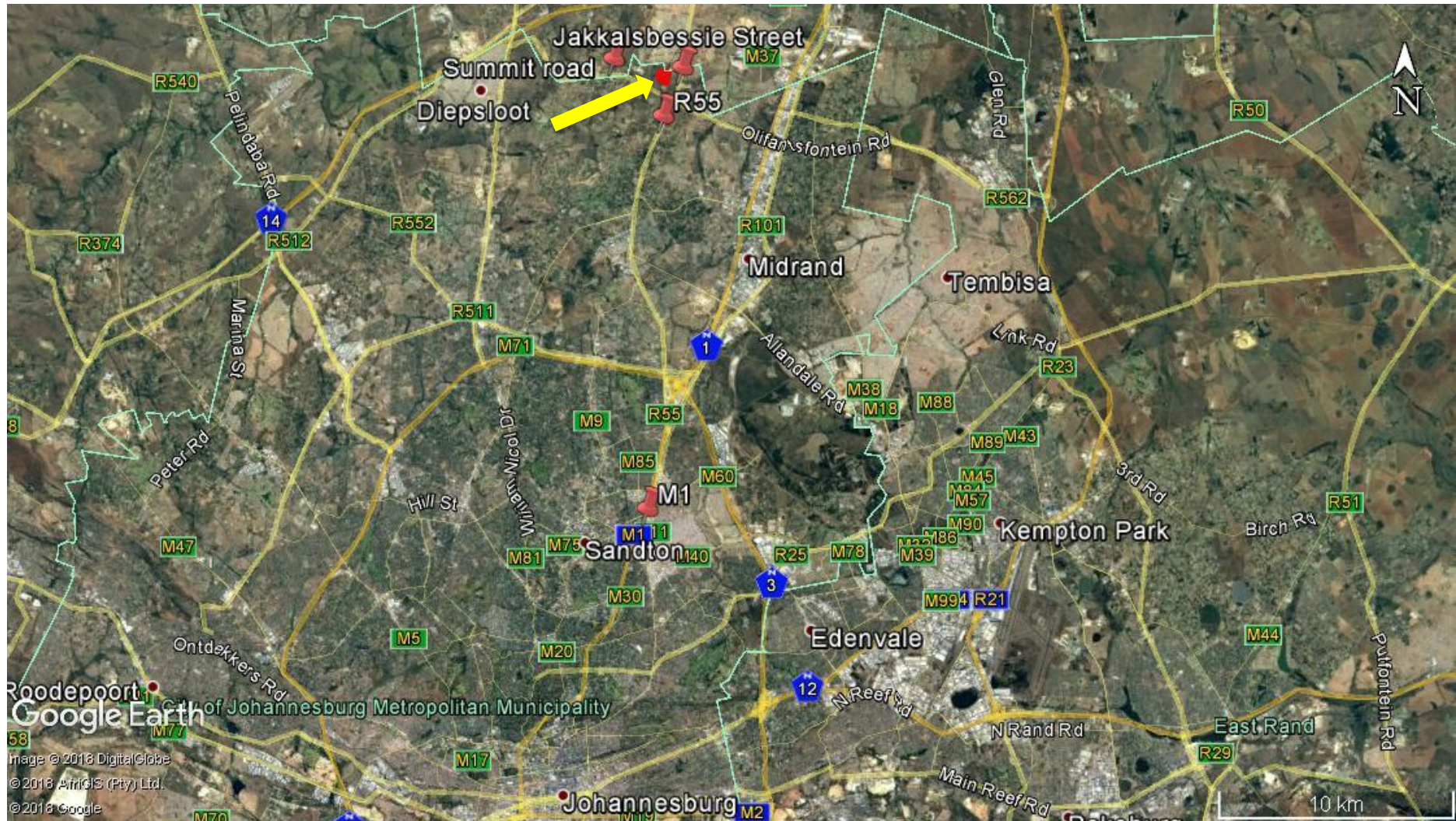


Figure 4: Google Earth image showing access to the site (yellow arrow) from Johannesburg.

Table 1 below gives a detailed description of the project footprint, the affected municipalities and includes site GPS coordinates.

*Table 1: Site Location and Property Information*

Name of affected property	Blue Hills 397 JR Portion 31 and 32
Street location	Jakkalsbessie Street
Erf or farm number/s	Blue Hills 397 JR Portion 31 and 32
Town	Olievenhoutbosch, Midrand
Responsible Local Authority	City of Johannesburg Metropolitan Municipality
Ward	93
Magisterial District	City of Johannesburg
Region	Gauteng Province
Country	South Africa
Site centre GPS coordinates	<ul style="list-style-type: none"> <li>• 25° 55' 45.86" S</li> <li>• 28° 5' 28.04" E</li> </ul>

### **1.3. General Description of the Affected Environment**

Up until more recent times the regions surrounding Johannesburg, and Midrand itself was used for agricultural practices (De Jong & Van Schalkwyk 1998). The proposed project location is situated in a region that has been disturbed by previous agricultural activities. The region surrounding the project area has remained largely underdeveloped and unoccupied area. The site furthermore contains of a number of foot paths that are used by the local residents of the Olievenhoutbosch settlement in the north, farm dwellers and church goers as a means of access to their respective work places.

The landscape is characterized by grassy plains, gentle slopes and small scattered clusters of trees (*Figures. 5 & 6*) and large wetland that cuts across the site from south to the north and from south-west to the north-east (*Figure. 7 & 8*). During the survey rare birds such as the African White Storks were spotted on site (*Figure. 6*). The section located west (25° 55' 44.9" S, 28° 05' 23.0" E) of the project footprint is occupied by local inhabitants practicing subsistence and small-scale commercial farm on the land since 1999 (Personal Comment Mr. Phillip Mncube). These subsistence farmers grow and sell Chomolia, which is vegetable with a green and prickly appearance, to local markets in the

Olievenhoutbosch settlement. Other crops that are grown include maize, sugar cane and peach trees (Figure. 9). A large amount of illegal dumping heaps has been noted north of the site.



Figure 5: Images depicting the north, east, south and west views taken from a central location within the project footprint.



Figure 6: Image depicting the presence of African White Storks within the study area.

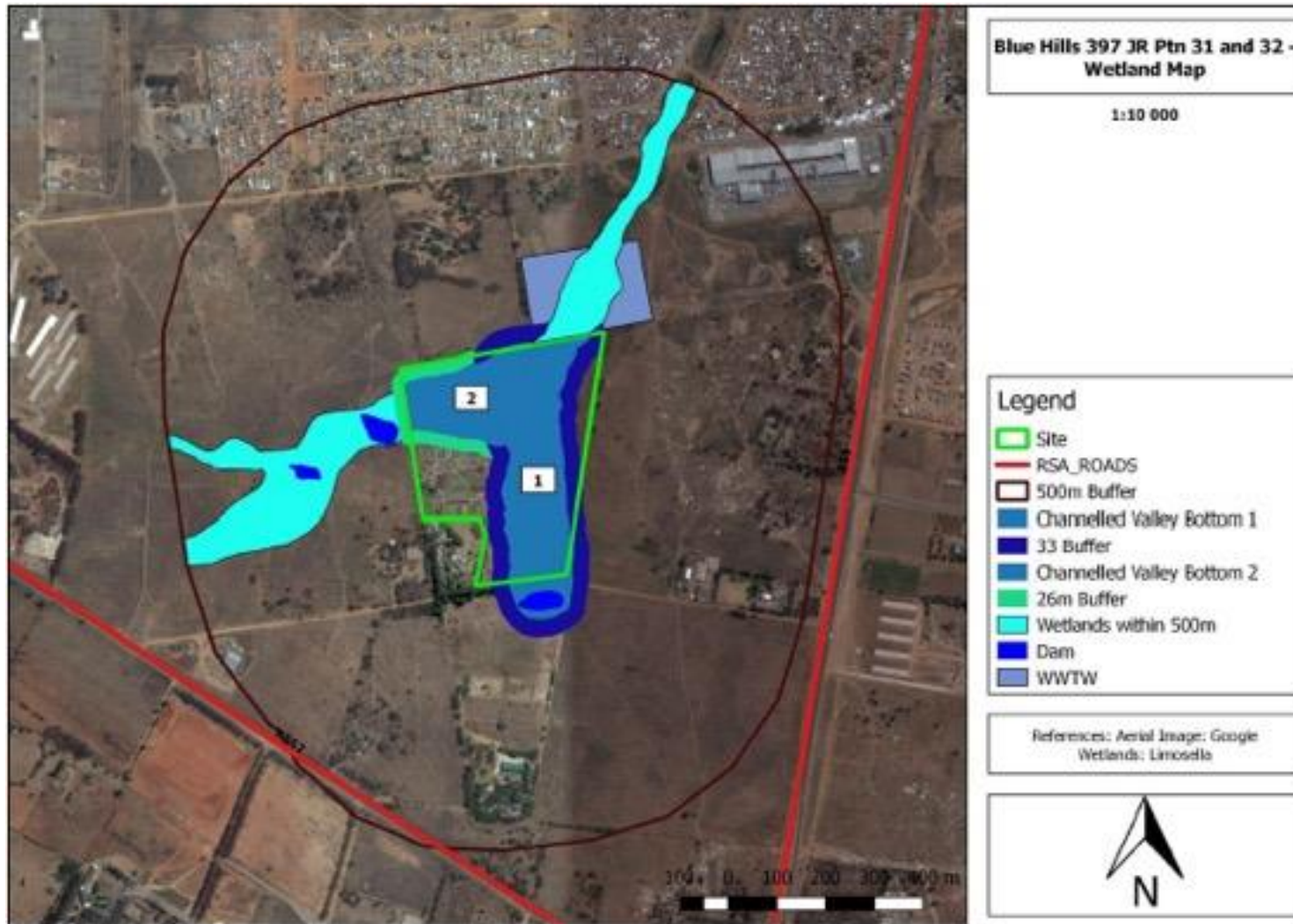


Figure 7: Map depicting the underlying Channelled Valley Bottom Wetland in relation to the study area.

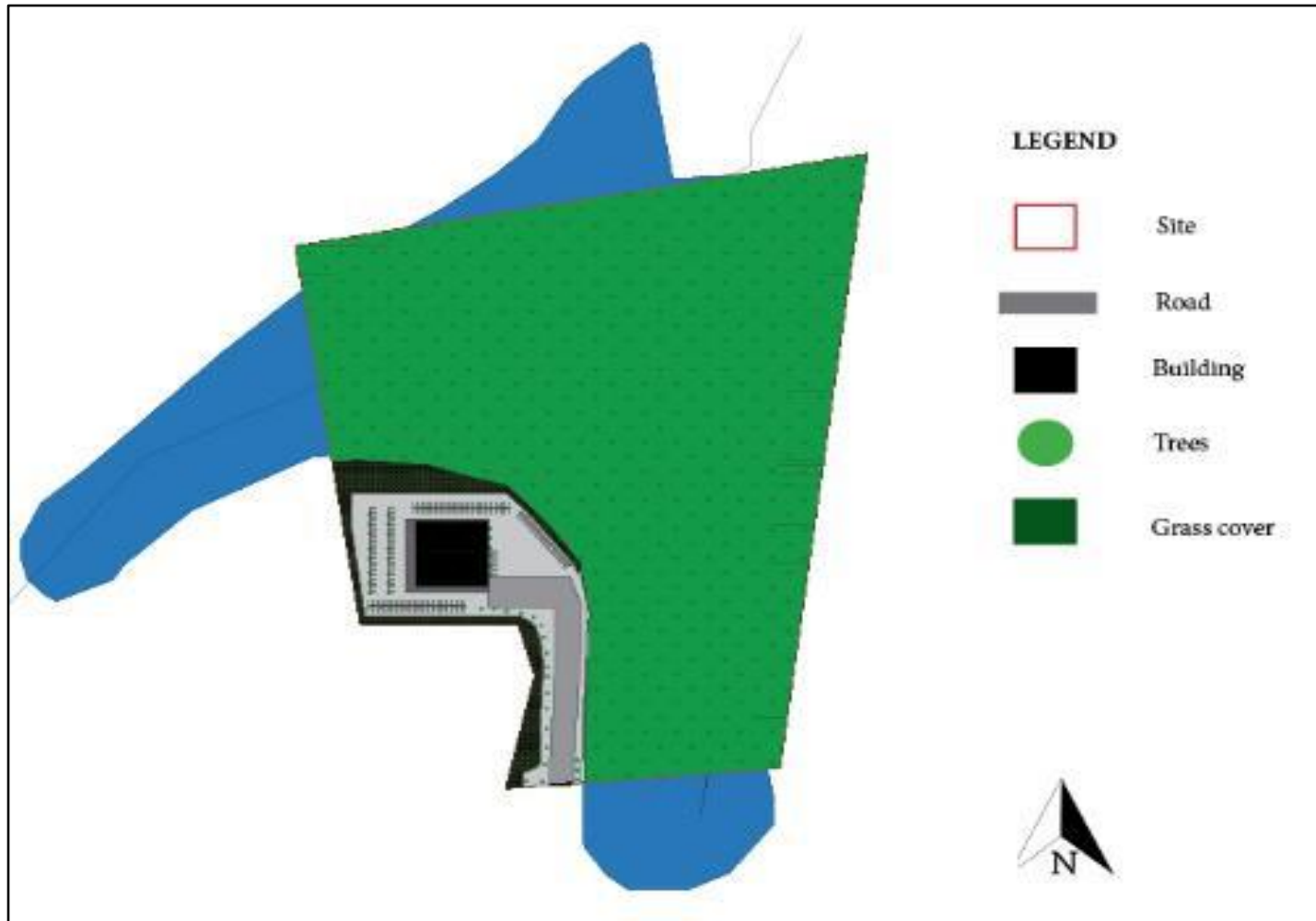


Figure 8: Map depicting the proposed development of the church with access roads in relation to the study area.





*Figure 9: Images depicting the subsistence farming being practiced on the western part of the project area.*

#### **1.4. Terms of Reference**

The nature and the size of the proposed development and associated infrastructure exceeds more than two erf/stands and is over 5000m<sup>2</sup> in size. Developments taking place in an area that exceed two erf/stands and is over 5000m<sup>2</sup> in size requires that an HIA be conducted in terms of Section 38 (1) of the NHRA, No. 25 1999.

The HIA is conducted in terms of Sections 38 the NHRA, No. 25 of 1999. This prescript of the Act Section 38:

“the responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (3) (a): Provided that the following must be included:

- (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 set out in section 6(2) or prescribed under section 7;
- (c) An assessment of the impact of the development on such heritage resources;

- (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;
- (e) The result of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
- (f) If heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
- (g) Plans for mitigation of any adverse effects during and after the completion of the proposed development.”

PENSU appointed NGT as the lead cultural resources management (CRM) consultant to conduct and manage the HIA process. Cherene de Bruyn, Archaeologist and Heritage Consultant for NGT, conducted the HIA study for the proposed development. The appointment of NGT as an independent CRM firm is in terms of the NHRA, No. 25 of 1999.

### 1.5. Legal Requirements for Completion of the Study

The NHRA, No. 25 of 1999 sets norms and standards for the management of heritage resources in South Africa. Section 35 and 38 (3) of the NHRA, No. 25 of 1999 informs the current HIA study. Table 2 below gives a summary of all the relevant legislations that informed the current study.

*Table 2: Legislation and relevance to this HIA Study*

<b>Legislation (incl. Policies, Bills and Framework)</b>	
<i>Heritage</i>	<ul style="list-style-type: none"> <li>• Heritage resources in South Africa are managed through the NHRA, No. 25 of 1999. This Act sets guidelines and principles for the management of the <i>nation estate</i>.</li> <li>• Section 35 and 38 of the Act becomes relevant in terms of nature of the proposed project in terms of developing the heritage impact assessment study.</li> <li>• While Section 35 becomes relevant in terms of archaeology and palaeontology</li> </ul>
<i>Environmental</i>	<ul style="list-style-type: none"> <li>• The National Environmental Management Act (NEMA), No. 107 of 1998.</li> <li>• The cultural environment in South Africa is managed through Section 24 of the NEMA, No. 107 of 1998.</li> </ul>

### 1.6. Limitations and Assumptions

Although a comprehensiveness physical survey was undertaken it should be noted that some of the archaeological material, including artefacts and graves can be buried underground and as such, may not have been identified during the initial survey and site visit. In the case where the proposed

development activities bring these materials to the surface, they should be treated as Chance Finds. Should such resources be unearthed it is recommended that, the development activities be stopped immediately, and an archaeologist be contacted to conduct a site visits and make recommendations on the mitigation of the finds. SAHRA and PHRA-G should also be informed immediately on such finds. In this case no archaeological material of graves should be moved from the site, until the heritage specialist has been able to make an assessment regarding the significance of the site and archaeological material, which is also subject to SAHRA approval.

The following chapter outline the methodology used to assess the current site impacts and cumulative impacts that will result from the proposed project on the identified historic or archaeological sites.

## **2. METHODOLOGY**

### **2.1. Approach to the Study**

Cherene de Bruyn, Archaeologist and Heritage Consultant for NGT, is responsible for the compilation of the current HIA report. The Review and Quality Control (RQC) process involved reviewing the First Draft HIA (Revision 01) and revising the Second Draft (Revision 02); the RQC was completed by Mr Nkosinathi Tomose, Principal Archaeologist and Heritage Consultant for NGT. The RQC is a standard process at NGT; in the case that the Director and Principal Consultant is responsible for the report – another consultant has to undertake the RQC process. This HIA is conducted for the proposed development of a Place of Worship (Church) on the property on Portions 31 and 32 of the Farm Blue Hills 397 JR in Midrand, Gauteng Province.

### **2.2. Step I – Literature Review (Desktop Phase)**

Background information search for the proposed development took place following the receipt of appointment letter from the client. Sources used included, but not limited to published HIA studies, academic books, academic journal articles and the internet about the site and the broader area in which it is located. Interpretation of legislation (the NHRA, No. 25 of 1999) and local by-laws forms, form the backbone for the study.

### **2.3. Step II – Physical Survey**

Physical surveys of the project area (footprint) were conducted on 3 different dates.

- The first survey was conducted on Friday the 09th of February 2018 by Ms. Janishta Daya (Candidate Archaeology and Heritage Consultant - NGT), Ms. Taryn Aspelng (Socio-economic Consultant – NGT), Ms. Sisipho Bongwana (Candidate Human Resources – NGT) and Mr. Nkosinathi Tomose (Principle Archaeologist and Heritage Consultant – NGT).
- The second survey was conducted Thursday the 12th of April 2018 by Mr. Nkosinathi Tomose.
- A third physical survey of the project area (footprint) was conducted on Thursday, the 13th of September 2018. The survey was conducted by Mr. Nkosinathi Tomose, Miss Cherene de Bruyn (Archaeology and Heritage Consultant – NGT) and Ms Nosiphiwo Nodada (Environmental and Social Impact Specialist – NGT). These findings are discussed in detail in this HIA report.

The aim of the survey was to identify archaeological and heritage sites and resources within the area proposed for development activities as well as within the 500m radius zone of influence;

- The survey of the proposed mining area was conducted on foot and the site was accessed using a bakkie;
- The aim of the surveys was to identify archaeological, burial grounds and graves, and built environment heritage sites and resources in and around the area proposed for development;
- To record and document the sites using applicable tools and technology;

The following technological tools were used for documenting and recording identified resources on site:

- Garmin GPS (i.e. Garmin 62s) – to take Latitude and Longitude coordinates of the identified sites and to track the site.
- Canon SLR – to take photos of the affected environment and the identified sites.
- For the identified sites – Google Earth will be used to map them on the landscape in relation to other significant markers or features.

#### **2.4. Step III – Report Writing and Site Rating**

The final step involves compilation of the report using desktop research as well as the physical survey results. Archaeological resources, graves and sites found in the project area is rated according to the site significance classification standards as prescribed by SAHRA. The first draft of this report was produced in April 2018 and the second draft was produce in September 2018.

#### **2.5. Assessment of Site Significance in Terms of Heritage Resources Management Methodologies**

The significance of the identified heritage resources sites was based on four main criteria:

- Site integrity (i.e. primary vs. secondary context)
- Amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures)
- Density of scatter (dispersed scatter)
- Low - <10/50m<sup>2</sup>
- Medium - 10-50/50m<sup>2</sup>
- High - >50/50m<sup>2</sup>

- Uniqueness

Based on the site integrity, amount of deposits and uniqueness, the identified resources were assessed in terms of the potential to answer research questions in the field of archaeology and heritage resources management sector.

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be expressed as follows:

- A - No further action necessary;
- B - Mapping of the site and controlled sampling required at a Phase 2 Level (e.g. mapping and destruction of a historic building or an archaeological site);
- C - No-go or relocate pylon position
- D - Preserve site, or extensive data collection and mapping of the site; and
- E - Preserve site

This Statement of Heritage Significance does not imply exemption from any national, provincial or local authority legal or other regulatory requirement, including any protection or management or general provision in terms of the NHRA, No. 25 of 1999.

The following site significance classification minimum standards as prescribed by the SAHRA (2006) and approved by ASAPA for the Southern African Developing Community (SADC) region were used to grade the identified heritage resources or sites (*Table. 3*). Impact Significance Rating in will be completed and is guided by the requirements of the NEMA EIA Regulations (2014) (*Table., 4 -10*).

*Table 3: Site significance classification standards as prescribed by SAHRA.*

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
National Significance (NS)	Grade 1	High Significance	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	High Significance	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected A (GP. A)	-	High / Medium Significance	Mitigation before destruction
Generally Protected B (GP. B)	-	Medium Significance	Recording before destruction
Generally Protected C (GP. A)	-	Low Significance	Destruction

## 2.6. Impact Significance Rating in Accordance to Environmental Requirement:

Table 4: Table indicating the impact significance rating.

Alternative No	List Alternative Names	
Proposal	Development	
Alternative 1	Development Area 01	
Alternative 2	Development Area 02	
Nature	-1	Negative
	1	Positive
Extent	1	Activity (i.e. limited to the area applicable to the specific activity)
	2	Site (i.e. within the development property boundary),
	3	Local (i.e. the area within 5 km of the site),
	4	Regional (i.e. extends between 5 and 50 km from the site)
	5	Provincial / National (i.e. extends beyond 50 km from the site)
Duration	1	Immediate (<1 year)
	2	Short term (1-5 years),
	3	Medium term (6-15 years),
	4	Long term (the impact will cease after the operational life span of the project),
	5	Permanent (no mitigation measure of natural process will reduce the impact after construction).
Magnitude/ Intensity	1	Minor (where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected),
	2	Low (where the impact affects the environment in such a way that natural, cultural and social functions and processes are slightly affected),
	3	Moderate (where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way),
	4	High (where natural, cultural or social functions or processes are altered to the extent that it will temporarily cease), or

	5	Very high / don't know (where natural, cultural or social functions or processes are altered to the extent that it will permanently cease).
Reversibility	1	Impact is reversible without any time and cost.
	2	Impact is reversible without incurring significant time and cost.
	3	Impact is reversible only by incurring significant time and cost.
	4	Impact is reversible only by incurring prohibitively high time and cost.
	5	Irreversible Impact
Probability	1	Improbable (the possibility of the impact materialising is very low as a result of design, historic experience, or implementation of adequate corrective actions; <25%),
	2	Low probability (there is a possibility that the impact will occur; >25% and <50%),
	3	Medium probability (the impact may occur; >50% and <75%),
	4	High probability (it is most likely that the impact will occur- > 75% probability), or
	5	Definite (the impact will occur),
Public feedback	1	Low: Issue not raised in public responses
	2	Medium: Issue has received a meaningful and justifiable public response
	3	High: Issue has received an intense meaningful and justifiable public response
Cumulative Impact	1	Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.
	2	Medium: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.
	3	High: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is highly probable/definite that the impact will result in spatial and temporal cumulative change.



Irreplaceable loss of resources	1	Low: Where the impact is unlikely to result in irreplaceable loss of resources.
	2	Medium: Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.
	3	High: Where the impact may result in the irreplaceable loss of resources of high value (services and/or functions).
Degree of Confidence	Low	<30% certain of impact prediction
	Medium	>30 and < 60% certain of impact prediction
	High	>60% certain of impact prediction
<b>Priority</b>	<b>Ranking</b>	<b>Prioritisation Factor</b>
3	Low	1,00
4	Medium	1,17
5	Medium	1,33
6	Medium	1,50
7	Medium	1,67
8	Medium	1,83
9	High	2,00
Phase		
Planning		
Construction		
Operation		
Decommissioning		
Rehab and closure		

Table 5: Impact Rating table with impact mitigation.

IMPACT DESCRIPTION		PRE – MITIGATION							POST – MITIGATION							IMPACT PRIORITISATION			
Impact	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Pre-mitigation ER	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Post-mitigation ER	Confidence	Public response	Cumulative Impact	Irreplaceable loss
1. Heritage Impact Ratings	Planning	-1	3	2	2	2	5	-11,25	-1	3	1	2	2	4	-8	High	1	2	1
								0	-1						0				
								0							0				

Table 6: Risk assessment.

1. Select Impact from Dropdown List (C2:H2)	A. 1. Transformation of cultural/heritage resource – Proposal					
2. (C4:H24)	<b>Impact Name</b>		Heritage Impact Assessment			
	<b>Alternative</b>		Proposal			
	<b>Phase</b>		Planning			
	<b>Environmental Risk</b>					
	<b>Attribute</b>		<b>Pre-mitigation</b>	<b>Post-mitigation</b>	<b>Attribute</b>	
	Nature of Impact		-1	-1	Magnitude of Impact	
	Extent of Impact		3	3	Reversibility of Impact	
	Duration of Impact		2	1	Probability	
	Environmental Risk (Pre-mitigation)					-11,25
	Mitigation Measures					
	<b>Heritage Risks</b>					
	Heritage Risk (Post-mitigation)					-8,00
	Degree of confidence in impact prediction:					High
	<b>Impact Prioritisation</b>					
	Public Response					1
	<i>Low: Issue not raised in public responses</i>					
	Cumulative Impacts					2
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.</i>					
Degree of potential irreplaceable loss of resources					1	
<i>The impact is unlikely to result in irreplaceable loss of resources.</i>						
Prioritisation Factor					1,17	
<b>Final Significance</b>					-9,33	

### **3. BACKGROUND LITERATURE REVIEW: ARCHAEOLOGY**

This chapter provides insights on the archaeology and cultural heritage of the receiving environment. Where necessary, reference is made to archaeology and other heritage resources found within the broader region of Gauteng Province and in areas located in close proximity to the receiving environment for the proposed establishment of a place of worship (church) on the portions 31 and 32, Blue Hills 397 JR. The objective of making such references is to enable the heritage-grading processes and for comparative analysis reasons. For example, we assess if heritage resources found within the project area are unique to the project area or are found elsewhere in the province, thereby making provision for assessing the implications of this to broader heritage conservation management principles. The heritage scoping process looks at the evolution of Midrand area from Stone Age to more recent historic period.

In southern Africa archaeology is divided into the Stone Age, Iron Age and the Historical Period. During these periods diverse groups of people settled on the southern African landscape. Most of the research on the culture, archaeology, rock art in and around the Gauteng Province has been conducted by Huffman (2002, 2007); Mason (1968, 1982, 1986); Sutton (2012), Kuman & Field (2009) Kuman *et al.*, (1997). Previous HIA's and AIA's of the Midrand and the broader Gauteng region have been conducted by Huffman (1999); De Jong & Van Sckalwyk (1998); Van Schalkwyk (2007a, b, 2017) and Van Vollenhoven (2008).

#### **3.1. Stone Age**

The Stone Age is divided into three periods. The Early Stone Age (ESA) (2 million to 250 000 years ago), the Middle Stone Age (MSA) (250 000 – 22 000 years ago) and the Later Stone Age (LSA) (25 000 to 200 years ago). The ESA is comprised of the Oldowan stone tool complex (2 and 1.7-1.5 million years ago), and the Acheulean stone tool complex (1.7-1.5 million years ago and 250-200 thousand years ago) (Klein 2000; Mitchell 2002). The ESA is comprised of the Oldowan stone tool complex and is characterized by small flakes, flaked cobbles and percussive tools (Klein 2000; Mitchell 2002; Diez-Martín *et al.*, 2015; De La Torre 2016). Several ESA sites have been researched and recorded in the Cradle of Humankind near Johannesburg. Oldowan stone tools have been found at Swartkrans (Sutton 2012), Sterkfontein (Kuman & Field 2009; Reynolds & Kibii 2011), Malapa (Berger *et al.*, 2010), and Kromdraai (Kuman & Field 1997). Several hominin fossil species have also been excavated at these sites (Reynolds & Kibii 2011). The Acheulean stone tool complex included large hand axes and cleavers (1.7-1.5 million years ago and 250-200 thousand years ago) (Klein 2000; Mitchell 2002; Diez-Martín *et al.*, 2015; De La Torre 2016). At the

Gladysvale Cave located 13 kilometres north east of Sterkfontein, a hand axe dating to the Acheulean stone tool complex was found by Hall *et al.*, (2006). Other ESA sites have been identified to the west of Pretoria near the Magaliesriver as well as in the region of the Magaliesberg mountains (Van Vollenhoven 2006). The transition from the Early to Middle Stone Age includes a change in technology from large stone tools to smaller blades and flakes. The MSA stone tool assemblage include blades, flakes, scrapers and pointed tools that could have been hafted and used as spears or arrowheads and is associated with anatomically modern humans (Wadley, 2007).

Stone tools of the LSA, are often associated with the San, and are smaller and more diverse than the previous periods. During the LSA the first Khoi herders and Nguni-speaking agro-pastoralists started to immigrate into southern Africa from the north. These groups had contact with the Later Stone Age people, which often led to them migrating to the Kalahari Desert or being assimilated into the Nguni speaking cultural groups. In 1998 Professor Tim Partridge found several LSA artefacts at Mia Farm located near Midrand, which Mason excavated in later in the same year (Mason 2012). Mason identified two more LSA sites, Glenferness and Boulders, a Granite Tor site located near the Midrand Shopping within the Midrand region (Mason 1950, 2012; Van Schalkwyk 2007a). In the Midrand region LSA sites have also been found near Lone Hill (Van Schalkwyk 2017). Approximately 3km south of the development on Portion 31 And 32 of the Farm Blue Hills 397 JR, LSA stone tools, including a scraper and small core were found on the farm Blue Hills (Huffman 1999).

### **3.2. Iron Age**

The Iron Age, according to Huffman (2007) can be divided into the Early Iron Age (EIA) (AD 200 – 900); the Middle Iron Age (MIA) (AD 900 – 1300); and the Late Iron Age (LIA) (AD 1300 – 1840). The Iron Age is characterized by farming communities who domesticated animals, produced various ceramic vessels, smelted iron for weapons and manufactured tools.

The EIA communities throughout eastern and southern Africa share a similar Iron Age culture called the Chifumbaze complex (Phillipson 1994; Huffman 2007). The Chifumbaze complex contains evidence of the first farmers who cultivated crops, herded domestic animals, used iron, and who made pots (Phillipson 1994). It can furthermore be divided into the Kalundu and Urewe Traditions (Huffman 2007). The Kalundu Tradition is also referred to as the western stream, while the Urewe Tradition is known as the eastern stream (Huffman 2007). The Kalundu Tradition can be found in southern Africa where the makers of these pots lived on wetter and more arable land (Mitchell 2013). The Urewe Tradition ceramic assemblage

can be found in the eastern parts of south-central and south eastern Africa (Mitchell 2013). The Nkope and Kwale branches form part of the Urewe tradition (Phillipson 1994; Mitchell 2002; Huffman 2007).

Mzonjani Facies (AD 450-750) of Kwale branches form the Urewe tradition have been found in the areas surrounding Pretoria and Johannesburg as well as the region between Musina and Nelspruit (Evers 1975, 1977; Huffman 2007). In 1997, Mzonjani ceramics were found on the farm Derdepoort, north of Pretoria and in the Magaliesberg (Nienaber *et al.*, 1997; Van Vollenhoven 2006).

During the climatic conditions in southern and eastern Africa, Moloko people migrated from east Africa to southern Africa (Boeyens 2003). Moloko type ceramics of the Sotho-Tswana people, replaced earlier Eiland ceramics (AD 1000 – 1300), in the Limpopo Province as well as in Botswana (Evers 1983; Klapwijk & Evers 1987; Boeyens 2003). This take over indicates the movements of Sotho-Tswana people to South Africa during the second millennium AD (Boeyens 2003; Badenhorst 2010). Icon (AD 1300 - 1500) a ceramic phase of the Moloko ceramics first appeared in Phalaborwa (Evers & Van der Merwe 1987; Mitchell 2002; Huffman 2007). This indicates that the Sotho-Tswana people originated from east Africa as indicated from tracing the Moloko ceramics back to the EIA of the Urewe Tradition (Hanish 1979; Huffman 1989; Jacobson *et al.*, 1991; Lane 1996; Boeyens 2003; Taylor *et al.*, 2003; Huffman 2007).

The Sotho-Tswana people can be divided into four clusters; the Fokeng, the Hurutshe, the Kgatla and the Rolong (Huffman 2002, 2007). However, Huffman later identified that ceramics of the Fokeng do not form part of the Sotho-Tswana tradition, and that the Fokeng were Nguni speakers (Sadr & Rodier, 2012). Their first migration of Sotho-Tswana people to the Waterberg dates to AD 1350 (Taylor *et al.*, 2003). It is argued that these people moved to southern Africa due to drought in eastern Africa (Taylor *et al.*, 2003). These Sotho-Tswana speaking people migrated north-westwards until they settled in the Limpopo Province (Taylor *et al.*, 2003). The second migration of Sotho-Tswana people was in AD 1350-1450 and is associated with the migration of the Kweana-Hurutshe (Huffman 2002; Boeyens 2003; Taylor *et al.*, 2003). The Hurutshe cluster (includes the Kwena, Ngwato, Ngwaketse and Tawana) are the descendants of those who claim lineage from Malope and his father Masilo (who originated from the Lowa waterhole in Botswana) who lived at Rathateng near Marico and Crocodile confluence in AD 1440 and 1560 (Huffman 2002, 2007). The oral traditions of the Hurutshe indicates that they settled in the Marico region of the North West Province during the 15th century AD (Boeyens 2003). The Hurutshe exiled the Rolong from the Mosega area south of Zeerust (Huffman 2002). The Rolong, a third cluster of the Sotho Tswana arrived in southern Africa between AD 1200 and 1350 and includes the Tlhaping groups (Boeyens 2003; Huffman

2002). The Rolong settled in the region between the Magaliesberg to the Vaal (Huffman 2002; Giliomee & Mbenga 2007; Huffman 2007).

The Fokeng cluster (Bafokeng) found at Ntsuanatsatsi Hill in the Free State Province, formed out of the Kwena (of the Hurutshe cluster) who migrated southeast across the Vaal in AD 1550 and 1650 (Huffman 2002, 2007). The Fokeng and Kwena settlements and associated material culture have been recorded at sites across the Vaal River into Balfour (in Mpumalanga Province), Klipriviersberg (in Gauteng Province) and Vredefort (in the Free State Province) (Van Schalkwyk & Pelsler 1999; Tomose 2018).

Ceramics of the Ntsuanatsatsi facies (AD 1450 to 1650) of the Blackburn Branch and Urewe Tradition, have been found near Johannesburg and along the Vaal River in the Free State Province. (Mason 1986; Dreyer 1992; Huffman 2007). The Ntsuanatsatsi facies is closely related to the oral histories of the Early Fokeng and represent the movement of Nguni-speaking people out of Kwazulu-Natal into the interior of South Africa. The Uitkomst facies (AD 1650 – 1820) of the same branch is seen as the successors to the Ntsuanatsatsi facies and contains elements of both Nguni (Ntsuanatsatsi facies) and Sotho-Tswana speakers (Olifantspoort facies) pottery styles (Huffman, 2007). This represents contact between these two groups. Ceramics of the Uitkomst facies have been found throughout the Gauteng Province around Johannesburg and Pretoria as well as in the north-eastern regions of the North West Province (Huffman 2007).

The Olifantspoort facies (AD 1500-1700) of the Moloko Branch has been found around the Potchefstroom, Rustenburg and Pretoria regions (Mason 1986; Mitchell 2002; Huffman 2007). Mason (1973, 1974) has also found pottery similar to the Olifantspoort facies on the slopes of Platberg, near Klerksdorp. Olifantspoort pottery is characterised by “multiple bands of fine stamping and narrow incision separated by colour” (Huffman 2007). Ceramics of the Olifantspoort facies have been identified along the region surrounding the Vaal River, in Potchefstroom and in the Gauteng Province around the Johannesburg and Pretoria regions (Huffman 2007).

Buispoort ceramics (AD 1700 – 1840), of the Moloko Branch, have been found to the north of Potchefstroom, and in the Gauteng Province around the Johannesburg and Pretoria regions (Mason 1962, 1986; Boeyens 2000; Huffman 2007). Buispoort ceramics are characterised by “rim notching, broadly incised chevrons and white bands” (Huffman 2007).

Several stone-walled structures have been identified in the Suikerbosrand Nature Reserve south of Midrand (Sadr & Rodier 2012). Studies conducted on the LIA classification of stone wall settlement patterns have been done by Maggs (1976) and Mason (1986). Mason (1968) focused his research on stone wall sites located in the Magaliesberg and Johannesburg region, it is also in this area that the 19th century Tswana town, Marothodi is located (Anderson 2009). Mason (1986) published a review of his stone wall settlement types following more research that was conducted in the area. His classifications indicated the general chronological development of Sotho-Tswana Settlement style. According to Mason (1986) earlier Sotho-Tswana settlements had a simple layout that became more complex during the later periods.

Maggs (1976) research focused on stone walls found in the Free State Province, where his approach included linking the different site types to Sotho oral traditions, history and identities. Maggs (1976) stone wall types included Type N (associated with the Early Fokeng and Kwena), V (attributed to the Sotho speaking groups collectively), Z (Kabung, a branch of the Rolong) and R (associated with bushman pastoralists). Type N walling, named after Ntsuanatsatsi hill in the Free State Province (Huffman 2007). According to Huffman (2007) Type N walling consists of cattle kraals linked to other walls in the centre of the settlement surrounded by an outer wall. Type N Iron Age walling settlements have been identified to the south of the Klipriviersberg (Tomose 2018)

Type V stone walls, named after Vegkop located near the town of Heilbron, in the Free State Province, developed from Type N walling (Huffman 2007). Type V walling is characterised by cattle kraals surrounded by huts and grain bins enclosed by an outer wall (Huffman 2007). Type Z walling, which is characterized by “bilobial huts” that surround the core of the settlement and dates to the 18th – 19th Centuries (Huffman 2007). Huffman (2007) identified another type of walling, called Molokwane walling, located in hilly regions in the Gauteng and North West Province. This type of walling is attributed to the Hurutshe and Kwena groups and dates to the late 18th century to the beginning of the historic period (Huffman 2007).

### **3.3. Historical Period**

The Historical Period dates from AD 1600 and is generally the period related to colonial settlement in South Africa. Following disputes with the British the Dutch-speaking Voortrekkers migrated north into the interior of southern Africa from the Cape Colony in 1836's in search of creating a homeland, independent of British rule. This migration of approximately 12000 – 140000 Voortrekkers is referred to as the Great Trek. The Convention of Sandrivier was signed in 1852 between Great Britain and the Voortrekkers



(Kruger 2018). In the Convention the Voortrekkers were given independence. The Voortrekkers then established the South African Republic (Transvaal) (Ashman 1996). The Convention was signed at the Sand River, south of Kroonstad near Ventersburg. After the signing of the Sand River convention, Boers moved into the Gauteng region in 1852. In the early 1840's two Voortrekkers, Frederik A. Strydom and Johannes E. Erasmus established the farms Olifantsfontein and Randjesfonten in the Midrand region (De Jong & Van Schalkwyk 1998). During the Anglo-Boer war (1899-1902) British troops under the leadership of Lord Roberts moved through the Midrand region from Johannesburg *en route* to Pretoria (De Jong & Van Schalkwyk 1998). Evidence of the British troupes have been found at the Escom Training Centre and at Bibury Grange, as these areas functioned as British Military units (De Jong & Van Schalkwyk 1998).

The African Zionism is a religious practice that combines Christianity and Traditional African Religion. It is the largest African initiated church (AIC) and Christian religious movement that is found throughout Southern Africa (Anderson 1999). This Christian religious movement traces its origins in the early 1900's and, since the 1970's more than 6000 AIC's can be found across South Africa (Anderson 1999). In South Africa the early Zion Churches were formed by Petrus Louis Le Roux who was an Afrikaner healer (Hastings 1994; Pretorius & Jafta 1997). Le Roux was a former Dutch Reform Church who was influenced by John Alexandra Dowies Christian Church in Illinois in the United States of America (Shepperson 1979). Dowies had sent Daniel Bryant to South Africa as an evangelist to promote Zionism and on his arrival, he met and worked Le Roux. The church needed to be relevant to African traditions and in 1908 the church employed Daniel Nkonyane as the first black African leader (Hastings 1994).

Out of the Zionism movement as described above, various Zionist churches were born in South Africa that blended traditional African beliefs with the faith of healing and water baptism. Among the most dominant form of Zionist churches in Southern Africa are the Zion Christian Church (ZCC) and the Nazareth Baptist Church of South Africa, which is affectionately known by most South African as AmaNazareth or AmaShembe or Ibandla lamaNazaretha after its founder Isaiah Mloyiswa Mdliwamafa Shembe (c.1865–2 May 1935) (Vilakazi *et al.*, 1986). Both of these dominant forms of churches are found in the Olievenhoutbosch, Diepslot and Zandspruit areas of Midrand.

### **3.4. Conclusions on Literature Review**

The Gauteng Province is a region rich in archaeology, history and heritage. Several groups have settled in the region, which lead to several conflicts and battles. The region around Johannesburg is particularly well known for heritage resources related to the Stone and Iron Age. Throughout the region stone tools and

several Iron Age stone-walled sites and ceramics can be found. These settlement types and ceramics indicate that the region was occupied by Sotho-Tswana speaking communities from AD 1200 and that Nguni speaking groups later moved into the region. When gold was discovered in the mid-1886 Witwatersrand many people flocked to the cities to prospect and mine for gold. As such mining camps were set up.

#### **4. STUDY RESULTS**

The background information yielded information about known archaeological and heritage resources located in the Gauteng Province. In this section the results of all three surveys will be presented and discussed for clarity (*Figure. 8*). All surveys were conducted on foot and a vehicle was used to gain access on to the property through a number of undeveloped roads within and outside the development footprint.

##### **4.1. Results from surveys conducted the 9th of February 2018 and the 12th of April 2018**

The physical surveys of the project footprint identified a total of six cultural heritage resources in form of places of prayer and worship (open air churches) belonging to various denominations. The churches have been assigned unique IDs, namely: Open Air Church 01 – Open Air Church 06. Four of the five open air churches were found to fall within close proximity of the development site; with one church being located on the boundary of the development footprint (i.e. Open Air Church 05). Open Air Churches 03, 04 and 06 fall within a 100m from the development footprint. Only one church (Open Air Church 05) was recorded to fall within the proposed development footprint. The two remaining open air churches (Open Air Churches 1 & 2) are fall outside the 100m zone of influence from the development footprint.

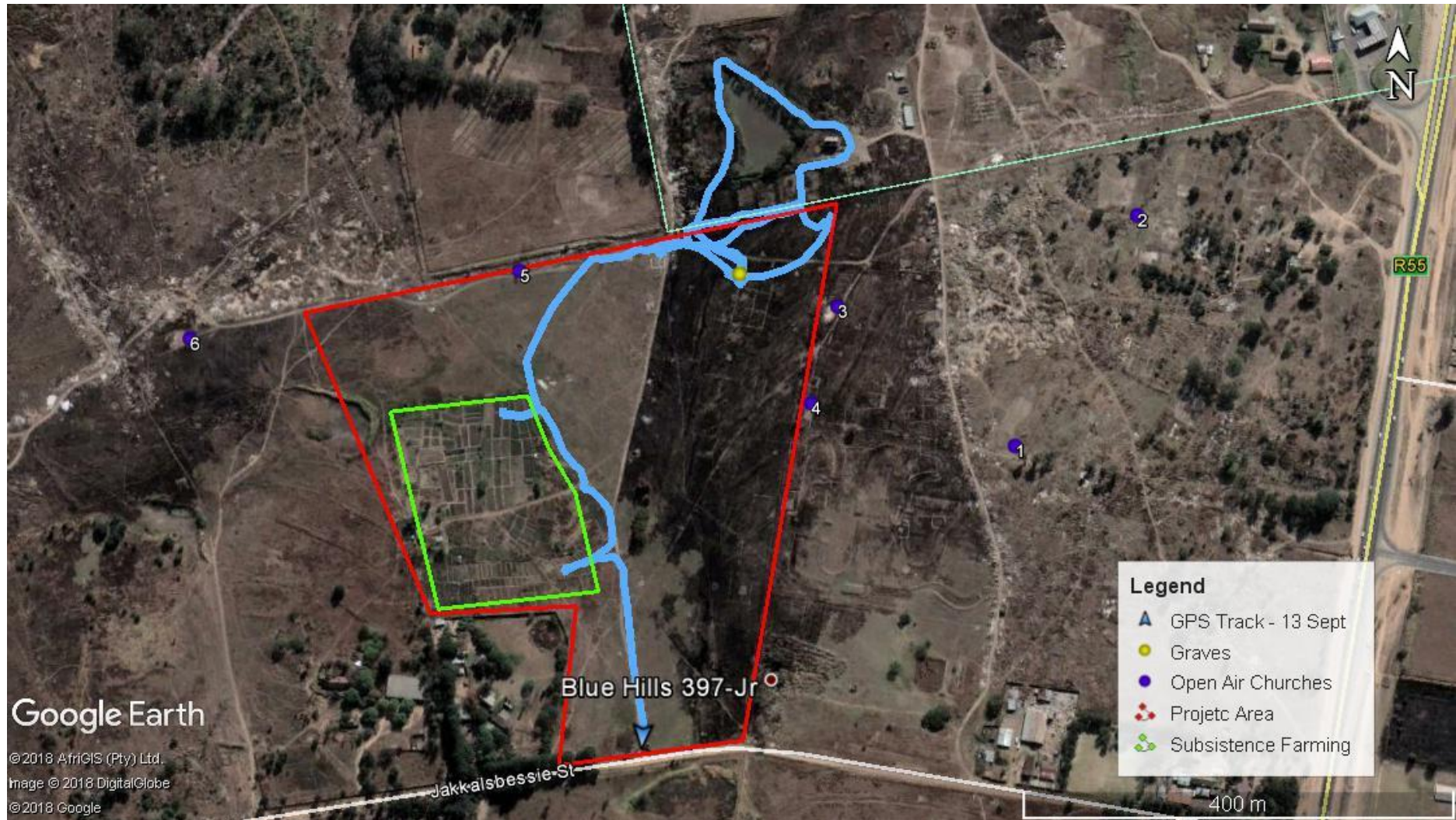


Figure 10: Map depicting the general project area in relation to the open-air churches, subsistence farming area and the graves.

#### 4.1.1. Built Environment Features: Places of Prayer and Worship

Table 7: Open Air Church 01

<b>Site Name:</b>	<b>OPEN AIR CHURCH 01</b>
<b>Type:</b>	Landscape feature pertaining to the Built Environment
<b>Density:</b>	One church – Low Density
<b>Location/GPS Coordinates:</b>	<ul style="list-style-type: none"> <li>• 25° 55' 45.2" S</li> <li>• 28° 05' 38.6" E</li> </ul>
<b>Approximate Age:</b>	Recent
<b>Applicable NHRA Section:</b>	Section 34 of the NHRA, No. 25 of 1999
<b>Description:</b>	<p>The church sites constitute two cleared areas of worship surrounded by four raised flags. It also has three stone mound packings. Material culture in form of pottery was found on the site. The area and material culture are used for traditional rituals conducted by the church members. Two makeshift shelters were identified on site and they are made of sticks and covered in plastic (<i>Figure 11</i>).</p>



Figure 11: Church 01 with two shelters, flags and material culture in form of pottery.

Table 8: Open Air Church 02

<b>Site Name:</b>	<b>OPEN AIR CHURCH 02</b>
<b>Type:</b>	Landscape feature pertaining to the Built Environment
<b>Density:</b>	One church – Low Density
<b>Location/GPS Coordinates:</b>	<ul style="list-style-type: none"> <li>• 25° 55' 38.3" S</li> <li>• 28° 05' 42.7" E</li> </ul>
<b>Approximate Age:</b>	Recent
<b>Applicable NHRA Section:</b>	Section 34 of the NHRA, No. 25 of 1999
<b>Description:</b>	
<p>Similar to Church 01, Church 02 is an open-air church with some cleared ground for worshipers. Stone mound packing and material culture in form of pottery was found on site. Three flags are raised on site. Two crucifixes are found lying on the ground on top of white pebbles (<i>Figure 12</i>).</p>	



Figure 12: Church 02 located north-east of Church 01

Table 9: Open Air Church 03

<b>Site Name:</b>	<b>OPEN AIR CHURCH 03</b>
<b>Type:</b>	Landscape feature pertaining to the Built Environment
<b>Density:</b>	One church – Low Density
<b>Location/GPS Coordinates:</b>	<ul style="list-style-type: none"> <li>• 25° 55' 41.0" S</li> <li>• 28° 05' 32.7" E</li> </ul>
<b>Approximate Age:</b>	Recent
<b>Applicable NHRA Section:</b>	Section 34 of the NHRA, No. 25 of 1999
<b>Description:</b>	
The site constitutes of cleared ground next to two trees and on the fence line of a different property from HRM development footprint. It does not have any material culture associated with it like open air churches 01 and 02 ( <i>Figure 13</i> ).	



Figure 13: Church 03

Table 10: Open Air Church 04

<b>Site Name:</b>	<b>OPEN AIR CHURCH 04</b>
<b>Type:</b>	Landscape feature pertaining to the Built Environment
<b>Density:</b>	One church – Low Density
<b>Location/GPS Coordinates:</b>	<ul style="list-style-type: none"> <li>• 25° 55' 43.9" S</li> <li>• 28° 05' 31.8" E</li> </ul>
<b>Approximate Age:</b>	Recent
<b>Applicable NHRA Section:</b>	Section 34 of the NHRA, No. 25 of 1999
<b>Description:</b>	
Like Open Air Church 03, this church is situated on an area where the ground has been cleared (trimmed grass). It is located next to a tree and is also situated in a different property from HRM development footprint ( <i>Figure 14</i> ).	



Figure 14: Church 04



Table 11: Open Air Church 05

<b>Site Name:</b>	<b>OPEN AIR CHURCH 05</b>
<b>Type:</b>	Landscape feature pertaining to the Built Environment
<b>Density:</b>	One church – Low Density
<b>Location/GPS Coordinates:</b>	<ul style="list-style-type: none"> <li>• 25° 55' 39.9" S</li> <li>• 28° 05' 22.1" E</li> </ul>
<b>Approximate Age:</b>	Recent
<b>Applicable NHRA Section:</b>	Section 34 of the NHRA, No. 25 of 1999
<b>Description:</b>	
<p>The church like Open Air Churches 03 and 04, is situated on a cleared ground, with a carpet and stone circle to mark its extent. There was not any material culture were identified during the survey that could be associated with the church or worship activities. The only exception is related to the fact that the open air church is built around a tree which may carry some socio-cultural significance (<i>Figure 15</i>).</p>	



Figure 15: Image depicting Open Air Church 05

Table 12: Open Air Church 06

<b>Site Name:</b>	<b>OPEN AIR CHURCH 06</b>
<b>Type:</b>	Landscape feature pertaining to the Built Environment
<b>Density:</b>	One church – Low Density
<b>Location/GPS Coordinates:</b>	<ul style="list-style-type: none"> <li>• 25° 55' 41.9" S</li> <li>• 28° 05' 11.1" E</li> </ul>
<b>Approximate Age:</b>	Recent
<b>Applicable NHRA Section:</b>	Section 34 of the NHRA, No. 25 of 1999
<b>Description:</b>	
<p>The church is located on area where the ground has been cleared and a stone painted in white has been placed in a circle. Similar to Open Air Church 05 it is built around a tree. In addition to the stone circle a makeshift shelter, made form sticks and cover material, was built south of the church (<i>Figure 16</i>).</p>	



Figure 16: Images depicting Open Air Church 2 and its associated structure

Table 13: Planning Phase

A. 1. Transformation of cultural/ heritage resources- Proposal						
<b>Heritage Impact Assessment</b>	<b>Impact Name</b>	1. • Heritage Impact Assessment				
	<b>Alternative</b>	Proposal				
	<b>Phase</b>	Planning				
	<b>Environmental Risk</b>					
	<b>Attribute</b>	<b>Pre-mitigation</b>	<b>Post-mitigation</b>	<b>Attribute</b>	<b>Pre-mitigation</b>	<b>Post-mitigation</b>
	Nature of Impact	1	1	Magnitude of Impact	1	1
	Extent of Impact	1	1	Reversibility of Impact	1	1
	Duration of Impact	2	2	Probability	1	1
	Environmental Risk (Pre-mitigation)					1,25
	<b>Mitigation Measures</b>					
	It is proposed that:					
	<ul style="list-style-type: none"> <li>• The Open Air Churches that will be directly impacted by the proposed development be consulted and requested to relocate their churches to a nearby location. The costs to clear the new ground and compact it should be carried by the developer. This will ease any potential conflict between the developer and the church.</li> <li>• Churches located in the area surrounding the proposed development area should be treated as No-Go-Areas.</li> </ul>					
	Environmental Risk (Post-mitigation)					1,25
	Degree of confidence in impact prediction:					High
	<b>Impact Prioritisation</b>					
	Public Response					1
	<i>Low: Issue not raised in public responses</i>					
	Cumulative Impacts					1
<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>						
Degree of potential irreplaceable loss of resources					1	
<i>The impact is unlikely to result in irreplaceable loss of resources.</i>						
Prioritisation Factor					1,00	
<b>Final Significance</b>					1,25	

Table 14: Construction Phase

A. 1. Transformation of cultural/ heritage resources- Proposal						
<b>Heritage Impact Assessment</b>	<b>Impact Name</b>	1. • Heritage Impact Assessment				
	<b>Alternative</b>	Proposal				
	<b>Phase</b>	Construction				
	<b>Environmental Risk</b>					
	<b>Attribute</b>	<b>Pre-mitigation</b>	<b>Post-mitigation</b>	<b>Attribute</b>	<b>Pre-mitigation</b>	<b>Post-mitigation</b>
	Nature of Impact	1	1	Magnitude of Impact	1	1
	Extent of Impact	1	1	Reversibility of Impact	1	1
	Duration of Impact	2	2	Probability	1	1
	Environmental Risk (Pre-mitigation)					1,25
	Mitigation Measures					
	It is proposed that:					
	<ul style="list-style-type: none"> <li>• The Open Air Churches located in the area surrounding the proposed development area should be treated as No-Go-Areas.</li> <li>• Construction activities and machinery should avoid these areas.</li> </ul>					
	Environmental Risk (Post-mitigation)					1,25
	Degree of confidence in impact prediction:					High
	<b>Impact Prioritisation</b>					
	Public Response					1
	<i>Low: Issue not raised in public responses</i>					
Cumulative Impacts					1	
<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>						
Degree of potential irreplaceable loss of resources					1	
<i>The impact is unlikely to result in irreplaceable loss of resources.</i>						
Prioritisation Factor					1,00	
<b>Final Significance</b>					1,25	

Table 15: Operational Phase

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal							
<b>2. Heritage Impact Assessment</b>	<b>Impact Name</b>		1. • Heritage Impact Assessment					
	<b>Alternative</b>		Proposal					
	<b>Phase</b>		Operation					
	<b>Environmental Risk</b>							
	<b>Attribute</b>		<b>Pre-mitigation</b>	<b>Post-mitigation</b>	<b>Attribute</b>		<b>Pre-mitigation</b>	<b>Post-mitigation</b>
	Nature of Impact		1	1	Magnitude of Impact		1	1
	Extent of Impact		1	1	Reversibility of Impact		1	1
	Duration of Impact		2	2	Probability		1	1
	Environmental Risk (Pre-mitigation)						1,25	
	<b>Mitigation Measures</b>							
	It is proposed that:							
	<ul style="list-style-type: none"> <li>• The Open Air Churches located in the area surrounding the proposed development area should be treated as No-Go-Areas.</li> <li>• Construction activities and machinery should avoid these areas.</li> </ul>							
	Environmental Risk (Post-mitigation)						1,25	
	Degree of confidence in impact prediction:						High	
	<b>Impact Prioritisation</b>							
	Public Response						1	
	<i>Low: Issue not raised in public responses</i>							
	Cumulative Impacts						1	
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>							
	Degree of potential irreplaceable loss of resources						1	
<i>The impact is unlikely to result in irreplaceable loss of resources.</i>								
Prioritisation Factor						1,00		
<b>Final Significance</b>						1,25		

Table 16: Decommissioning Phase

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal							
<b>2. Heritage Impact Assessment</b>	<b>Impact Name</b>		1. • Heritage Impact Assessment					
	<b>Alternative</b>		Proposal					
	<b>Phase</b>		Decommissioning					
	<b>Environmental Risk</b>							
	<b>Attribute</b>		<b>Pre-mitigation</b>	<b>Post-mitigation</b>	<b>Attribute</b>		<b>Pre-mitigation</b>	<b>Post-mitigation</b>
	Nature of Impact		1	1	Magnitude of Impact		1	1
	Extent of Impact		1	1	Reversibility of Impact		1	1
	Duration of Impact		1	2	Probability		1	1
	Environmental Risk (Pre-mitigation)						1,00	
	<b>Mitigation Measures</b>							
	It is proposed that:							
	<ul style="list-style-type: none"> <li>• The Open Air Churches located in the area surrounding the proposed development area should be treated as No-Go-Areas.</li> <li>• Construction activities and machinery should avoid these areas.</li> </ul>							
	Environmental Risk (Post-mitigation)						1,25	
	Degree of confidence in impact prediction:						High	
	<b>Impact Prioritisation</b>							
	Public Response						1	
	<i>Low: Issue not raised in public responses</i>							
	Cumulative Impacts						1	
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>							
	Degree of potential irreplaceable loss of resources						1	
<i>The impact is unlikely to result in irreplaceable loss of resources.</i>								
Prioritisation Factor						1,00		
<b>Final Significance</b>						1,25		

Table 17: Rehabilitation Phase

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
<b>2. Heritage Impact Assessment</b>	<b>Impact Name</b>	1. • Heritage Impact Assessment				
	<b>Alternative</b>	Proposal				
	<b>Phase</b>	Rehab and closure				
	<b>Environmental Risk</b>					
	<b>Attribute</b>	<b>Pre-mitigation</b>	<b>Post-mitigation</b>	<b>Attribute</b>	<b>Pre-mitigation</b>	<b>Post-mitigation</b>
	Nature of Impact	1	1	Magnitude of Impact	1	1
	Extent of Impact	1	1	Reversibility of Impact	1	1
	Duration of Impact	1	2	Probability	1	1
	Environmental Risk (Pre-mitigation)					1,00
	Mitigation Measures					
	It is proposed that:					
	<ul style="list-style-type: none"> <li>• The Open Air Churches located in the area surrounding the proposed development area should be treated as No-Go-Areas.</li> <li>• Construction activities and machinery should avoid these areas.</li> </ul>					
	Environmental Risk (Post-mitigation)					1,25
	Degree of confidence in impact prediction:					High
	<b>Impact Prioritisation</b>					
	Public Response					1
	<i>Low: Issue not raised in public responses</i>					
	Cumulative Impacts					1
<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>						
Degree of potential irreplaceable loss of resources					1	
<i>The impact is unlikely to result in irreplaceable loss of resources.</i>						
Prioritisation Factor					1,00	
<b>Final Significance</b>					1,25	

#### **4.2. Result from survey conducted on 13th of September 2018**

The aim of the physical survey, conducted on 13th of September 2018, was to survey the project area and identify any possible locations containing graves (*Figure. 17*). During the survey, 6 possible graves were identified. The cemetery is named Blue Hills Cem-01 and the graves were respectively numbered A1-A6. The proposed location for the graves were situated within a current wetland area, in the north-western corner of the project area (*Figure. 18*). Six graves were identified from soil mounds created possibly by family members of the grave's owners.

In attempting to identify the location of grave and burial sites, community around the project area (to the north of the project area is a small farm, NGT spoke to one of the workers; and to the south-west there are two small substance farmers, NGT spoke to the farmers) were consulted. In both these conversations NGT was pointed towards the open wetland area as the location of the graves.



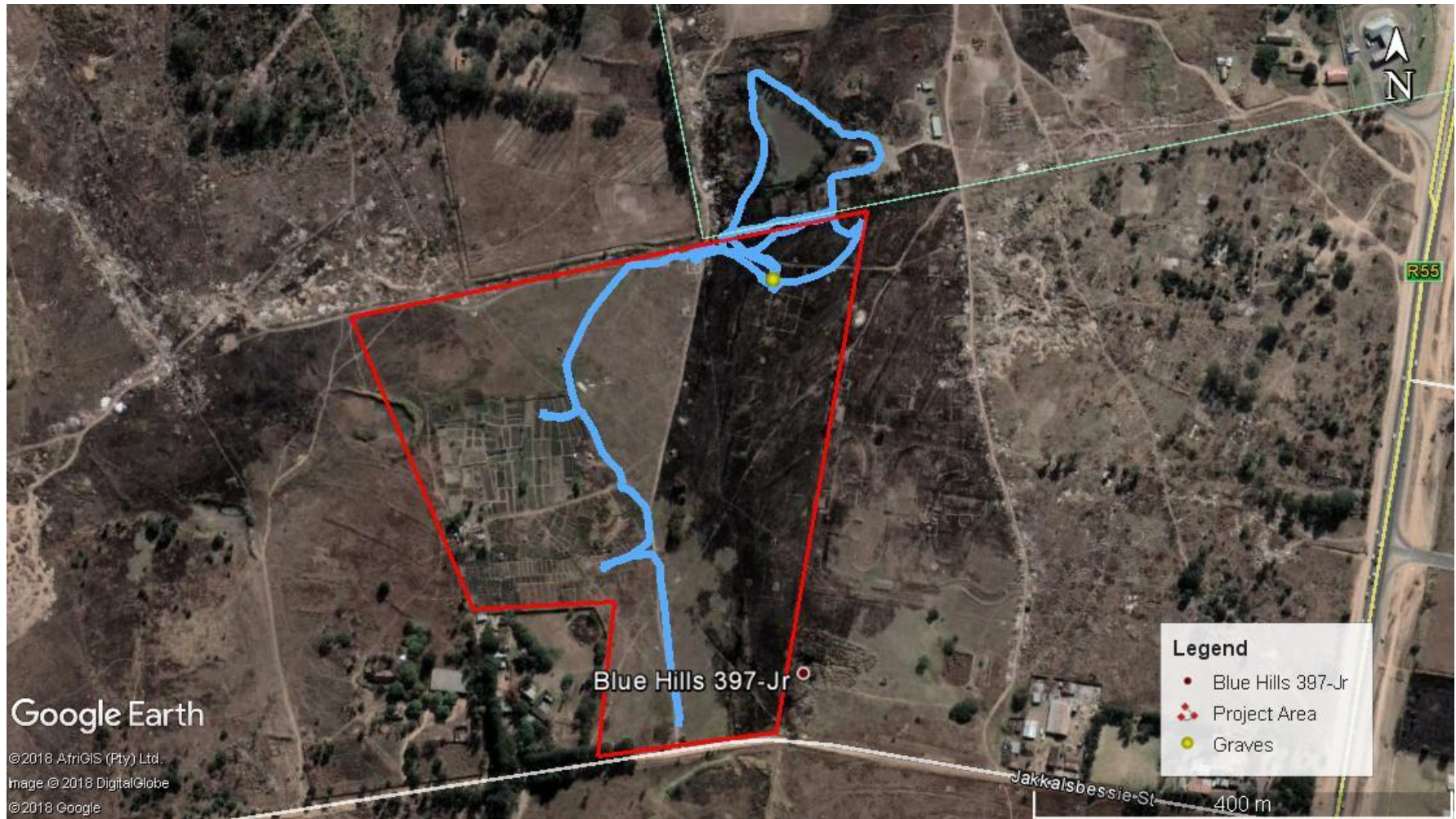


Figure 17: Google Image showing survey of area as well as location of possible graves



Figure 18: General view of area and location of graves (red arrow). Photos taken from the North East corner, facing south-west and north west

#### 4.2.1. Burial Grounds and Graves

Table 18: Blue Hills Cem-01

<b>Site Name:</b>	<b>Blue Hills Cem-01</b>
<b>Type:</b>	Graves
<b>Density:</b>	Medium density
<b>Location/GPS Coordinates:</b>	<ul style="list-style-type: none"> <li>• 25° 55' 40.0'' S</li> <li>• 28° 05' 29.4'' E</li> </ul>
<b>Approximate Age:</b>	Historical Period/Recent
<b>Applicable Sections of the Relevant Acts:</b>	<ul style="list-style-type: none"> <li>• Section 36 of the NHRA, No. 25 of 1999</li> </ul>
<b>Description:</b>	
<p>Six graves were identified from soil mounds created possibly by family members of the grave's owners. The cemetery is named Blue Hills Cem-01 and the graves were respectively numbered A1-A6. The graves contain no headstone, grave dressings, or any packed stone mounds (Figure 19-24). Apart from the soil mounds, no other indicators, suggesting that these areas were graves, were identified. Blue Hills Cem-01 falls within the 500m zone of influence.</p>	



Figure 19: Grave A1.



Figure 20: Grave A2.



Figure 21: Grave A3.



*Figure 22: Grave A4.*



*Figure 23: Grave A5.*



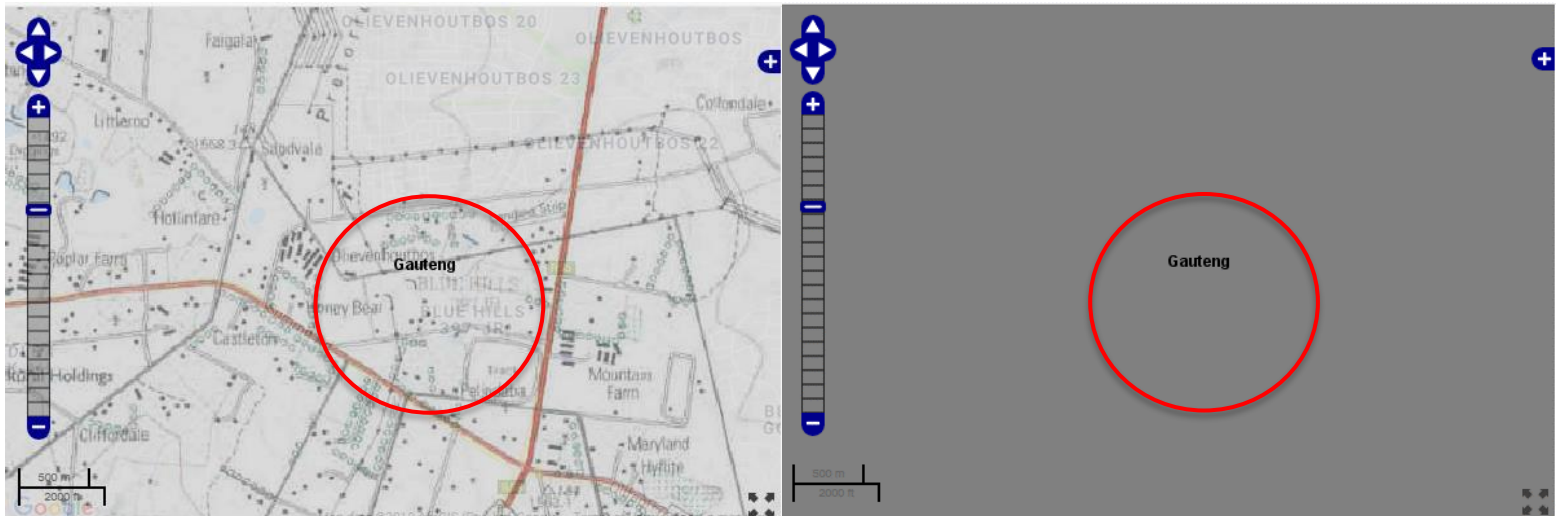
*Figure 24: Grave A6.*

Table 19: Impact and risk assessment rating for project Planning, Construction and Operational phases in relation to the identified site (Blue Hills Cem-01)

A. 1. Transformation of natural vegetation/ habitat - Proposal						
<b>Heritage Impact Assessment</b>	<b>Impact Name</b>	<b>1. • Transformation of cultural/ heritage resources- Proposal</b>				
	<b>Alternative</b>	<b>Proposal</b>				
	<b>Phase</b>	<b>Planning</b>				
	<b>Environmental Risk</b>					
	<b>Attribute</b>	<b>Pre-mitigation</b>	<b>Post-mitigation</b>	<b>Attribute</b>	<b>Pre-mitigation</b>	<b>Post-mitigation</b>
	Nature of Impact	-1	1	Magnitude of Impact	4	2
	Extent of Impact	3	2	Reversibility of Impact	4	3
	Duration of Impact	5	2	Probability	4	2
	Environmental Risk (Pre-mitigation)					-16,00
	<b>Mitigation Measures</b>					
	Blue Hills Cem-01 is of high/medium significance and have heritage value. It is proposed that: <ul style="list-style-type: none"> <li>• Construction activities and machinery should completely avoid the graves as it is a No-Go-Area;</li> <li>• The boundaries of the cemetery should be marled off, indicating that is an area that should be avoided, and a cemetery management plan should be developed;</li> <li>• If the construction activities are going to affect the area surrounding the graves, and the graves themselves a Phase II Heritage study (including recording and mapping of site) should be conducted; this will most likely include the exhumation and relocation of the graves to a municipal designated cemetery, with approval from the family and acquiring the relevant permissions from authorities.</li> <li>• Subject to approval from SAHRA.</li> </ul>					
	Environmental Risk (Post-mitigation)					4,50
	Degree of confidence in impact prediction:					High
	<b>Impact Prioritisation</b>					
	Public Response					2
	<i>Issue has received a meaningful and justifiable public response</i>					
	Cumulative Impacts					2
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.</i>					
Degree of potential irreplaceable loss of resources					2	
<i>The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.</i>						
Prioritisation Factor					1,50	
<b>Final Significance</b>					6,75	

### 4.3. Paleontological Sensitivity

The SAHRA Palaeo-Sensitivity Layer (Figure. 25) shows that the project area that is in insignificant sensitivity area. As such no palaeontological studies are required.



Colour	Sensitivity	Required Action
RED	VERY HIGH	field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	desktop study is required and based on the outcome of the desktop study, 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 areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

Figure 25: Paleo-Sensitivity layer of the proposed development area (in red) near Midrand within the CoJMM in the Gauteng Province.

### 4.4. Site Ratings

Table 20: Site significance classification and ratings for the buildings located in the project area

FEATURE	FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
Open Air Church 01	Generally Protected A (GP. A)	-	High / Medium Significance	Mitigation before destruction
Open Air Church 01	Generally Protected A (GP. A)	-	High / Medium Significance	Mitigation before destruction

Open Air Church 01	Generally Protected A (GP. A)	-	High / Medium Significance	Mitigation before destruction
Open Air Church 01	Generally Protected A (GP. A)	-	High / Medium Significance	Mitigation before destruction
Open Air Church 01	Generally Protected A (GP. A)	-	High / Medium Significance	Mitigation before destruction
Open Air Church 01	Generally Protected A (GP. A)	-	High / Medium Significance	Mitigation before destruction
Blue Hills Cem-01	Generally Protected A (GP. A)	-	High / Medium Significance	Mitigation before destruction

## 5. CONCLUSION

- The portion of the 15-hectare farm selected for development has been previously disturbed by previous agricultural activities, thus making it highly unlikely that any resources of Heritage or Archaeological significance will be found in their original context.
- The cemetery and Open-Air Churches identified in the project area are of medium to high significance.
- During the survey:
  - One open air church falls within the fence line of the development footprint and it will be directly impacted by the proposed development (Open Air Church 05); with the other churches falling outside the development footprint, but within 500m zone of influence (Open Air Churches: 03, 04, 06). The three churches that are outside the development area will not be directly impacted by the proposed development and will experience secondary impacts. The two Open Air Churches (01 and 02) are located on a different property.
  - An informal cemetery with six graves were identified (Blue Hills Cem-01). The cemetery contains approximately 6 unmarked graves are located in the project area and within the 500m zone of influence.
- No other archaeological or historical resources were identified in the project area.
- During the survey no other graves or burial grounds were visible on the surface area, as graves are subterranean in nature and might not have been identified during the initial site visit and survey.
- In terms of SAHRA Paleontological Sensitivity Layer, the area is within an insignificant or zero sensitivity area.



## 6. RECOMMENDATIONS

Based on the above conclusions made about the nature and the type of heritage resources found within the project area, the following recommendations have been made:

- It is recommended that the five open air churches located outside the development footprint should be avoided and treated as No-Go areas.
- It is recommended that there be an engagement with leaders of Open Air Church 05 to request them to move their church to a nearby location due to it being directly impacted by the proposed development. The costs to clear the new ground and compact it should be carried by the developer. This will ease any potential conflict between the developer and the church.
- During the BAR public participation process the issue of churches and how they will be indirectly impacted by the proposed development from a social impact assessment perspective should be discussed.
- The historical/recent cemetery and graves were rated as medium to high significance and are protected as a in terms of Section 36 of the NHRA, No. 25 of 1999. As such it is recommended that the site should be fenced of and no machinery or site camp associated with the proposed development activities should be established near the graves. The site should be treated as a No-Go-Area and a cemetery management plan should be developed.
- A detailed grave search should be conducted, (with a Grave digger) in the proposed development area to identify the extent of the burial site. On completion of this exercise, a fence should be erected to demarcate the graves from the rest of development activities.
- Should the developer change his mind about keeping the graves *in situ* and the proposed development activities encroach on the graves, they should be relocated to a municipal designated cemetery. This should only be done after obtaining the necessary permission from the families and acquiring the relevant permits from the SAHRA Burial Grounds and Graves (BGG) Unit, the Gauteng Department of Health and the Gauteng Department of Human Settlements as well as informing the SAPS (South African Police Services).
- However, it should be noted that some archaeological material, including artefacts and graves can be buried underground and as such, may not have been identified during the initial survey and site visits. In the case where the proposed development activities bring these materials to the surface, they should be treated as Chance Finds. Should such resources be unearthed it is recommended that, the prospecting activities be stopped immediately, and an archaeologist be

contacted to conduct a site visits and make recommendations on the mitigation of the finds. SAHRA and PHRA-G should also be informed immediately on such finds.

- In terms of the SAHRA Paleontological Sensitivity Layer the area falls within a region defined as an insignificant or zero sensitivity area as such, no palaeontological studies are required.

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