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HERITAGE SCREENER

CTS Reference Number:	CTS23_054
SAHRIS Case ID:	
Client:	Savannah
Date:	May 2023
Title:	Proposed development of the Mastiff Road Culvert, Midrand, Johannesburg

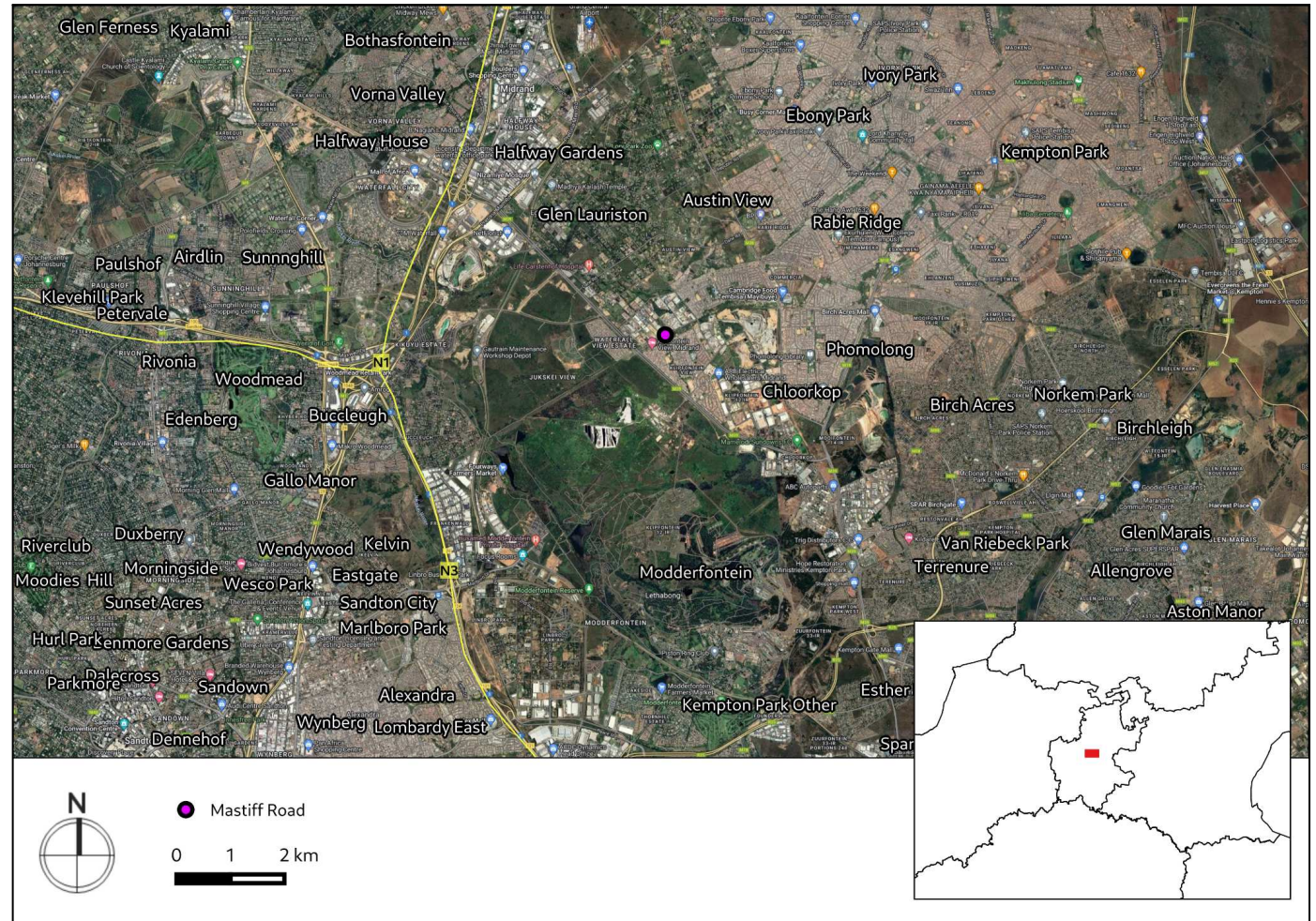


Figure 1a. Satellite map indicating the location of the proposed development in the Gauteng Province

Recommendation by CTS Heritage Specialists	<p>RECOMMENDATION: The heritage resources in the area proposed for development are sufficiently recorded. Due to the location and nature of the proposed development, it is unlikely that significant heritage resources will be impacted by the development and as such, it is recommended that no further heritage studies are required.</p>
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1. Proposed Development Summary

Upgrading of Mastiff Road culvert near the Midrand industry park, in Commercia Midrand, within the City of Johannesburg Metropolitan Municipality

Option 1 – Precast Portal Culvert Causeway and Road Vertical Realignment

This option consists of precast concrete portal segments placed on a cast in-situ concrete base slab. The portal segments will be held together by placing concrete longitudinally between the cells such that all the cell segments form a monolithic structure. A high strength concrete topping to be placed over the precast units such that it ties in with the finished road level. Vertical reinforcement will be provided between the precast units to tie the structure such that the structure forms a complete unit. Splayed free standing cantilever concrete wing walls will be used at the inlet and outlets to support the fill embankments and allow unrestricted flow. Gabions mattresses will be used for adjacent road embankment protection.

Energy dissipators will be cast onto the outlet apron to assist with reduction of flow velocity. The services that are required to traverse the crossing will be accommodated beneath a proposed walkway. Fixing of services to the face of the structure will also be considered.

Option 2 – Cast In-situ Concrete Culvert with Road Vertical Realignment

This option consists of cast in-situ concrete portal culverts. The base slab, wall, and roof slab of the structure will be cast in different stages to form a monolithic multi-cell structure. Selected material will be backfilled over the structure to provide adequate cover if required. Splayed free standing cantilever concrete wing walls will be used at the inlet and outlets to support the fill embankments and allow unrestricted flow. Gabions mattresses will be used for adjacent road embankment protection.

Energy dissipaters will be cast onto the outlet apron to assist with reduction of flow velocity. The services that are required to traverse the crossing will be accommodated beneath a proposed walkway. Fixing of services to the face of the structure will also be considered. Findings from the detailed hydraulic analysis will make provisions for impact debris fins, stilling basins and any factors relating to reduce the scour.

Option 3 – Additional Cast In-situ Concrete Culvert Widening

This option retains the existing structure whilst a new structure is constructed adjacent to it to increase the hydraulic capacity. Demolition and reconstruction of the inlet and outlet wingwalls and headwalls, as well as the apron slabs, will be required.

This option will also include an engineered soil raft made up of compacted rockfill on suitable in-situ sediment material this may be included subjected to the findings from the geotechnical investigations to support the proposed foundations for the new widened culvert and apron slabs. Construction of additional cast in-situ concrete cells for the upgrade of this structure on a new widened concrete cast in-situ concrete base slab. Splayed free standing cantilever concrete wing walls will be used at the inlet and outlets to support fill embankments and allow unrestricted flow.

Gabion baskets and reno mattresses both upstream and downstream of the new structure to widen the river channel and channel the flow through the proposed new widened culvert at the inlet approaches, provide embankment protection to the existing embankments on the outlet side, and generally minimise the long-term scour potential in the proximity of the structure.

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2. Application References

Name of relevant heritage authority(s)	SAHRA
Name of decision-making authority	GDARD

3. Property Information

Latitude / Longitude	26° 2'24.51"S 28° 9'13.13"E
Erf number / Farm number	KLIPFONTEIN 10 IR and KLIPFONTEIN 12 IR
Local Municipality	City of Johannesburg Metropolitan Municipality
District Municipality	City of Johannesburg
Previous Magisterial District	Randburg
Province	Gauteng
Current Use	Existing water pipe
Current Zoning	Road Reserve
Total Extent	2.752km

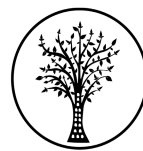
4. Nature of the Proposed Development

Total Surface Area	~2ha
Depth of excavation (m)	5m
Height of development (m)	~1,22m length ~3000mm

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5. Category of Development

x	Triggers: Section 38(8) of the National Heritage Resources Act
	Triggers: Section 38(1) of the National Heritage Resources Act
	1. Construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier over 300m in length.
	2. Construction of a bridge or similar structure exceeding 50m in length.
	3. Any development or activity that will change the character of a site-
	a) exceeding 5 000m ² in extent
	b) involving three or more existing erven or subdivisions thereof
	c) involving three or more erven or divisions thereof which have been consolidated within the past five years
	4. Rezoning of a site exceeding 10 000m ²
	5. Other (state):

6. Additional Infrastructure Required for this Development

N/A

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7. Mapping (please see Appendix 3 and 4 for a full description of our methodology and map legends)



Figure 1b. Overview Map. Satellite image (2023) indicating the proposed development area at closer range.

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Figure 1c. Overview Map. Satellite image (2023) indicating the proposed development area at closer range.

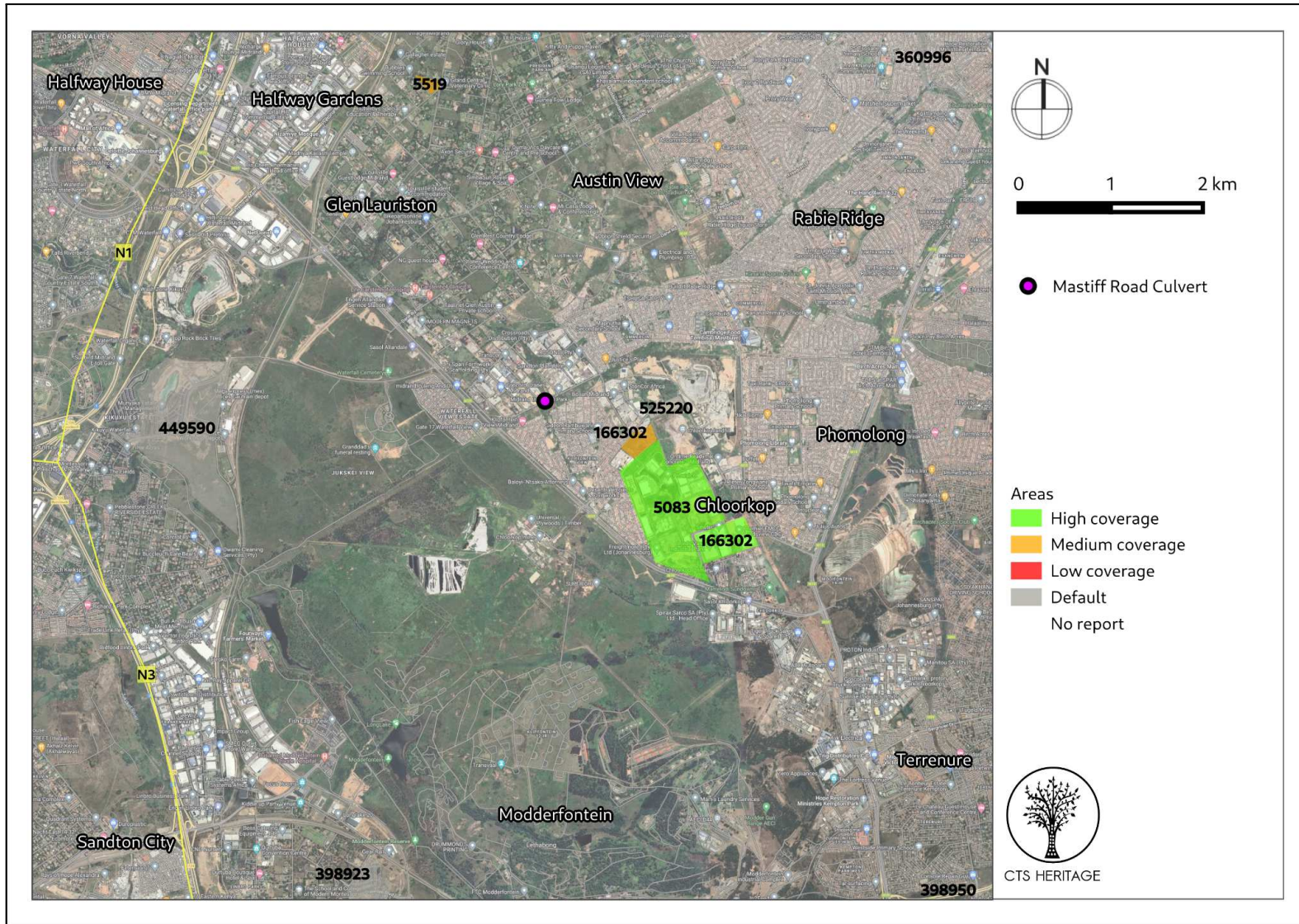


Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments surrounding the proposed development area within 8km, with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.

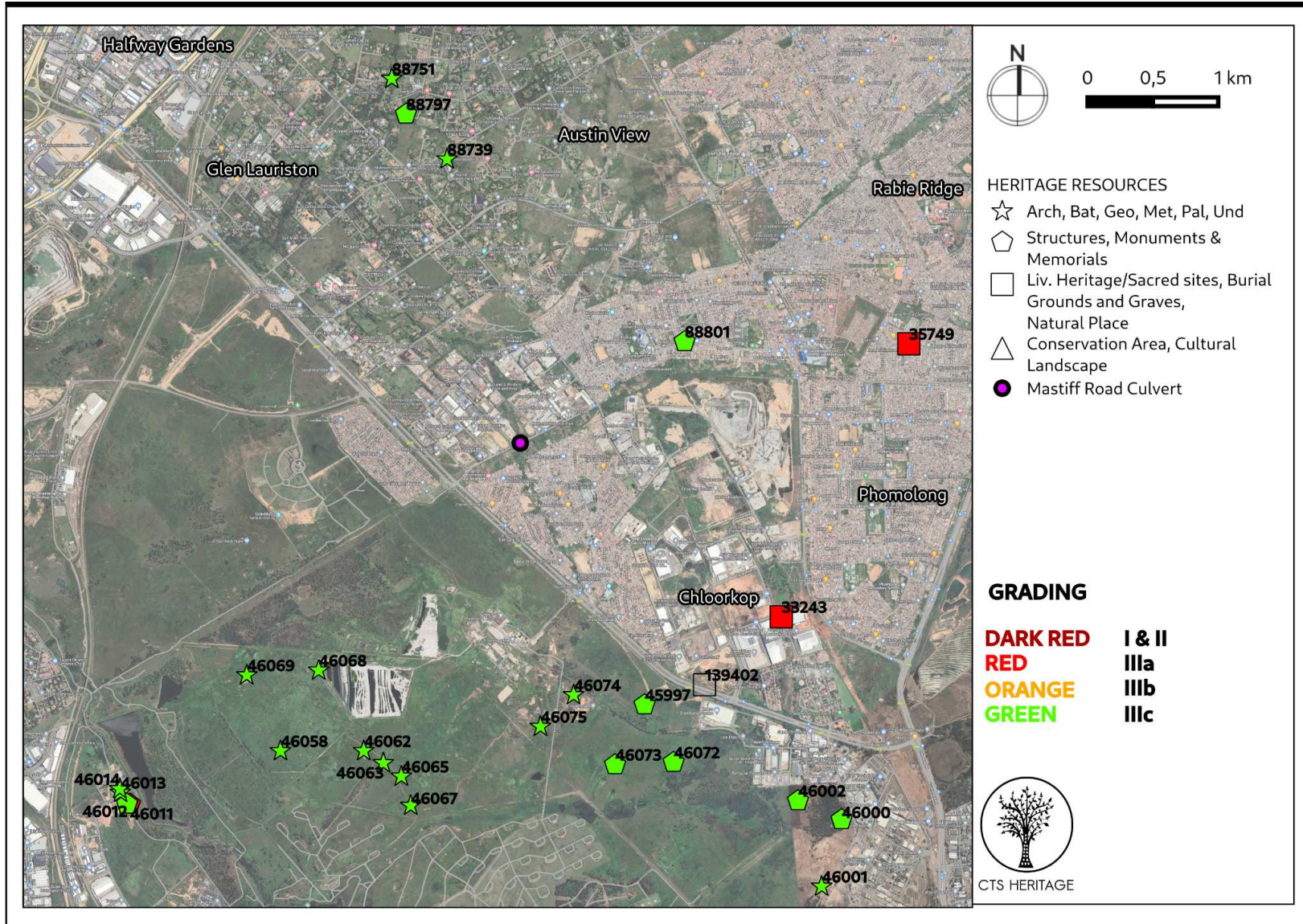
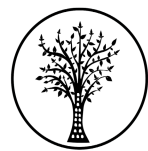


Figure 3a. Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated. Please See Appendix 4 for full description of heritage resource types.



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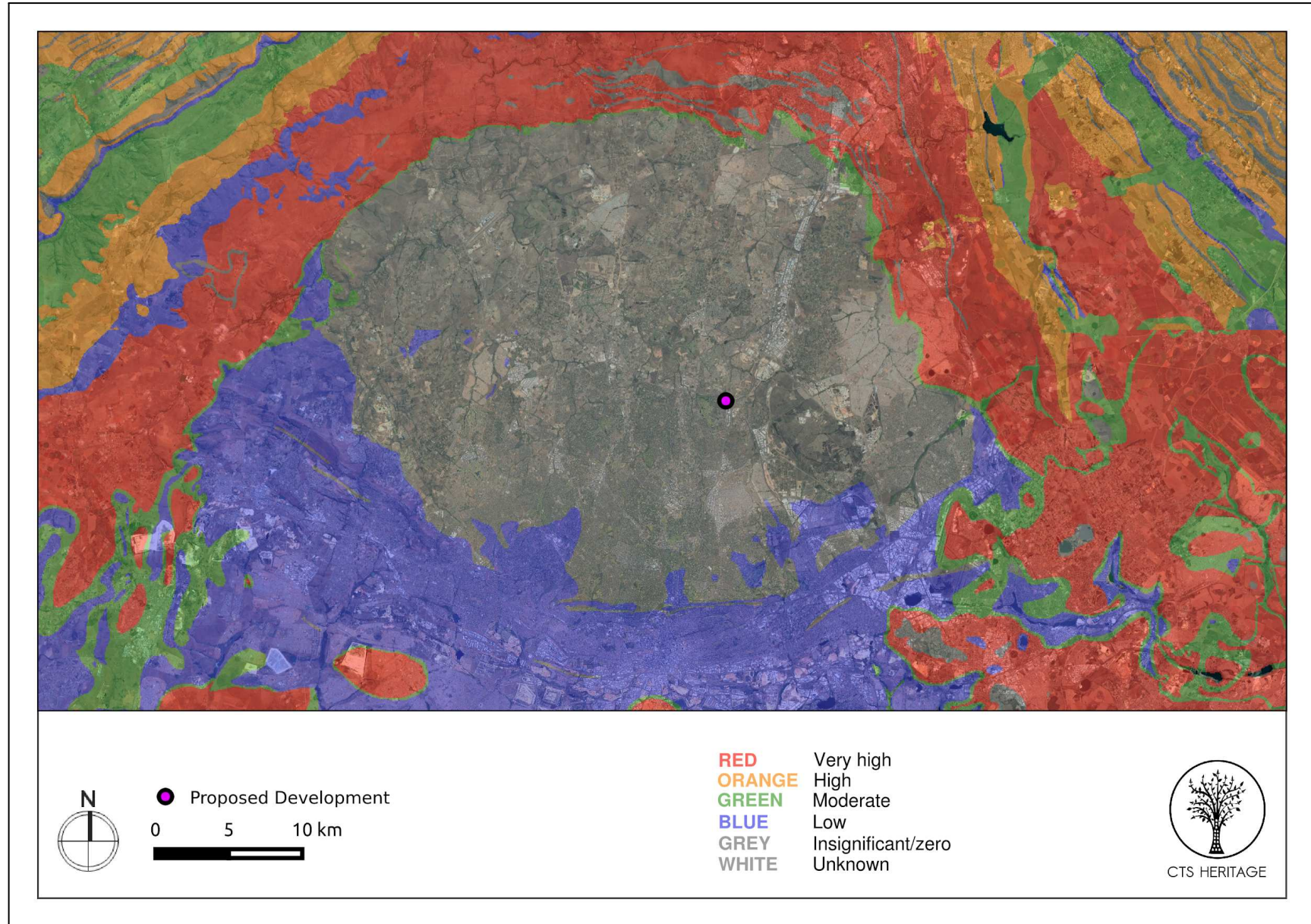


Figure 4a. SAHRIS Palaeosensitivity Map. Indicating low to zero fossil sensitivity underlying the study area. Please See Appendix 3 for a full guide to the legend.

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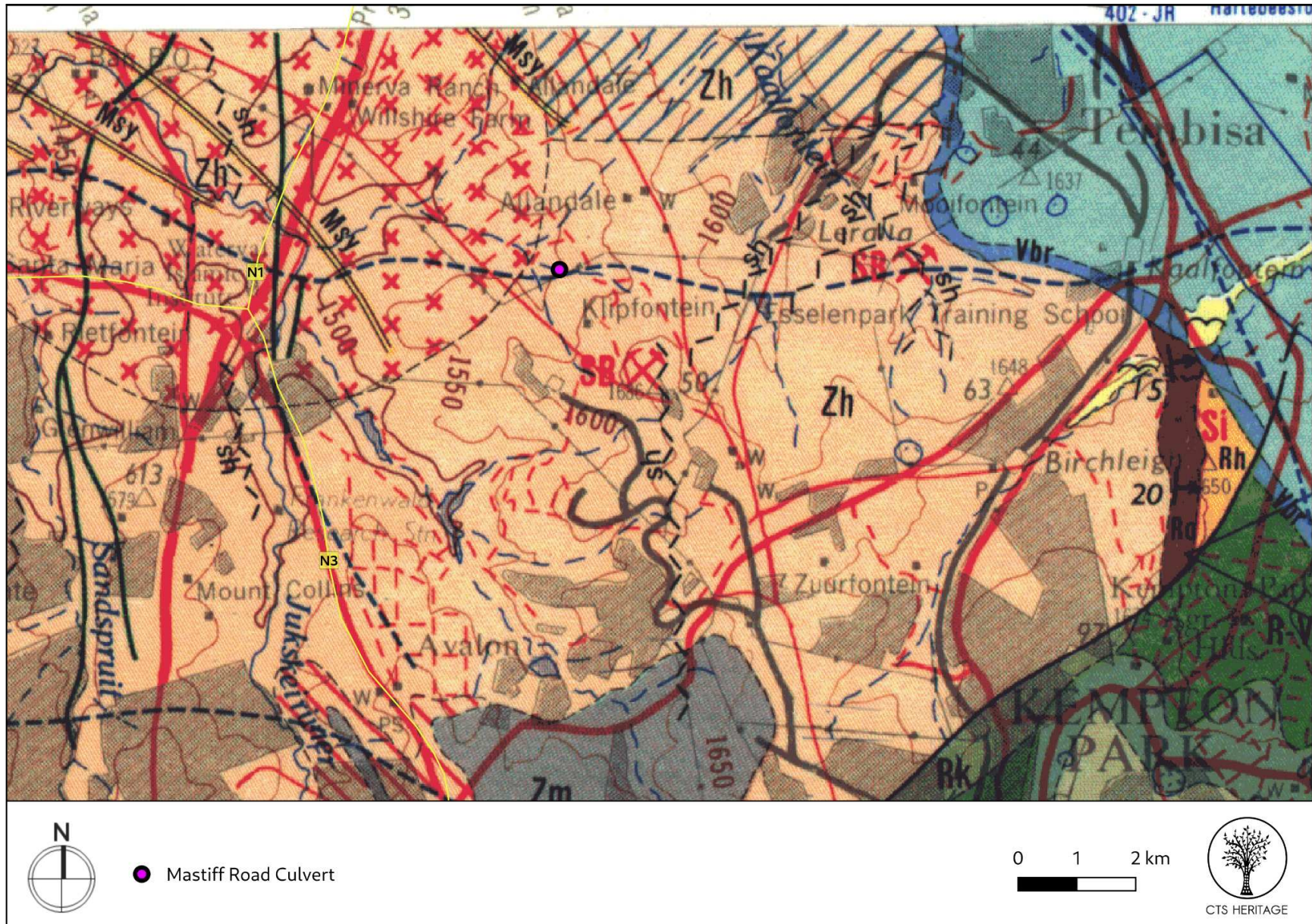
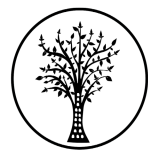


Figure 4b. Geology Map. Extracted from the CGS Map for the East Rand 2628 indicating that the development area is underlain by ancient granite sediments (Zh)



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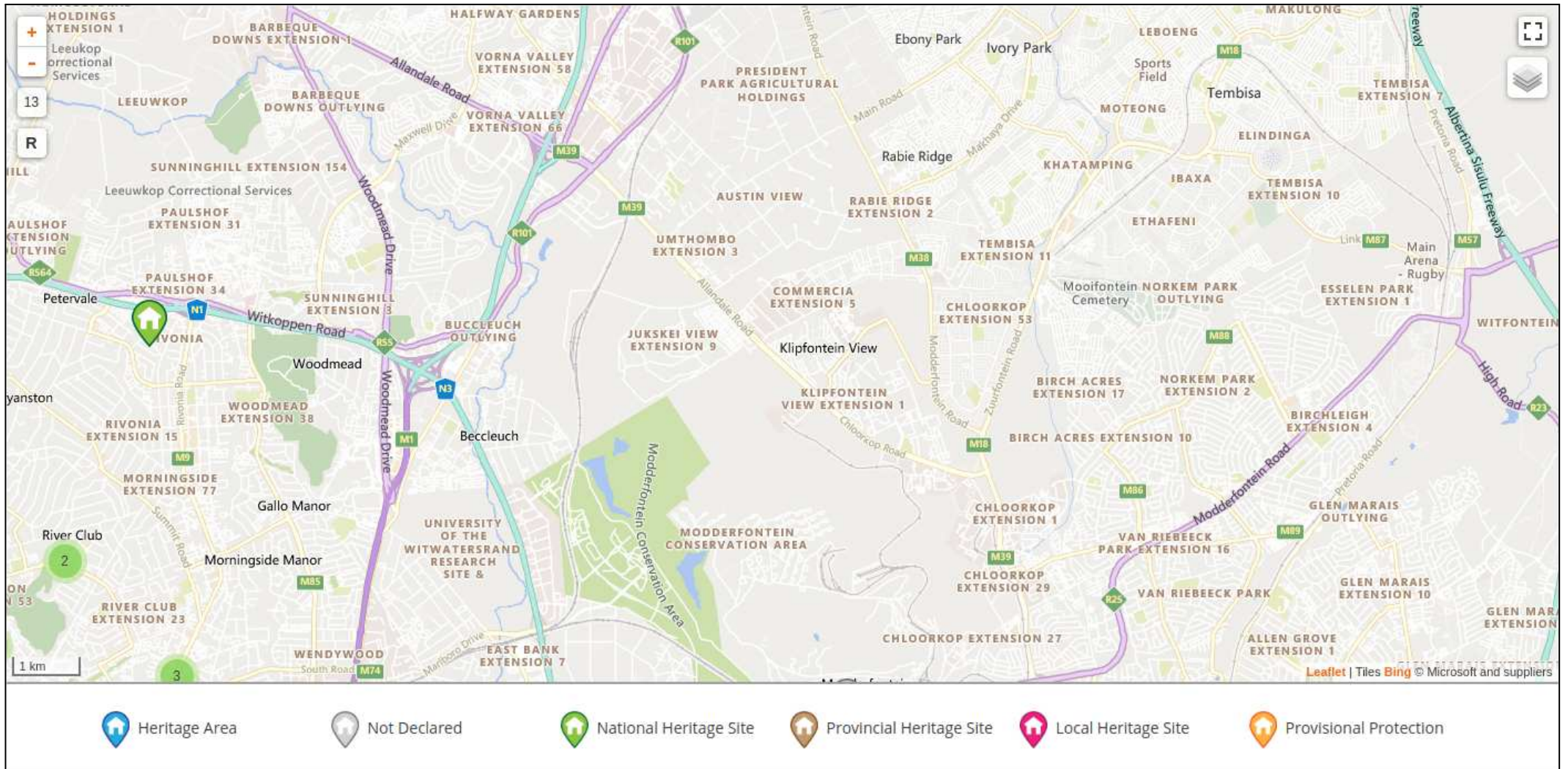


Figure 5. Heritage Mapper. Nearby Heritage view taken from the JHB Heritage Register (<http://www.heritageregister.org.za/map-search>)

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8. Heritage statement and character of the area

The proposed development consists of the upgrade and replacement of an existing water culvert, in the Midrand Industrial area in Johannesburg. The nature of the proposed development is such that it does not trigger section 38(1) of the NHRA, however it does require an environmental assessment and as such, heritage aspects of the development also require assessment.

The area proposed for development is located in a portion of the Highveld that has been impacted by the actions of the Kaalspruit, Olifantspruit, Jukskei River, Modderfonteinspruit and numerous smaller watercourses. Evidence of Early, Middle and Later Stone Age people is located across the broader Highveld indicating early occupation of the area. Precolonial farming communities moved into the area between AD350 and AD600 as is evidenced by Iron Age stone-walled settlements across the area. Colonial farmers moved into the area in the mid-19th C.

Only one known heritage site of high significance is located within 10 km of the culvert - Lilliesleaf Farm National Heritage Site [SAHRIS Site ID 93201]. In 1961, Lilliesleaf Farm in Rivonia was purchased by Arthur Goldreich and Harold Wolpe as headquarters for the underground Communist Party and a safe house for political fugitives. Nelson Mandela needed a safe place from which to operate, and lived there under the assumed name of David Motsamayi as a worker in blue overalls employed by the owner to look after the farm. In 11 July 1963, security police raided the farm and captured 19 members of the underground, charging them with sabotage. They were meeting in the thatched room, and were stunned by the raid. The trial, which ran from October 1963 to June 1964, culminated in the imposition of life sentences for eight of the accused. Today, the farmhouse at Lilliesleaf Farm has now been surrounded by the gradual spread of Johannesburg's suburbs, but the historic site has been reopened to visitors and the buildings have been restored to their earlier condition. This history also speaks to the evolution of Rivonia from agricultural land and small-holdings in the 1960's to one of the most affluent residential and business suburbs of Johannesburg today. The proposed pipeline upgrade will not impact this significant heritage site.

Very few Heritage Impact Assessments have been completed within the immediate vicinity of the existing pipeline. A specialist heritage scoping assessment was completed for a proposed development located approximately 1km away from the proposed culvert (SAHRIS ID 5083 Figure 2). In this assessment, Van der Walt (2008) identified no heritage resources of any historical, archaeological or cultural significance. Other than Lilliesleaf Farm, no additional heritage resources have been identified on the Heritage Register (<http://www.heritageregister.org.za/map-search>) within close proximity to the proposed pipeline development. It is unlikely that the proposed development will impact on significant archaeological heritage resources.

The SAHRIS Palaeosensitivity Map (SAHRA 2014) indicates that the entire area is underlain by geological deposits of insignificant or zero fossil sensitivity (Figure 4). According to the SAHRIS Fossil Sensitivity Browser (SAHRA 2014) the affected deposits comprise granodiorites, which are unfossiliferous igneous rocks. These deposits are Early to Late Archaean in age (c. 3.6 –2.4 Ga) and represent highly metamorphosed blocks of continental crust. Although no palaeontological assessments have taken place within the immediate vicinity of the bridge, a Palaeontological Impact Assessment conducted within the inclusion zone and located on the same underlying geology, indicates that “[t]he potential for any fossil materials occurring within this rock unit is nil” (Millstead 2014, SAHRIS NID 166302).

Due to the lack of intrinsic heritage significance in the area, as well as the transformed nature of the immediate surrounds and unfossiliferous nature of the underlying geology, it is not anticipated that the limited interventions will negatively impact any significant heritage resources. As such, this report is submitted as a request for exemption from further heritage assessment studies.

RECOMMENDATION:

The heritage resources in the area proposed for development are sufficiently recorded.

Due to the location and nature of the proposed development, it is unlikely that significant heritage resources will be impacted by the development and as such, it is recommended that no further heritage studies are required.

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APPENDIX 1

List of heritage resources within proximity to the development area

Site ID	Site no	Full Site Name	Site Type	Grading
88797	MIDR044	Midrand 044	Building	Grade IIIc
88801	MIDR048	Midrand 048	Building	Grade IIIc
88738	MIDR004	Midrand 004	Structures	Grade IIIc
88739	MIDR005	Midrand 005	Artefacts	Grade IIIc
88751	MIDR017	Midrand 017	Artefacts	Grade IIIc
88753	MIDR019	Midrand 019	Bridge	Grade IIIc
45997	MOD/040	Modderfontein 040	Structures	Grade IIIc
46002	MOD/045	Modderfontein 045	Structures	Grade IIIc
46011	MOD/05	Modderfontein 05	Structures	Grade IIIa
46012	MOD/06	Modderfontein 06	Structures	Grade IIIc
46013	MOD/07	Modderfontein 07	Deposit	Grade IIIc
46014	MOD/08	Modderfontein 08	Deposit	Grade IIIc
46058	MOD/27	Modderfontein 27	Stone walling	Grade IIIc
46062	MOD/28	Modderfontein 28	Archaeological	Grade IIIc
46065	MOD/30	Modderfontein 30	Stone walling	Grade IIIc
46067	MOD/31	Modderfontein 31	Archaeological	Grade IIIc

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46068	MOD/32	Modderfontein 32	Archaeological	Grade IIIc
46069	MOD/33	Modderfontein 33	Archaeological	Grade IIIc
46063	MOD/29	Modderfontein 29	Stone walling	Grade IIIc
46072	MOD/36	Modderfontein 36	Structures	Grade IIIc
46073	MOD/37	Modderfontein 37	Structures	Grade IIIc
46074	MOD/38	Modderfontein 38	Archaeological	Grade IIIc
46075	MOD/39	Modderfontein 39	Archaeological	Grade IIIc
35749	KEMP001	Kempton 001	Burial Grounds & Graves	Grade IIIa
130154	Pedestrian Bridge linking Munyaka and Kikuyu	Pedestrian Bridge linking Munyaka and Kikuyu	Bridge	
139402	2628AA-Botha Cemetery	Botha Cemetery, Chloorkop, Kempton Park	Burial Grounds & Graves	Grade IIIa
33243	Chloorkop South Graves	Chloorkop South Graves	Burial Grounds & Graves	Grade IIIa

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APPENDIX 2 Reference List

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
162297	AIA Phase 1	Jaco van der Walt	29/03/2014	Archaeological Impact Assessment Industrial Park known as Chloorkop North, Gauteng.
163107	AIA Phase 1	Jaco van der Walt	15/05/2014	Archaeological Impact Assessment Of the Proposed Industrial Park known as Chloorkop South, Gauteng
166302	PIA Desktop	Barry Millsteed	10/06/2014	DESKTOP PALAEOLOGICAL HERITAGE IMPACT ASSESSMENT REPORT ON THE SITE OF TWO PROPOSED INDUSTRIAL PARKS KNOWN AS CHLOORKOP NORTH (LOCATED ON THE REMAINDER PORTION 57 AND PORTION 58 OF THE FARM KLIPFONTEIN 12 IR) AND CHLOORKOP SOUTH (TO BE LOCATED ON PORTION 73, REMAINDER PORTION 43 AND REMAINDER PORTION 53 OF THE FARM KLIPFONTEIN 12 IR 53), GAUTENG PROVINCE
360996	HIA Phase 1	Francois P Coetzee	22/01/2016	Cultural Heritage Assessment for the Proposed Rehabilitation of Kaalspruit, Tembisa, City of Johannesburg Metropolitan Municipality, Gauteng
369680	HIA Letter of Exemption	Gavin Anderson	13/09/2016	DESKTOP SURVEY OF THE PROPOSED KEMPTON PARK HOSPITAL, GAUTENG
5083	AIA Phase 1	Jaco van der Walt	21/02/2008	Heritage Scoping: Proposed Development on Part of Portion 23, Portion 69 and the Remainder of Portion 22 and 36 of the Farm Klipfontein 12 IR, Ekurhuleni, Gauteng Province
5519	AIA Phase 1	Udo Kusel	11/10/2007	Cultural Heritage Resources Impact Assessment of Holding 265 President Park Agricultural Holdings Midrand Gauteng
6815	AIA Phase 1	Francois P Coetzee	01/11/2008	Cultural Heritage Survey of the Proposed Establishment of the Gautrain Visitor's Centre, Midrand, Gauteng

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APPENDIX 3 - Keys/Guides

Key/Guide to Acronyms

AIA	Archaeological Impact Assessment
DARD	Department of Agriculture and Rural Development (KwaZulu-Natal)
DEA	Department of Environmental Affairs (National)
DEADP	Department of Environmental Affairs and Development Planning (Western Cape)
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism (Eastern Cape)
DEDECT	Department of Economic Development, Environment, Conservation and Tourism (North West)
DEDT	Department of Economic Development and Tourism (Mpumalanga)
DEDTEA	Department of economic Development, Tourism and Environmental Affairs (Free State)
DENC	Department of Environment and Nature Conservation (Northern Cape)
DMR	Department of Mineral Resources (National)
GDARD	Gauteng Department of Agriculture and Rural Development (Gauteng)
HIA	Heritage Impact Assessment
LEDET	Department of Economic Development, Environment and Tourism (Limpopo)
MPRDA	Mineral and Petroleum Resources Development Act, no 28 of 2002
NEMA	National Environmental Management Act, no 107 of 1998
NHRA	National Heritage Resources Act, no 25 of 1999
PIA	Palaeontological Impact Assessment
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
VIA	Visual Impact Assessment

Full guide to Palaeosensitivity Map legend

	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/PURPLE:	LOW - no palaeontological studies are required however a protocol for chance finds is required
	GREY:	INSIGNIFICANT/ZERO - no palaeontological studies are required
	WHITE/CLEAR:	UNKNOWN - these areas will require a minimum of a desktop study.

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APPENDIX 4 - Methodology

The Heritage Screener summarises the heritage impact assessments and studies previously undertaken within the area of the proposed development and its surroundings. Heritage resources identified in these reports are assessed by our team during the screening process.

The heritage resources will be described both in terms of **type**:

- Group 1: Archaeological, Underwater, Palaeontological and Geological sites, Meteorites, and Battlefields
- Group 2: Structures, Monuments and Memorials
- Group 3: Burial Grounds and Graves, Living Heritage, Sacred and Natural sites
- Group 4: Cultural Landscapes, Conservation Areas and Scenic routes

and **significance** (Grade I, II, IIIa, b or c, ungraded), as determined by the author of the original heritage impact assessment report or by formal grading and/or protection by the heritage authorities.

Sites identified and mapped during research projects will also be considered.

DETERMINATION OF THE EXTENT OF THE INCLUSION ZONE TO BE TAKEN INTO CONSIDERATION

The extent of the inclusion zone to be considered for the Heritage Screener will be determined by CTS based on:

- the size of the development,
- the number and outcome of previous surveys existing in the area
- the potential cumulative impact of the application.

The inclusion zone will be considered as the region within a maximum distance of 50 km from the boundary of the proposed development.

DETERMINATION OF THE PALAEOLOGICAL SENSITIVITY

The possible impact of the proposed development on palaeontological resources is gauged by:

- reviewing the fossil sensitivity maps available on the South African Heritage Resources Information System (SAHRIS)
- considering the nature of the proposed development
- when available, taking information provided by the applicant related to the geological background of the area into account

DETERMINATION OF THE COVERAGE RATING ASCRIBED TO A REPORT POLYGON

Each report assessed for the compilation of the Heritage Screener is colour-coded according to the level of coverage accomplished. The extent of the surveyed coverage is labeled in three categories, namely low, medium and high. In most instances the extent of the map corresponds to the extent of the development for which the specific report was undertaken.

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Low coverage will be used for:

- desktop studies where no field assessment of the area was undertaken;
- reports where the sites are listed and described but no GPS coordinates were provided.
- older reports with GPS coordinates with low accuracy ratings;
- reports where the entire property was mapped, but only a small/limited area was surveyed.
- uploads on the National Inventory which are not properly mapped.

Medium coverage will be used for

- reports for which a field survey was undertaken but the area was not extensively covered. This may apply to instances where some impediments did not allow for full coverage such as thick vegetation, etc.
- reports for which the entire property was mapped, but only a specific area was surveyed thoroughly. This is differentiated from low ratings listed above when these surveys cover up to around 50% of the property.

High coverage will be used for

- reports where the area highlighted in the map was extensively surveyed as shown by the GPS track coordinates. This category will also apply to permit reports.

RECOMMENDATION GUIDE

The Heritage Screener includes a set of recommendations to the applicant based on whether an impact on heritage resources is anticipated. One of three possible recommendations is formulated:

(1) The heritage resources in the area proposed for development are sufficiently recorded - The surveys undertaken in the area adequately captured the heritage resources. There are no known sites which require mitigation or management plans. No further heritage work is recommended for the proposed development.

This recommendation is made when:

- enough work has been undertaken in the area
- it is the professional opinion of CTS that the area has already been assessed adequately from a heritage perspective for the type of development proposed

(2) The heritage resources and the area proposed for development are only partially recorded - The surveys undertaken in the area have not adequately captured the heritage resources and/or there are sites which require mitigation or management plans. Further specific heritage work is recommended for the proposed development.

This recommendation is made in instances in which there are already some studies undertaken in the area and/or in the adjacent area for the proposed development. Further studies in a limited HIA may include:

- improvement on some components of the heritage assessments already undertaken, for instance with a renewed field survey and/or with a specific specialist for the type of heritage resources expected in the area
- compilation of a report for a component of a heritage impact assessment not already undertaken in the area

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- undertaking mitigation measures requested in previous assessments/records of decision.

(3) The heritage resources within the area proposed for the development have not been adequately surveyed yet - Few or no surveys have been undertaken in the area proposed for development. A full Heritage Impact Assessment with a detailed field component is recommended for the proposed development.

Note:

The responsibility for generating a response detailing the requirements for the development lies with the heritage authority. However, since the methodology utilised for the compilation of the Heritage Screeners is thorough and consistent, contradictory outcomes to the recommendations made by CTS should rarely occur. Should a discrepancy arise, CTS will immediately take up the matter with the heritage authority to clarify the dispute.

The compilation of the Heritage Screener will not include any field assessment. The Heritage Screener will be submitted to the applicant within 24 hours from receipt of full payment. **If the 24-hour deadline is not met by CTS, the applicant will be refunded in full.**

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