

HERITAGE IMPACT ASSESSMENT

In terms of Section 38(8) of the NHRA for the

Proposed development of a solar PV plant and Battery energy storage system (BESS) to be located on Impala Platinum's Rustenburg operation site, North West

Prepared by CTS Heritage



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Jenna Lavin

For

Savannah Environmental

October 2023



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EXECUTIVE SUMMARY

1. Site Name:

Impala Platinum Mine

2. Location:

North of Rustenburg on Farm Goedgedacht 114 Q

3. Locality Plan:

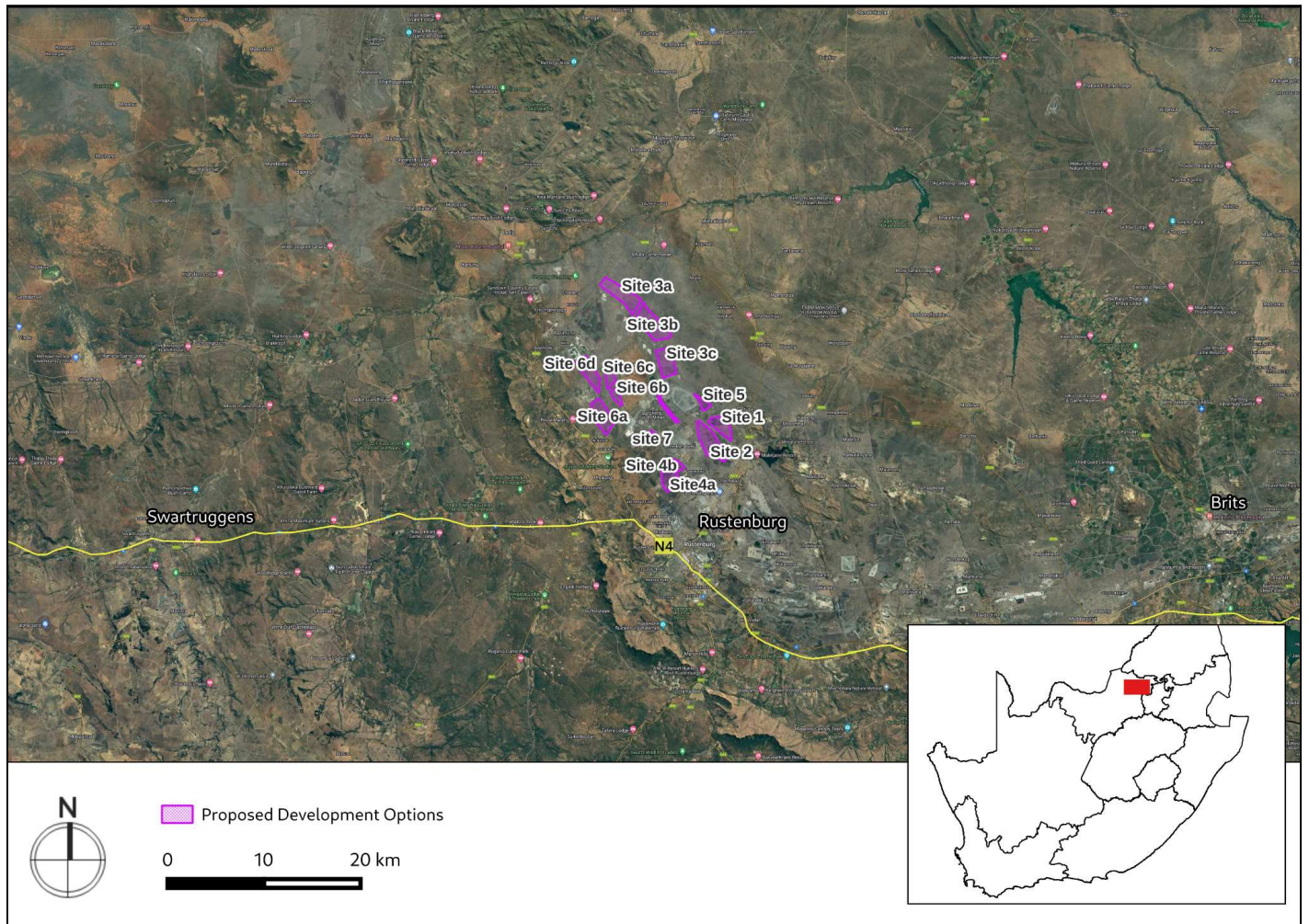


Figure 1: Location of the proposed development area

4. Description of Proposed Development:

Impala Platinum are being affected by loadshedding, sharply rising electricity supply costs and need to reduce their carbon footprint. The Rustenburg platinum complex is mostly located on Royal Bafokeng property. ESP did a Concept study for them recommending onsite solar PV and possible BESS. They have identified a preferred site

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(+/- 450 ha) which would be the target area for the EIA. At this point in time, they plan a phased development of 30MW x 3 and 60MW over a 4 to 5 year period.

Site 3C is the preferred site and Implats is already in the process of securing the site for the development. The Millenium substation (most likely point of integration) is adjacent to the northern border of site 3C which is the likely point of integration. Both the 66kV Eskom supply and 33kV Implats network are connected.

5. Anticipated Impacts on Heritage Resources:

Even though the area is rich in history, no significant archaeological heritage resources were identified during the field assessment. No significant Stone Age or Iron Age heritage resources were identified during the survey. The few heritage resources that were identified consist of the ruins of older farm structures and kraals. Due to the paucity of older farm structures in the area as a result of demolition, it is recommended that the identified ruins and kraals remain untouched and that a safety buffer should exist around all such structures.

The field assessment identified one likely grave on the edge of the proposed development footprint of the solar PV facility. All graves are of high local significance as a result of their social and cultural value, and are therefore graded IIIA.

While no Stone Age or Iron Age archaeological resources were identified during the field assessment, it is clear that this landscape is sensitive for impacts to historical archaeology in the form of ruins and kraals, as well as marked and unmarked burial grounds and graves. Appropriate mitigation measures are detailed below.

6. Recommendations:

Based on the outcomes of this report, it is not anticipated that the proposed development of the solar energy facility will negatively impact on significant archaeological heritage on condition that:

- The mitigation measures detailed in Table 2 above are implemented in the development layout. These include a no development buffer of 100m around the identified grave (Site 004) and a no development buffer of 50m around sites 002, 003 and 008.
- A Management Plan for the ongoing conservation of these burials is developed prior to construction, along with a Guide on how to identify marked and unmarked burials and how to proceed should previously unidentified burials be uncovered during the construction process.
- Although all possible care has been taken to identify sites of cultural importance during the investigation of the study area, it is always possible that hidden or subsurface sites could be overlooked during the assessment. If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures,



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indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils, burials or other categories of heritage resources are found during the proposed development, work must cease in the vicinity of the find and SAHRA must be alerted immediately to determine an appropriate way forward.



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Details of Specialist who prepared the HIA

Jenna Lavin, an archaeologist with an MSc in Archaeology and Palaeoenvironments, heads up the heritage division of the organisation, and has a wealth of experience in the heritage management sector. Jenna's previous position as the Assistant Director for Policy, Research and Planning at Heritage Western Cape has provided her with an in-depth understanding of national and international heritage legislation. Her 8 years of experience at various heritage authorities in South Africa means that she has dealt extensively with permitting, policy formulation, compliance and heritage management at national and provincial level and has also been heavily involved in rolling out training on SAHRIS to the Provincial Heritage Resources Authorities and local authorities.

Jenna is a member of the Association of Professional Heritage Practitioners (APHP), and is also an active member of the International Committee on Monuments and Sites (ICOMOS) as well as the International Committee on Archaeological Heritage Management (ICAHM). In addition, Jenna has been a member of the Association of Southern African Professional Archaeologists (ASAPA) since 2009.

Since 2016, Jenna has drafted over 250 Screening and Heritage Impact Assessments throughout South Africa.



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1. INTRODUCTION

1.1 Background Information on Project

Impala Platinum are being affected by loadshedding, sharply rising electricity supply costs and need to reduce their carbon footprint. The Rustenburg platinum complex is mostly located on Royal Bafokeng property. ESP did a Concept study for them recommending onsite solar PV and possible BESS. They have identified a preferred site (+/- 450 ha) which would be the target area for the EIA. At this point in time, they plan a phased development of 30MW x 3 and 60MW over a 4 to 5 year period.

Site 3C is the preferred site and Implats is already in the process of securing the site for the development. The Millenium substation (most likely point of integration) is adjacent to the northern border of site 3C which is the likely point of integration. Both the 66kV Eskom supply and 33kV Implats network are connected. As such, this field report only considers Site 3C.

1.2 Description of Property and Affected Environment

The study terrain is predominantly flat, with open trees, shrubs, and grasses. Rocky outcrops are scattered throughout the development site. The proposed site footprint has been disturbed by agricultural activities in the past, such as repeated livestock grazing. Numerous volcanic and quartzite outcrops are visible throughout the site footprint but are especially prominent in the dry riverbed. The soil is turf with a high clay component.

The vegetation consists predominantly of deciduous, open short thorny woodland, dominated by *Acacia* species with a layer of grasses. Dry riverbeds traverse the footprint from the northwest towards the south, southeast of the footprint. There are various water catchment areas, especially around the volcanic rock outcrops. The site is bounded north, south, east and west by veld and mining infrastructure.

Repeated livestock movement across the site has disturbed the soil throughout the development footprint. Flooding and animal movement have left deep scars in some footprint areas. Scraped road debris with earth-moving equipment can be seen in the northern section of the footprint. The area shows evidence of long-term livestock grazing. The surface soils suffer continuous disturbance by animal movement.



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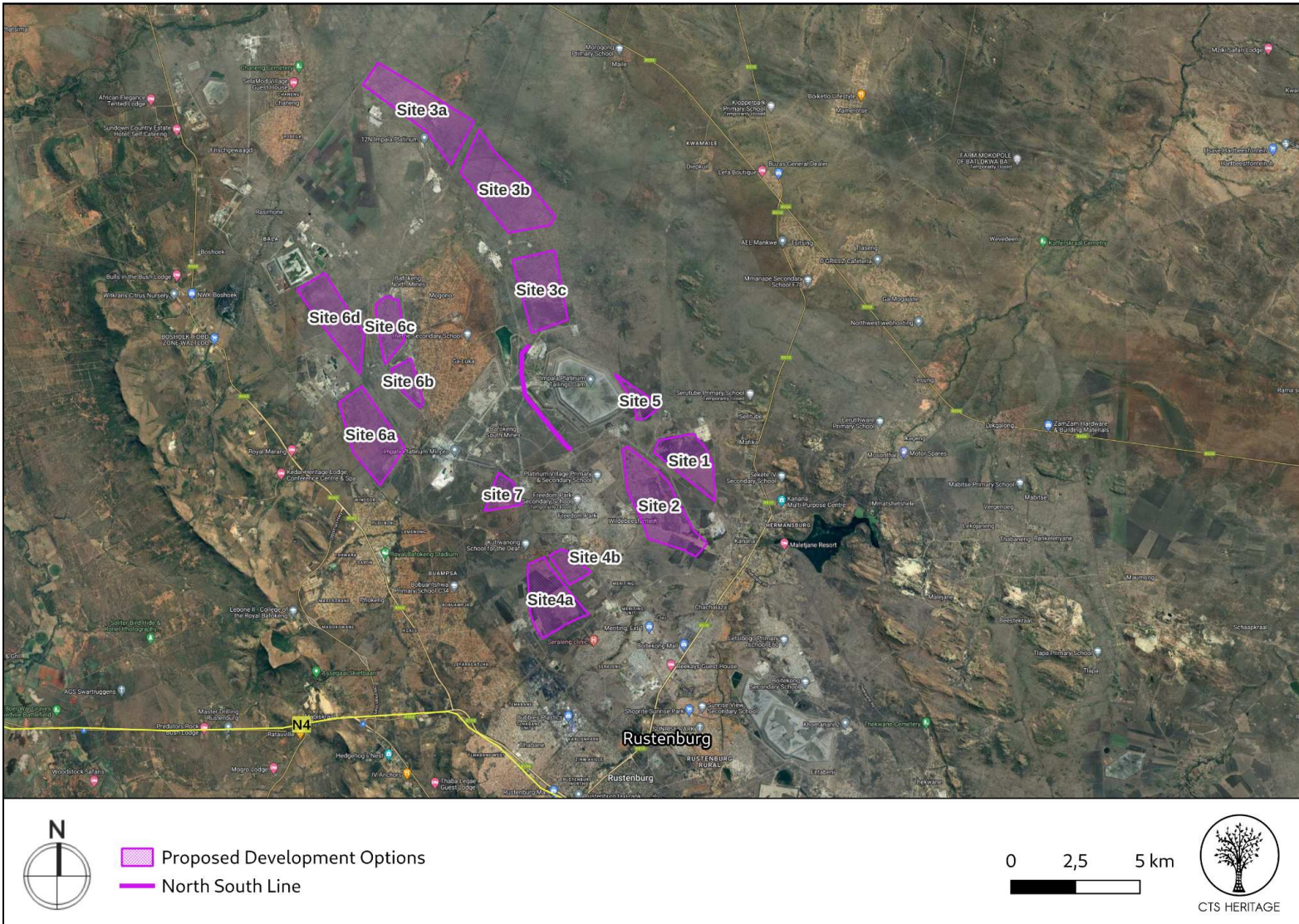
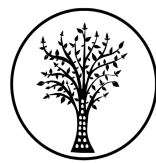


Figure 1.1: Proposed development relative to Rustenburg

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Figure 1.2. Overview Map. Satellite image (2022) indicating the proposed development area at closer range.

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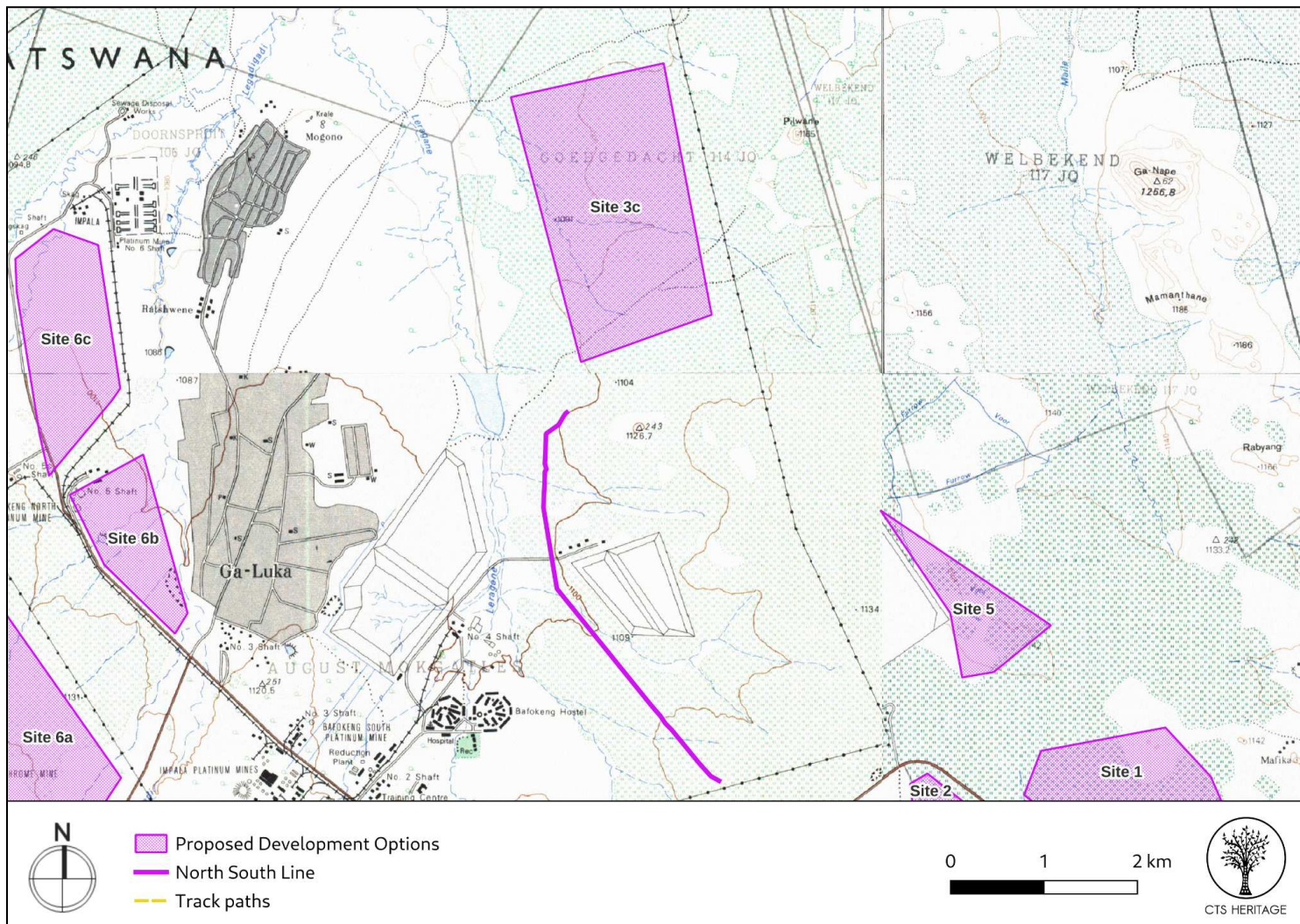


Figure 1.3: Project boundary on the 1:50 000 Topo Map

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2. METHODOLOGY

2.1 Purpose of HIA

The purpose of this Heritage Impact Assessment (HIA) is to satisfy the requirements of section 38(8), and therefore section 38(3) of the National Heritage Resources Act (Act 25 of 1999).

2.2 Summary of steps followed

- A Desktop Study was conducted of relevant reports previously written (please see the reference list for the age and nature of the reports used)
- An archaeologist conducted an assessment of archaeological resources likely to be disturbed by the proposed development. The archaeologist conducted his site visit from 13 and 14 July 2023
- The identified resources were assessed to evaluate their heritage significance and impacts to these resources were assessed.
- Alternatives and mitigation options were discussed with the Environmental Assessment Practitioner

2.3 Assumptions and uncertainties

- The *significance* of the sites and artefacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.
- It should be noted that archaeological and palaeontological deposits often occur below ground level. Should artefacts or skeletal material be revealed at the site during construction, such activities should be halted, and it would be required that the heritage consultants are notified for an investigation and evaluation of the find(s) to take place.

However, despite this, sufficient time and expertise was allocated to provide an accurate assessment of the heritage sensitivity of the area.

2.4 Constraints & Limitations

No constraints or limitations were experienced during the field assessment.



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2.5 Savannah Impact Assessment Methodology

Direct, indirect and cumulative impacts of the issues identified through the Scoping study, as well as all other issues identified in the EIA phase were assessed in terms of the following criteria:

- The nature, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- The extent, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high).
- The duration, wherein it will be indicated whether:
 - The lifetime of the impact will be of a very short duration (0 – 1 years) – assigned a score of 1.
 - The lifetime of the impact will be of a short duration (2 – 5 years) – assigned a score of 2.
 - Medium-term (5 – 15 years) – assigned a score of 3.
 - Long term (> 15 years) – assigned a score of 4.
 - Permanent – assigned a score of 5.
- The consequences (magnitude), quantified on a scale from 0 – 10, where 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- The probability of occurrence, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1 – 5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
- The significance, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high.
- The status, which will be described as either positive, negative or neutral.
- The degree to which the impact can be reversed.
- The degree to which the impact may cause irreplaceable loss of resources.
- The degree to which the impact can be mitigated.

The significance is calculated by combining the criteria in the following formula:

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

S = Significance weighting

E = Extent



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D = Duration

M = Magnitude

P = Probability

The significance weightings for each potential impact are as follows:

- < 30 points: Low (i.e. where this impact would not have a direct influence on the decision to develop in the area).
- 30 – 60 points: Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated).
- > 60 points: High (i.e. where the impact must have an influence on the decision process to develop in the area).



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3. HISTORY AND EVOLUTION OF THE SITE AND CONTEXT

3.1 Desktop Assessment

Background

This application is for the proposed development of a solar PV facility to support the activities at the Impala Platinum Mine located immediately north of Rustenburg in the North West Province. A number of options are proposed for review for the proposed PV infrastructure, however it has been noted that the preferred development area is mapped as Area 3c in the maps above.

Cultural Landscape

Rustenburg town was established at the foot of the Magaliesburg in 1851 as an administrative centre for the farmers of the broader region, and received its first church under a syringa tree in 1859. During the 1800's, more and more farmers settled in the area. The streets are lined with the ubiquitous jacaranda tree. It started out as a small farming community producing citrus and Virginia tobacco and still manages to retain its small-town atmosphere¹. The area surrounding Rustenburg was heavily impacted by the outbreak of both of the Anglo-Boer Wars. The siege of Rustenburg was a siege that took place between 1880 and 1881 during the first war. The siege was carried out by Boer forces on the British controlled town. Some of the final, decisive battles of the South African War were fought in and around the mountains near Hekpoort. During the war's guerilla phase, the maze of mountains provided a conduit by which the Boer forces moved through occupied territory². British blockhouses can still be seen guarding the approaches to some of the well-known passes³. It is possible that remnants of battlefields and other infrastructure are located within the areas proposed for development.

In 1925, a seam of platinum-bearing rock was discovered outside of Rustenburg which resulted in the accelerated growth of the town and the establishment of the Impala Platinum mine. All of the options under consideration in this assessment are located within the existing mines boundaries. As such, it is unlikely that the proposed development will negatively impact on any significant cultural landscape as the development will be read as part of the existing mine infrastructure.

Archaeology

Archaeological sites spanning the Earlier, Middle and Later Stone Age have been found in the region despite the extensive agricultural transformation of the area. According to Van Schalkwyk (2015), "No stratified sites dating to the Stone Age are known from the region. However, surface scatters of tools dating to the Early Stone Age are known to occur in the region of the Vaal River. Apart from that, rock engravings dating to the Late Stone Age are

¹ <https://www.century21.co.za/area-profiles/rustenburg/>

² <https://www.theheritageportal.co.za/article/battles-magaliesberg>

³ <https://southafrica.co.za/history-rustenburg.html>



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known from various sites in the larger region.” He goes on to note that “The occupation of the larger geographical area (including the study area) did not start much before the 1500s. By the 16th century things changed, with the climate becoming warmer and wetter, creating conditions that allowed Late Iron Age (LIA) farmers to occupy areas previously unsuitable, for example the Witwatersrand and the treeless plains of the Free State. The earliest Iron Age settlers who moved into the North-West Province region were Sothospeaking groups such as the Hurutshe, Kwena, Fokeng, Kgatla and Rolong.” As such, stone age archaeology, Iron age archaeology and archaeological heritage associated with the colonial occupation of the region are known to be present in the broader area.

A broad history of the area is included in Murimbika (2010) and is referred to here. According to Murimbika (2010), the broader region has also yielded some significant Iron Age Sites such as the Mzonjani facies Broederstroom site (AD 430 to AD 780). According to Murimbika (2010), the broader region was subject to a number of instances of migration and settlement from 450 AD. Evidence indicates that Sotho-Tswana groups migrated in and out of the Magaliesberg region, and such groups are responsible for the many early stone-walled settlements in this region. One of the most documented migrations is the Mfecane (forced migration or scattering) which was a period of widespread chaos and warfare among indigenous ethnic communities in southern Africa during the period between 1815 and about 1840. During this time, the Ndebele under Mzilikazi reached the Magaliesberg region and are responsible for introducing the Doornspruit-type walled settlements that are known from this region. According to Murimbika (2010) this type of stone-walled settlement represents “typical Nguni-Sotho-Tswana acculturation”. By the mid-1800’s, Voortrekkers had begun to settle in the foothills of the Magaliesberg mountains and in so doing, clashed with Mzilikazi’s Ndebele in 1837. These early colonial battles forced the Ndebele north of the Limpopo River and effectively ended the independence of African Chiefdoms in the area. The Voortrekkers went on to establish the Republic of the Transvaal.

Previous heritage impact assessments conducted in the area have identified a number of heritage resources (Figure 3 and 3a, Appendix 1). These resources are largely associated with the extensive agricultural and mining past of the region and reflect historic farm werfs and infrastructure and associated burial grounds. Additionally, there are known Iron Age sites located in very close proximity to the area proposed for development, and reflected by the number of “stone-walling” sites identified on SAHRIS.



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Palaeontology

According to the SAHRIS Palaeosensitivity Map (Figure 4), the area proposed for development is underlain by sediments of zero palaeontological sensitivity. According to the extract from the Council of GeoScience Map for Rustenburg (Figure 5), the geology of the area consists of gabbro-norite and pyroxenite of the Rustenburg Layered Suite, Bushveld Complex which does not contain any fossil material. This geology includes platinum and is the reason why the mine has been established here. As per a recent letter for exemption from palaeontological studies completed by Butler (2022) for an adjacent property located within the same geology, “This correlates with the fact that the sediments of the Bushveld Complex are igneous in origin and thus unfossiliferous. For this reason, an overall Zero Palaeontological Sensitivity is allocated to the development footprint. Thus, the construction of the development may be authorised in its whole extent, as the development footprint is not considered sensitive in terms of palaeontological resources.” As such, it is *very unlikely that the proposed development here will impact on significant palaeontological heritage* and no further assessment of impacts to palaeontological heritage is recommended.



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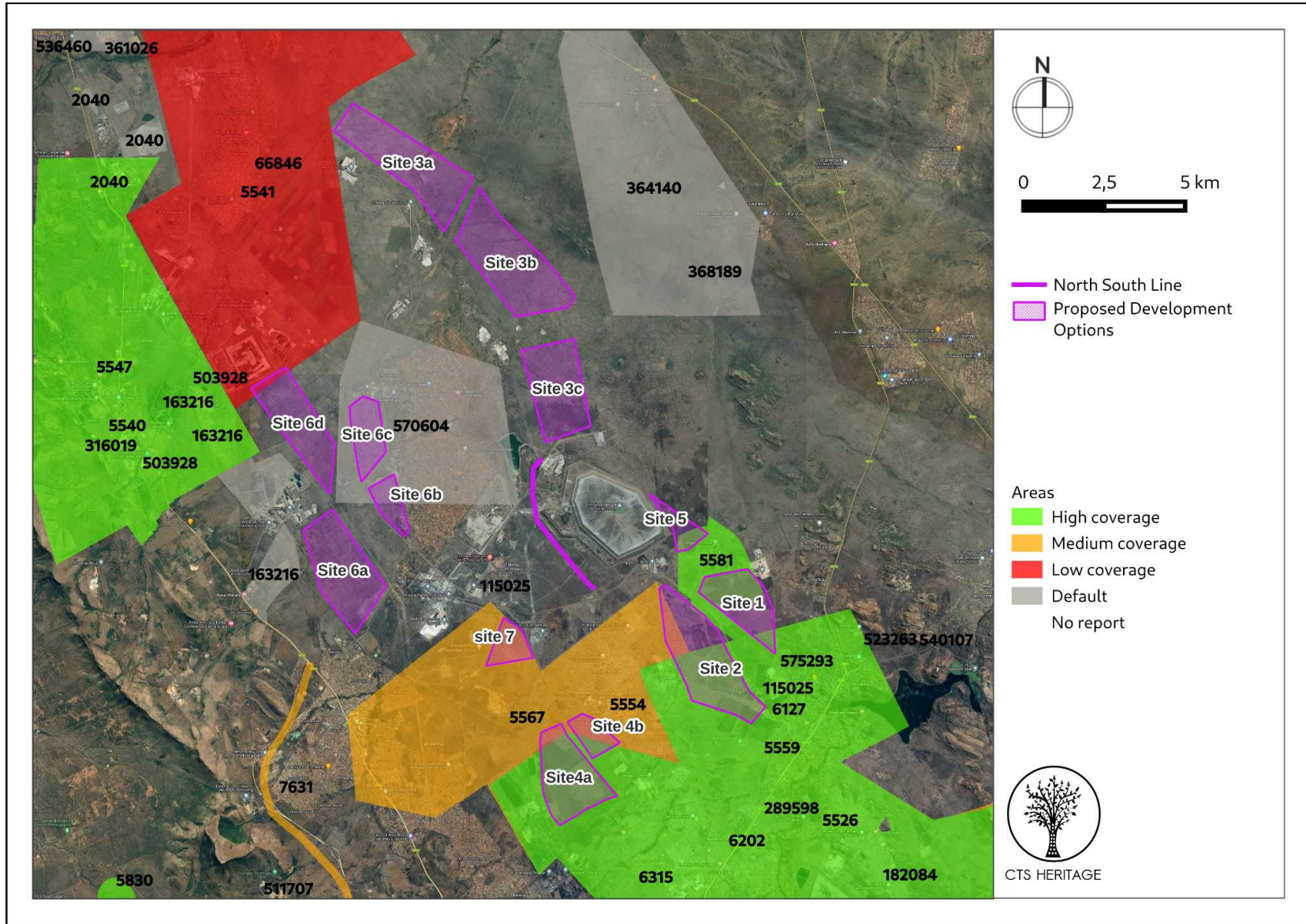
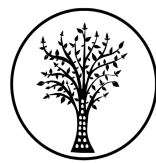


Figure 2: Spatialisation of heritage assessments conducted in proximity to the proposed development

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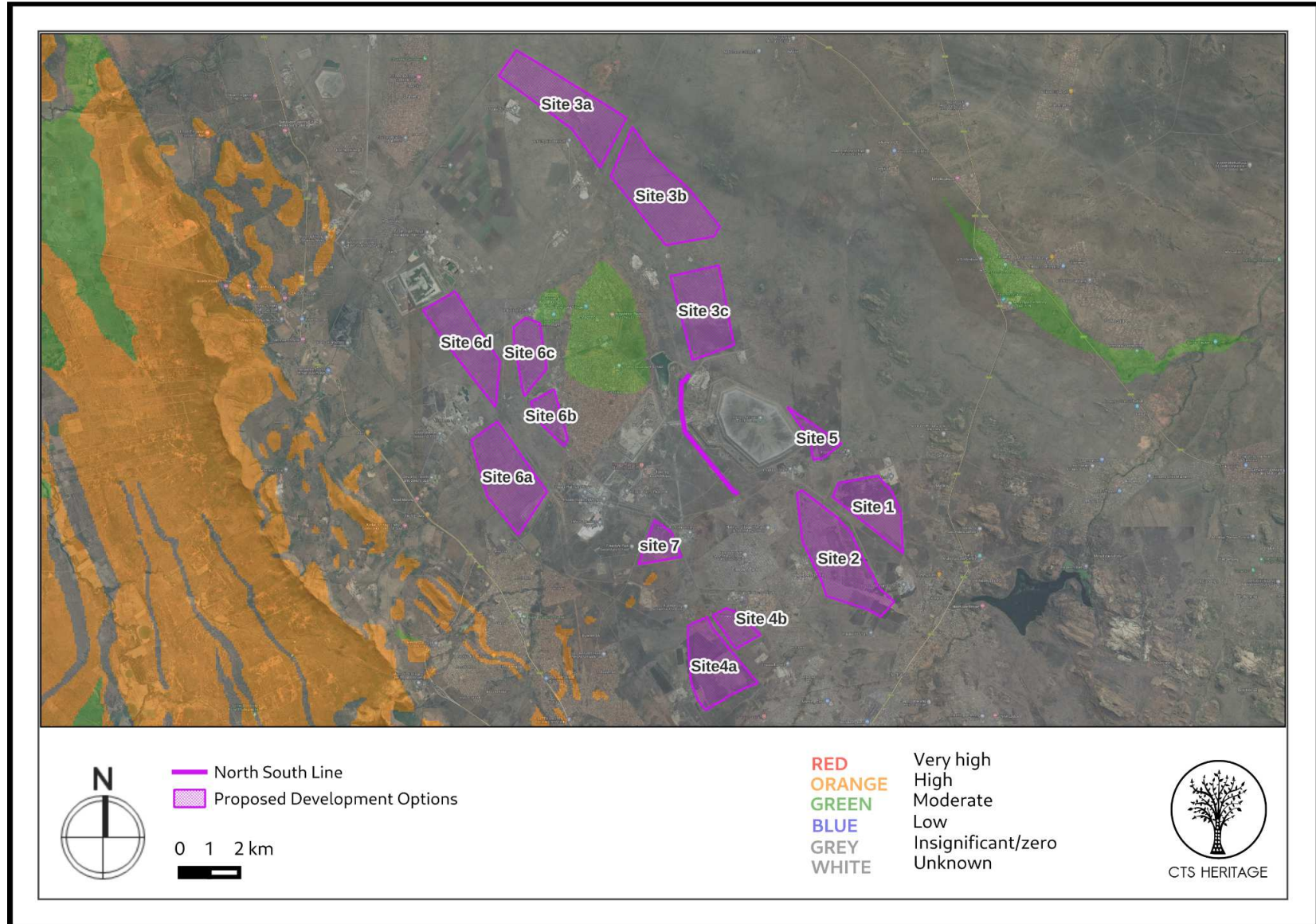
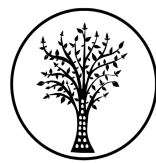


Figure 3.1: Palaeontological sensitivity of the proposed development area

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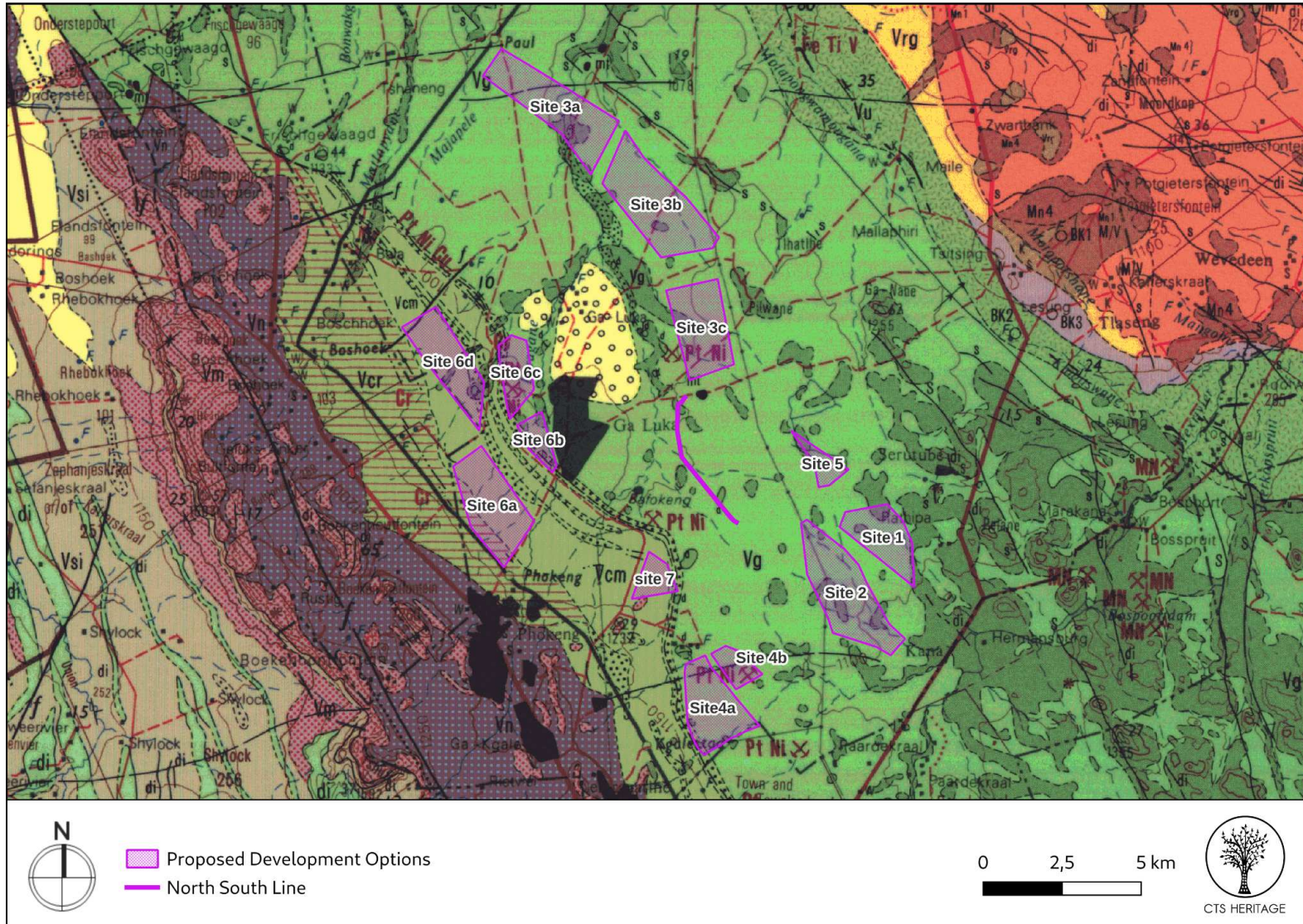


Figure 3.2: Geology Map. Extract from the Council for GeoScience Rustenburg Map 2526 indicating that the area proposed for development is underlain by Vg (Pyramid Gabbro-norite) and Vcr (Ruighoek Pyroxenite)

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4. IDENTIFICATION OF HERITAGE RESOURCES

4.1 Summary of findings of Specialist Reports

Archaeology (Appendix 1)

The field assessment proceeded with no constraints or limitations. The field assessment revealed one isolated occurrence of a Middle Stone Age retouched blade. The lithic find is without any perceivable archaeological context. The area where it was recorded has been disturbed by animal movement. The find is considered Not Conservation Worthy.

Four small pieces of undecorated low-fired ceramics were found in a 20 m² area. The pieces of ceramics were recorded in the vicinity of the MSA blade but are probably not associated. There were no other associated cultural material or archaeological contexts. The area has been disturbed by repeated animal movement. Without any identifying or datable markings, it is not possible to determine the ceramic pieces' age. The finds are therefore considered Not Conservation Worthy.

A cement beacon dating from the late 1950s was also identified. It is inscribed with beacon ID and date, B11 6-2-59. Although of minor relevance to site history, the find is without further archaeological and historical contexts. It is therefore considered Not Conservation Worthy.

Sites 002-003 represent a packed fieldstone circle, possibly utilised as a waterhole for livestock. The stones are packed around a rocky outcrop in what appears to be a natural water catchment area. The packed stones probably helped retain the water after rains for extended periods. There is no archaeological context, and the date of these circles is unknown. However, they form part of the historic long-term land use for livestock grazing, so we feel they are of low local significance (IIIC). There are other remnants of these water catchment circles, but the two recorded at these points are the most intact examples, together with a third recorded at 008, situated in front of the stone house.

Site 008 represents a small one-room stone structure with a water catchment stone circle that has been built on a large natural volcanic rock outcrop. The house's roof is gone, and the walls have been fixed at different times. The date of the building is unknown, but it could be older than 60 years. Some surface finds that were located within the dried trampled mud at the back of the house date to the late 1960s. The structure forms part of the historic long-term land use for livestock grazing, so we feel they are of low local significance (IIIC).

A possible grave was recorded close to the northern periphery of the development footprint. The grave has a few remnants of the stone cairn in an oblong shape. The grave is not clearly defined, but the grouping of stones does not appear natural. All graves are of high local significance as a result of their social and cultural value, and are therefore graded IIIA.



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4.2 Heritage Resources identified

Table 2: Observations noted during the field assessment

Obs#	Description	Type	Period	Density	Latitude	Longitude	Grade	Mitigation
2	Stone circle. The packed stones appear to attempt to retain water for livestock in natural catchment areas.	Structure	Historic	1 in 20m ²	25°28'32.70"S	27°12'59.50"E	IIIC	50m Buffer
3	Stone circle. The packed stones appear to attempt to retain water for livestock in natural catchment areas.	Structure	Historic	1 in 20m ²	25°28'57.35"S	27°12'44.67"E	IIIC	50m Buffer
4	Possible grave marked by stone cairn with north-south orientation, approximately 1.2m in length. The stone cairn is dislodged, and few stones remain	Grave	Unknown	NA	25°28'20.53"S	27°13'6.97"E	IIIA	100m Buffer
8	Stone structure with the stone circle. Some cultural material dating from the late 1960s to more modern lies behind the structure. Structure build on a natural volcanic rock outcrop.	Structure	Modern	1 in 20m ²	25°29'23.84"S	27°13'35.42"E	IIIC	50m Buffer



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4.3 Mapping and spatialisation of heritage resources

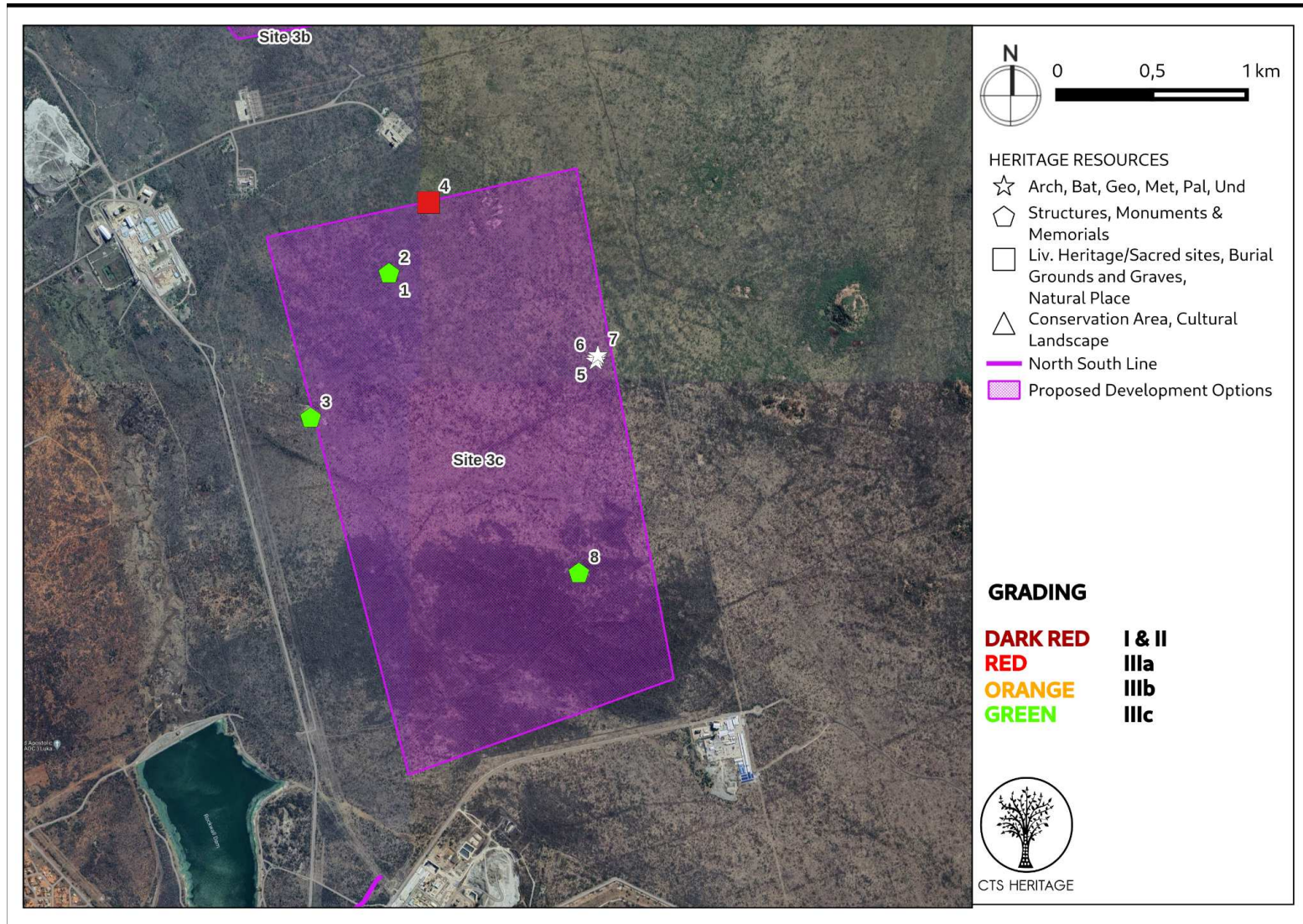


Figure 4.1: Map of sensitive receptors within the proposed development area

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5. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT

5.1 Assessment of impact to Heritage Resources

5.1.1 Cultural Landscape and Visual Impacts

The VIA completed for this project (Marshall, 2023) has identified the Landscape Character Areas that contribute to the sense of place at this site, and has used these LCAs to determine areas of visual significance. The extract below is taken from the VIA completed at the Scoping Phase:

Landscape Character Areas (LCAs) are defined as “single unique areas which are the discrete geographical areas of a particular landscape type”⁴.

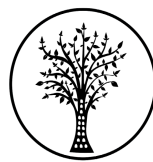
Visual Absorption Capacity (VAC) is defined as the landscape's ability to absorb physical changes without transformation in its visual character and quality. Where elements that contrast with existing landscape character are proposed, VAC is dependent on elements such as landform, vegetation and other development to provide screening of a new element. The scale and texture of a landscape is also critical in providing VAC, for example; a new large scale industrial development located within a rural small scale field pattern is likely to be all the more obvious due to its scale.

The affected landscape can be broadly divided into the following LCAs that are largely defined by land use:

- **Semi Natural Landscape Character Area** which is comprised of the undulating plains with natural and regenerating natural vegetation. The low tree cover provides significant screening;
- **Settlement Landscape Character Area** which is comprised of mainly residential usage. The density of development as well as vegetation helps to ensure that views of areas outside the LCA are only possible from the settlement edges;
- **Cleared and Cultivated LCA** which is comprised of areas of arable agriculture. Crops are generally low providing little or no enclosure or screening;
- **Mining LCA** which is comprised of all mine areas including shafts, surrounding buildings / infrastructure and associated mine dumps. The mine dumps provide significant screening;
- **Natural Protected Area LCA** which is comprised of protected areas.

The landscape in the vicinity of the proposed site has been degraded by mining and by settlement. From the site visit, it appears that natural vegetation is regenerating in areas where agriculture seems to have been abandoned. Industry and settlement has also been developed leaving wide natural areas along water courses. The area therefore has a degree of biodiversity significance and connectivity.

⁴ Landscape Institute & Institute of Environmental Management and Assessment
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In purely visual terms the local landscape is likely to be important as a living and working area. From a scenic perspective however development including settlement and mining now dominates the overall landscape character.

There are a number of protected areas located outside the ALV of the proposed project. These areas have significant importance for biodiversity, tourism and local recreation.

Table 3: Landscape Sensitivity Criteria

SIGNIFICANCE	LCA	RECEPTORS
Low	Landscape value is not recognised or the landscape is very tolerant of change. These areas include: <ul style="list-style-type: none"> ● Mining LCA. 	Small number or low sensitivity of viewers assumed. Viewers' attention not focused on landscape. These include: <ul style="list-style-type: none"> ● People visiting and travelling through the area for business, work, shopping and commercial reasons on local and main roads.
Medium	Landscape value is recognised locally, but is not protected; the landscape is relatively intact, with a distinctive character; and the landscape is reasonably tolerant of change. These areas include: <ul style="list-style-type: none"> ● Settlement LCA; ● Semi Natural LCA 	Viewer's attention is may be generally focused on the landscape. These include: <ul style="list-style-type: none"> ● People visiting and travelling through the area for recreational / tourism reasons on main roads.
High	Landscape value recognised by existing or proposed national or regional designation. Sense of tranquillity or remoteness specifically noted in Landscape Character Assessment. High sensitivity to disturbance. The qualities for which the landscape is valued are in a good condition, with a clearly apparent distinctive character. This distinctive character is susceptible to relatively small changes. These areas include: <ul style="list-style-type: none"> ● Natural Protected Area LCA. 	Viewer's attention is very likely to be focused on the landscape. e.g. users of public rights of way and access land, strategic recreational footpaths; people experiencing views from important landscape features of physical, cultural or historic interest, beauty spots and picnic areas. Large number of viewers and/or location in highly valued landscape could elevate viewer sensitivity to highest level. These include: <ul style="list-style-type: none"> ● Visitors to protected areas.

The VIA notes that the sensitivity to development relates to guiding development away from areas of the site that would make it most obvious to surrounding sensitive receptors. No areas of high sensitivity were identified and the majority of the site is considered to be low sensitivity. Medium sensitivity areas include areas on the minor ridgeline that runs through the north-eastern section of the proposed site.

The anticipated visual impacts are fully ventilated in the VIA and as such, are not considered further in this report.



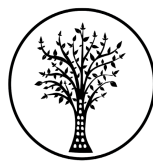
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5.1.2 Archaeology

Based on the results of the field assessment, the area proposed for development is not very sensitive for impacts to significant archaeological heritage. Three resources of low local significance were identified - Sites 002, 003 and 008. These sites relate to the historic agricultural uses of the property. It is recommended that a no development buffer of 50m is implemented around these sites.

The field assessment also identified a possible grave located on the boundary of the proposed development area. All graves are of high local significance as a result of their social and cultural value, and are therefore graded IIIA. In order to retain a sense of place associated with a final resting place, a no development buffer of 100m is recommended around this site. Furthermore, the presence of this grave indicates the potential for additional unmarked burials to be located within the development area. As such, it is recommended that a Management Plan for the ongoing conservation of these burials be developed prior to construction, along with a Guide on how to identify marked and unmarked burials and how to proceed should previously unidentified burials be uncovered during the construction process.

No impact to significant archaeological heritage is anticipated on condition that the recommended mitigation measures are implemented.



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Table 6: Impact table for Archaeological Heritage Resources impacted by the Solar Energy Facility

NATURE: The area proposed for development is known to conserve heritage resources of archaeological significance that may be impacted by the proposed development				
		Before Mitigation		After Mitigation
MAGNITUDE	H (7)	Some significant archaeological resources were identified within the development area	H (7)	Some significant archaeological resources were identified within the development area
DURATION	H (5)	Where manifest, the impact will be permanent	H (5)	Where manifest, the impact will be permanent
EXTENT	L (1)	Localised within the site boundary	L (1)	Localised within the site boundary
PROBABILITY	H (4)	It is possible that any significant archaeological resources will be impacted	L (1)	It is extremely unlikely that any significant archaeological resources will be impacted
SIGNIFICANCE	M	$(7+5+1) \times 4 = 52$	L	$(7+5+1) \times 1 = 13$
STATUS		Neutral		Neutral
REVERSIBILITY	L	Any impacts to heritage resources that do occur are irreversible	L	Any impacts to heritage resources that do occur are irreversible
IRREPLACEABLE LOSS OF RESOURCES?	L	Unlikely	L	Unlikely
CAN IMPACTS BE MITIGATED		Yes		
MITIGATION:				
<ul style="list-style-type: none"> - A 50m no-go development buffer is implemented around sites 002, 003 and 008 - A 100m no-go development buffer is implemented around sites 004 - A Management Plan for the ongoing conservation of these burials is developed prior to construction, along with a Guide on how to identify marked and unmarked burials and how to proceed should previously unidentified burials be uncovered during the construction process. 				
RESIDUAL RISK:				
Should any significant archaeological resources be impacted (however unlikely) residual impacts may occur, including a negative impact due to the loss of potentially scientific cultural resources				



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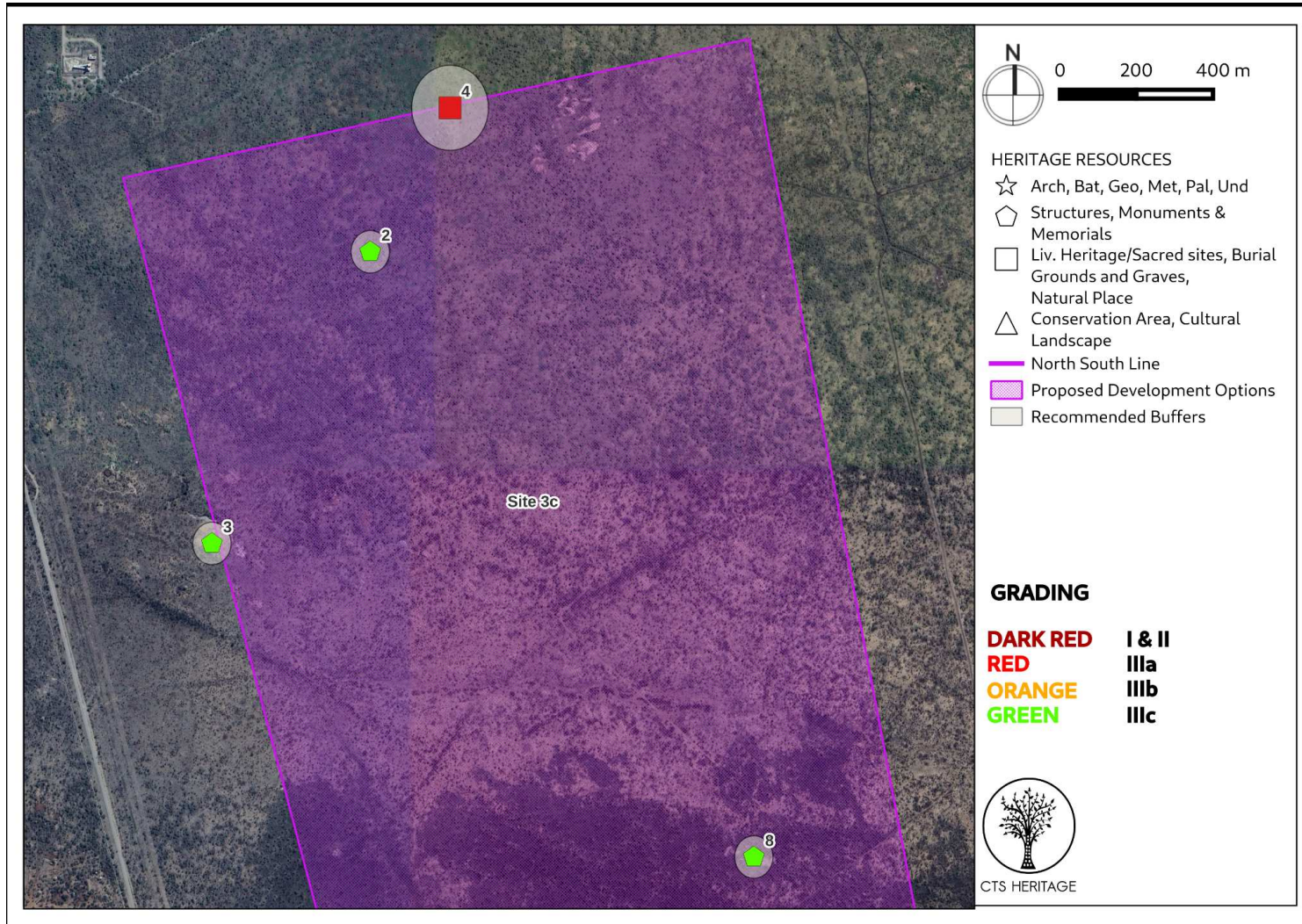


Figure 5.2: Map of heritage resources identified during the field assessment relative to the proposed development footprint

Cedar Tower Services (Pty) Ltd t/a CTS Heritage
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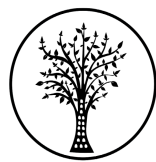


5.1.3 Palaeontology

As noted above, according to the SAHRIS Palaeosensitivity Map (Figure 4), the area proposed for development is underlain by sediments of zero palaeontological sensitivity. According to the extract from the Council of GeoScience Map for Rustenburg (Figure 5), the geology of the area consists of gabbro-norite and pyroxenite of the Rustenburg Layered Suite, Bushveld Complex which does not contain any fossil material. This geology includes platinum and is the reason why the mine has been established here. As per a recent letter for exemption from palaeontological studies completed by Butler (2022) for an adjacent property located within the same geology, “This correlates with the fact that the sediments of the Bushveld Complex are igneous in origin and thus unfossiliferous. For this reason, an overall Zero Palaeontological Sensitivity is allocated to the development footprint. Thus, the construction of the development may be authorised in its whole extent, as the development footprint is not considered sensitive in terms of palaeontological resources.” As such, it is *very unlikely that the proposed development here will impact on significant palaeontological heritage* and no further assessment of impacts to palaeontological heritage is recommended.

Table 7: Impact table for Palaeontological Heritage Resources impacted by the Solar Energy Facility

NATURE: The area proposed for development is known to conserve heritage resources of palaeontological significance that may be impacted by the proposed development				
		Before Mitigation		After Mitigation
MAGNITUDE	L (1)	No highly significant palaeontological resources were identified within the development area; and the geology underlying the development area is not sensitive for impacts to significant fossils	L (1)	No highly significant palaeontological resources were identified within the development area; and the geology underlying the development area is not sensitive for impacts to significant fossils
DURATION	H (5)	Where manifest, the impact will be permanent.	H (5)	Where manifest, the impact will be permanent.
EXTENT	L (1)	Localised within the site boundary	L (1)	Localised within the site boundary
PROBABILITY	L (1)	It is extremely unlikely that any significant paleontological resources will be negatively impacted	L (1)	It is extremely unlikely that any significant paleontological resources will be negatively impacted
SIGNIFICANCE	L	(1+5+1)x1=7	L	(1+5+1)x1=7
STATUS		Neutral		Neutral
REVERSIBILITY	L	Any impacts to heritage resources that do occur are irreversible	L	Any impacts to heritage resources that do occur are irreversible
IRREPLACEABLE LOSS OF RESOURCES?	L	Unlikely	L	Unlikely
CAN IMPACTS BE MITIGATED		Yes		
MITIGATION: NA				
RESIDUAL RISK: Should any significant palaeontological resources be impacted (however unlikely) residual impacts may occur, including a negative impact due to the loss of potentially scientific cultural resources				



5.2 Sustainable Social and Economic Benefit

From the client:

Construction and operational phase opportunities would be linked to the creation of employment and procurement opportunities. Typically, more employment opportunities associated with the construction phase (~200), and by setting local targets one can enhance opportunities for local communities. Local procurement opportunities would benefit local contractors and construction companies in the area. Given that there is an established mining sector, more than likely that there are suitably qualified contractors and engineering companies that could benefit from the project. Other benefits would be linked to improving energy security for the mine and by reducing demand for Eskom energy, this would also assist to improve energy security for other Eskom users. Development of renewable energy infrastructure also contributes towards a transition away from a coal-based energy economy and the associated broader societal benefits. The socio-economic development (SED) contributions associated with the project also benefit local communities in the area.

As such, the anticipated socio-economic benefits to be derived from the project outweigh the negative impacts to heritage resources on condition that the recommendations outlined below are implemented.

5.3 Proposed development alternatives

As noted above, **Site 3C** is the preferred site and Implats is already in the process of securing the site for the development. The Millenium substation (most likely point of integration) is adjacent to the northern border of site 3C which is the likely point of integration. Both the 66kV Eskom supply and 33kV Implats network are connected. As such, this field report only considers Site 3C.

At this stage, an alternative for the grid alignment is proposed as per the table below. It is anticipated that further detail emanating from the Scoping Phase will provide a refined final layout for assessment in the EIA Phase.

Applicant	Project Name	Capacity	Alternatives	Infrastructure components
Impala Platinum Ltd - Rustenburg	Impala Rustenburg Solar PV - facility	33kV	<ul style="list-style-type: none"> » Alternative 1: Remaining extent of the Farm Doornspruit 106 and Farm Goedgedacht 114 JQ portion 114 » Alternative 2: Portion 108 of the Farm Kleindoornspruit 108 JQ and Farm Goedgedacht 114 JQ portion 114 	Power line to the Millenium and BAF7 substation

The grid connection for the facility will consist of a facility substation and overhead power lines into the existing Millenium and BAF7 substations. The grid connection infrastructure is located within an assessment corridor of 300m wide located north and west of the project site and traverses Farm Goedgedacht 114 JQ portion 114, remaining extent of the Farm Doornspruit 106 and Portion 108 of the Farm Kleindoornspruit 108 JQ.



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5.4 Site Verification Statement

According to the DFFE Screening Tool analysis, the development area has MEDIUM levels of sensitivity for impacts to palaeontological heritage and LOW levels of sensitivity for impacts to archaeological and cultural heritage resources. The results of this assessment in terms of site sensitivity are summarised below:

- The cultural value of the broader area has some significance in terms of its mining and agricultural history (MODERATE)
- Some significant archaeological resources were identified within the broader area (MODERATE)
- No highly significant palaeontological resources were identified within the development area, and the geology underlying the development area is not sensitive at all for impacts to significant fossils (LOW)

As per the findings of this assessment, and its supporting documentation, the outcome of the sensitivity verification disputes the results of the DFFE Screening Tool for Palaeontology - this should be LOW - and disputes the results of the screening tool for archaeology and cultural heritage - this should be considered to be MODERATE. This evidence is provided in the body of this report and in the appendices (Appendix 1 and 2).

5.5 Cumulative Impacts

The cumulative impact of a development is the impact that development will have when its impact is added to the incremental impacts of other past, present or reasonably foreseeable future activities that will affect the same environment. It is important to note that the cumulative impact assessment for a particular project, like what is being done here, is not the same as an assessment of the impact of all surrounding projects. The cumulative assessment for this project is an assessment only of the impacts associated with this project, but seen in the context of all surrounding impacts. It is concerned with this project's contribution to the overall impact, within the context of the overall impact. But it is not simply the overall impact itself.

The most important concept related to a cumulative impact is that of an acceptable level of change to an environment. A cumulative impact only becomes relevant when the impact of the proposed development will lead directly to the sum of impacts of all developments causing an acceptable level of change to be exceeded in the surrounding area. If the impact of the development being assessed does not cause that level to be exceeded, then the cumulative impact associated with that development is not significant.

In terms of cumulative impacts to heritage resources, impacts to archaeological and palaeontological resources are sufficiently dealt with on a case by case basis. The primary concern from a cumulative impact perspective would be to the cultural landscape. The cultural landscape is defined as the interaction between people and the places that they have occupied and impacted. In some places in South Africa, the cultural landscape can be more



than 1 million years old where we find evidence of Early Stone Age archaeology (up to 2 million years old), Middle Stone Age archaeology (up to 200 000 years old), Later Stone Age archaeology (up to 20 000 years old), evidence of indigenous herder populations (up to 2000 years old) as well as evidence of colonial frontier settlement (up to 300 years old) and more recent agricultural layers.

Modern interventions into such landscapes, such as renewable energy development, constitute an additional layer onto the cultural landscape which must be acceptable in REDZ areas. The primary risk in terms of negative impact to the cultural landscape resulting from renewable energy development lies in the eradication of older layers that make up the cultural landscape. There are various ways that such impact can be mitigated.

In terms of impacts to heritage resources, it is preferred that this kind of infrastructure development is concentrated in one location and is not sprawled across an otherwise agricultural landscape. The proposed development is therefore unlikely to result in unacceptable risk or loss, nor will the proposed development result in a complete change to the sense of place of the area or result in an unacceptable increase in impact due to its location within an existing mining footprint. The landscape within which the proposed project areas are located, is not worthy of formal protection as a heritage resource and has the capacity to accommodate such development from a heritage perspective.

Table 8: Cumulative Impact Table

NATURE: Cumulative Impact to the sense of place				
		Overall impact of the proposed project considered in isolation		Cumulative impact of the project and other projects in the area
MAGNITUDE	M (6)	Moderate	L (2)	Low
DURATION	M (3)	Medium-term	H (4)	Long-term
EXTENT	L (1)	Low	L (1)	Low
PROBABILITY	M (3)	Probable	M (3)	Probable
SIGNIFICANCE	M	$(6+3+1) \times 3 = 30$	M	$(2+4+1) \times 3 = 21$
STATUS		Negative		Negative
REVERSIBILITY	H	High	L	Low
IRREPLACEABLE LOSS OF RESOURCES?	M	Possible	M	Possible
CAN IMPACTS BE MITIGATED		NA		NA
CONFIDENCE IN FINDINGS: High				
MITIGATION: Implementation of recommendations in the VIA				



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6. RESULTS OF PUBLIC CONSULTATION

As this application is made in terms of NEMA, the public consultation on the HIA will take place with the broader public consultation process required for the Environmental Impact Assessment process and will be managed by the lead environmental consultants on the project.

7. CONCLUSION

Even though the area is rich in history, no significant archaeological heritage resources were identified during the field assessment. No significant Stone Age or Iron Age heritage resources were identified during the survey. The few heritage resources that were identified consist of the ruins of older farm structures and kraals. Due to the paucity of older farm structures in the area as a result of demolition, it is recommended that the identified ruins and kraals remain untouched and that a safety buffer should exist around all such structures.

The field assessment identified one likely grave on the edge of the proposed development footprint of the solar PV facility. All graves are of high local significance as a result of their social and cultural value, and are therefore graded IIIA.

While no Stone Age or Iron Age archaeological resources were identified during the field assessment, it is clear that this landscape is sensitive for impacts to historical archaeology in the form of ruins and kraals, as well as marked and unmarked burial grounds and graves. Appropriate mitigation measures are detailed below.

8. RECOMMENDATIONS

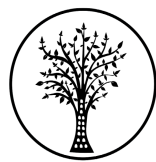
Based on the outcomes of this report, it is not anticipated that the proposed development of the solar energy facility will negatively impact on significant archaeological heritage on condition that:

- The mitigation measures detailed in Table 2 above are implemented in the development layout. These include a no development buffer of 100m around the identified grave (Site 004) and a no development buffer of 50m around sites 002, 003 and 008.
- A Management Plan for the ongoing conservation of these burials is developed prior to construction, along with a Guide on how to identify marked and unmarked burials and how to proceed should previously unidentified burials be uncovered during the construction process.
- Although all possible care has been taken to identify sites of cultural importance during the investigation of the study area, it is always possible that hidden or subsurface sites could be overlooked during the assessment. If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils, burials or other categories of heritage resources are found during the proposed



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development, work must cease in the vicinity of the find and SAHRA must be alerted immediately to determine an appropriate way forward.



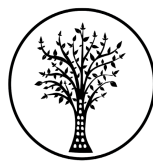
9. REFERENCES

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
2040	AIA Phase 1	Jaco van der Walt	30/09/2011	Archaeological Impact Assessment FOR THE PROPOSED WBJV MASEVE PLATINUM PROJECT ON PORTION 2 OF THE FARM ELANDSFONTEIN 102 JQ AND VARIOUS PORTIONS OF THE FARM FRISCHGEWAAGD 96 JQ
5526	AIA Phase 1	Johnny Van Schalkwyk	01/06/2003	A Survey of Cultural Resources in the Boitekong Township Development Area, Rustenburg District, North West
5528	AIA Phase 1	Anton van Vollenhoven, Anton Pelser	01/05/2008	A Report on a Cultural Heritage Impact Assessment for the Proposed Development of the Bellevue Extension 3 Residential Town, Located in the Rustenburg Local Municipality, Northwest Province
5540	AIA Phase 1	Julius CC Pistorius	01/08/2000	An Archaeological Scoping Report Supplemented with a Phase 1 Archaeological Survey for SA Chrome's Proposed New Ferrochrome Smelter on the Farm Boschhoek 103 JQ in the Rustenburg District of the Central Bankeveld in the North West Province
5541	AIA Phase 1	Julius CC Pistorius	01/10/2001	Rasimone Platinum Mine on the Farms Boschkoppie 104 JQ and Styl drift 90 JQ
5547	AIA Phase 1	Julius CC Pistorius	09/02/2003	A Heritage Impact Assessment (HIA) for SA Ferrochrome's New Proposed Expansion Operations in Boschhoek, North of Rustenburg in the North-West Province of South Africa
5553	AIA Phase 1	Udo Kusel	10/03/2005	Cultural Heritage Impact Assessment Cape Archaeological Survey CChan Extension 3 Rustenburg
5554	AIA Phase 1	Cobus Dreyer	28/06/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Development Site at the Farm Wildebeestfontein JQ 274, Rustenburg, North West Province
5559	AIA Phase 1	Julius CC Pistorius	01/05/2007	A Phase I Heritage Impact Assessment (HIA) Study for Eskom's Proposed New 3X88 kV Power Lines Between the Marang Substation and Impala Platinum's Shaft 16 in the North West Province of South Africa
5563	AIA Phase 1	Anton van Vollenhoven, Anton Pelser	01/11/2007	A Report on a Cultural Heritage Impact Assessment at the Site for the Proposed New Laying House on the Farm Bulhoek 368 JP, Northwest Province
5567	AIA Phase 1	Johnny Van	01/09/1996	A Survey of Cultural Resources in the Bafokeng District, North West



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		Schalkwyk		
5574	AIA Phase 1	Polke Birkholtz, A van Rooyen	26/02/2004	Cultural Heritage Impact Assessment as Part of the Environmental Scoping Report for the Proposed Cape Archaeological Survey CChan Extension 7 Residential Development on the Remainder of Portion 43 of the Farm Waterval 306 JQ in North West Province, SA
5581	AIA Phase 1	Julius CC Pistorius	01/02/2006	A Phase 1 Heritage Impact Assessment (HIA) Study for the Impala Platinum Shaft 17 Complex on the Farm Vlakfontein 276 JQ near Rustenburg in the North-West Province of South Africa
5830	AIA Phase 1	McEdward Murimbika	01/04/2008	Phase 1 Archaeological and Cultural Heritage Assessment Specialist Study for the Proposed Construction of Trident to Koster Power-Line in the Bojanala District Municipality, North West Province
6125	AIA Phase 1	Udo Kusel	01/08/2007	Cultural Heritage Resources Impact Assessment of Quality Vacation Club and a Golf Course at Sun City (Farm Ledig 909 JQ) North West Province
6127	AIA Phase 1	Julius CC Pistorius	01/04/2004	A Heritage Impact Assessment Study for Impact Platinum's Proposed New No. 16 Shaft Complex on the Farm Reinkoyalskraal 278 JQ in the Bokone-Bothlaba District Municipality of the North-West Province
6202	AIA Phase 1	Thomas Huffman	01/02/2005	The Archaeology of the Anglo Platinum Lease Area, Rustenburg
6315	AIA Phase 1	Thomas Huffman	01/08/2002	Archaeological Study of the Boschfontein East Options, Rustenburg
7138	AIA Phase 1	Johnny Van Schalkwyk	01/06/2001	A Survey of Cultural Resources on the Farm Kroondal 304 JQ, East of Rustenburg,
7366	AIA Phase 1	Jaco van der Walt	29/06/2007	Proposed Platinum Mining on Portions of the Farms Ledig 909 JQ, Frischgewaagd 96 JQ & Mimosa 81 JQ, North West Province
7631	AIA Phase 1	Johnny Van Schalkwyk	01/09/2008	Archaeological Impact Survey Report for the Proposed Phokeng Bypass Road Between the Rustenburg N4 Interchange and the R565 Junctions, North-West Province
8209	AIA Phase 1	Johnny Van Schalkwyk	01/10/2008	Archaeological impact survey report for the proposed development on Waagfontein 89 JQ, Mankwe Magisterial District, North West Province
8234	AIA Phase 1	Anton van Vollenhoven, Anton Pelser	01/02/2008	A Report on a Heritage Impact Assessment for the Proposed Development of Waterval East Extension 7 in Rustenburg, North West Province
8236	AIA Phase 1	Anton van Vollenhoven	01/02/2008	A Report on a Heritage Impact Assessment for the Proposed Development of Waterval Portion 8 in Rustenburg, North West Province



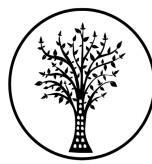
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		n, Anton Pelsers		
8238	AIA Phase 1	Anton van Vollenhoven	01/09/2008	A Report on a Cultural Heritage Impact Assessment for the Proposed Industrial Town Development on Holdings Re/31 and 3/31 of the Waterval Smallholdings, North West Province
8255	AIA Phase 1	Thomas Huffman	01/03/2002	Archaeological Study for the Western Limb Tailings Re-Treatment Project, Rustenburg
8306	AIA Phase 1	Wouter Fourie	09/11/2007	Ingwe Eco Estate Archaeological Impact Assessment. Residential Development on Portion 71 of the Farm Wysfontein 427 JP, North West Province
8374	HIA Phase 1	McEdward Murimbika	01/10/2008	Phase 1 Archaeological and Heritage Impact Assessment Specialist Study Report. Proposed Construction of a New 6 km 88 kV Koster Powerline in Kgetheng Local Municipality, Bojanala District, North West Province
8484	HIA Phase 1	Robert de Jong	01/09/2008	Final Heritage Impact Assessment Report: Proposed Western Bypass Road (Phokeng Bypass Road) of 10 km Between the Rustenburg N4 Interchange and the R565 Junctions, North-West Province
8498	HIA Phase 1	Johnny Van Schalkwyk	03/01/2008	Heritage Survey Report for the Upgrading of a Section of Road P16/1 (R30), Rustenburg Magisterial District, North West Province
66846	HIA Phase 1	Francois P Coetzee	01/01/2012	Cultural Heritage Survey of the Proposed New Ventilation Shaft Phase 3 Project, Bafokeng Rasimone Platinum Mine, North West Province
89339	HIA Phase 1	Makhosazana Mngomezulu	01/07/2012	Heritage Impact Assessment: THE PROPOSED DEVELOPMENT OF A HOTEL, CONFERENCE AND WEDDING FACILITIES, HEALTH SPA AND RECREATIONAL FACILITIES ON PORTION 48 (A PORTION OF PORTION 39) OF THE FARM RIETVLY 271 JQ, RUSTENBURG, NORTH WEST PROVINCE
115025	HIA Phase 1	Julius CC Pistorius	01/07/2012	A PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR IMPALA PLATINUM LIMITED'S (IMPALA) PROPOSED OPEN CAST PIT 8C AND THE EXPANSION OF THE SHAFT 16 WASTE ROCK DUMP IN THE NORTH-WEST PROVINCE
117447	Heritage Impact Assessment	Anton van Vollenhoven	15/03/2012	A REPORT ON A HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED STRUMOSA SOLID WASTE TRANSFER STATION NEAR RUSTENBURG IN THE NORTHWEST PROVINCE
145611	Heritage Impact Assessment Specialist Reports	Anton van Vollenhoven	30/09/2013	Heritage Impact Assessment for the proposed Waterval Retrofit E-Feed Project located in Rustenburg, North West Province.



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161099	AIA Phase 1	Anton van Vollenhoven	01/02/2014	A REPORT ON THE UPDATING OF A PREVIOUS CULTURAL HERITAGE IMPACT ASSESSMENT FOR THE EMPR ALIGNMENT AND CONSOLIDATION PROCESS AT ANGLO AMERICAN PLATINUM: RUSTENBURG PLATINUM MINES – RUSTENBURG SECTION, NORTHWEST PROVINCE
163216	HIA Phase 1	Julius CC Pistorius	06/05/2014	Phase I Base Line Heritage study for the proposed Glencore Merafe Venture Operation - Boshhoek Operations near Boshhoek in the North-West Province of South Africa
182083	Archaeological Specialist Reports	Munyadziwa Magoma	18/01/2016	PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT SPECIALIST STUDY REPORT FOR THE PROPOSED RUSTENBURG STRENGTHENING PROJECT WITHIN RUSTENBURG LOCAL MUNICIPALITY OF BOJANALA MUNICIPALITY. NORTH WEST PROVINCE.
182084	PIA Desktop	JF Durand	15/02/2014	Proposed construction of Marang B - a new 3 x 500MVA 400/132kV Main Transmission Substation east of Rustenburg, North West Province
252212	Heritage Scoping	Johnny Van Schalkwyk	01/10/2013	Cultural heritage impact assessment for the PROPOSED TOWNSHIP DEVELOPMENT ON PORTIONS OF THE FARM ROOIWAL 285JQ, NORTH WEST PROVINCE
289598	Heritage Impact Assessment	Natasha Higgitt, Johan Nel	23/06/2015	Environmental Authorisation Application: Prospecting Right Application for Paardekraal 279JQ & Waterval 306JQ, Phase 2 Draft Heritage Basic Assessment Report
289748		Natasha Higgitt	23/06/2015	Environmental Authorisation Application: Prospecting Right Application for Waterval 306JQ, Phase 2 Notification of Intent to Develop:
289754		Natasha Higgitt	23/06/2015	Environmental Authorisation Application: Prospecting Right Application for Paardekraal 279JQ, Phase 2 Notification of Intent to Develop
316019	HIA Phase 1	Makhosazana Mngomezulu	10/06/2015	Phase 1 Heritage Impact Assessment for Section 24G rectification process and Water Use License Application for the chrome crushing, screening and washing plant on portion 8 of the Boshhoek 103 JQ in Rustenburg, Bojanala Platinum District Municipality, North West Province
361026	HIA Phase 1	Polke Birkholtz	31/03/2016	PROPOSED CHANGES TO INFRASTRUCTURE AT BAKUBUNG PLATINUM MINE, LEDIG, BOJANALA DISTRICT MUNICIPALITY, NORTH WEST PROVINCE Remaining Extent and Portions 1, 3, 4 and 11 of the farm Frischgewaagd 96 JQ and the Remainder of the farm Mimosa 81 JQ
361026	HIA Phase 1	Polke Birkholtz	31/03/2016	PROPOSED CHANGES TO INFRASTRUCTURE AT BAKUBUNG PLATINUM MINE, LEDIG, BOJANALA DISTRICT MUNICIPALITY, NORTH WEST PROVINCE Remaining Extent and Portions 1, 3, 4 and 11 of the farm Frischgewaagd 96 JQ and the Remainder of the farm Mimosa 81 JQ



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361026	HIA Phase 1	Polke Birkholtz	31/03/2016	PROPOSED CHANGES TO INFRASTRUCTURE AT BAKUBUNG PLATINUM MINE, LEDIG, BOJANALA DISTRICT MUNICIPALITY, NORTH WEST PROVINCE Remaining Extent and Portions 1, 3, 4 and 11 of the farm Frischgewaagd 96 JQ and the Remainder of the farm Mimosa 81 JQ
364140	AIA Phase 1	Julius CC Pistorius	01/05/2013	A PHASE I HERITAGE IMPACT ASSESSMENT FOR IMPALA PLATINUM LIMITED (IMPLATS) PROPOSED NEW SHAFT 18 COMPLEX IN THE RUSTENBURG (BAFOKENG) DISTRICT IN THE NORTH-WEST PROVINCE (WITH AMENDMENTS TO THE SHAFT 18 COMPLEX IN ORDER TO AVOID SITES LIA03 AND SITE LIA04)
368189	HIA Phase 1	Julius Pistorius	29/07/2016	A HERITAGE ASSESSMENT STUDY FOR IMPALA PLATINUM LIMITED'S (IMPALA) PROPOSED PROSPECTING DRILL HOLES ON THE FARM DIEPKUIL 116JQ IN THE RUSTENBURG DISTRICT IN THE NORTH-WEST PROVINCE
374016	AIA Phase 1	Neels Kruger	02/11/2015	Archaeological Impact Assessment: Proposed Rustenburg Extension 30 Township Establishment on the Remaining Extent of Portion 1 of the farm Town and Townlands of Rustenburg 272-JQ, Rustenburg Local Municipality, North West Province



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APPENDICES



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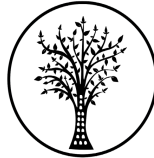
APPENDIX 1: Archaeological Assessment (2023)

ARCHAEOLOGICAL SPECIALIST STUDY

In terms of Section 38(8) of the NHRA for the

Proposed development of a solar PV plant and Battery energy storage system (BESS) to be located on Impala Platinum's Rustenburg operation site, North West

Prepared by



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Of Ubique Heritage Consultants

In Association with

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July 2023



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EXECUTIVE SUMMARY

Impala Platinum are being affected by loadshedding, sharply rising electricity supply costs and need to reduce their carbon footprint. The Rustenburg platinum complex is mostly located on Royal Bafokeng property. ESP did a Concept study for them recommending onsite solar PV and possible BESS. They have identified a preferred site (+/- 450 ha) which would be the target area for the EIA. At this point in time, they plan a phased development of 30MW x 3 and 60MW over a 4 to 5 year period.

Site 3C is the preferred site and Implats is already in the process of securing the site for the development. The Millenium substation (most likely point of integration) is adjacent to the northern border of site 3C which is the likely point of integration. Both the 66kV Eskom supply and 33kV Implats network are connected. As such, this field report only considers Site 3C.

Even though the area is rich in history, no significant archaeological heritage resources were identified during the field assessment. No significant Stone Age or Iron Age heritage resources were identified during the survey. The few heritage resources that were identified consist of the ruins of older farm structures and kraals. Due to the paucity of older farm structures in the area as a result of demolition, it is recommended that the identified ruins and kraals remain untouched and that a safety buffer should exist around all such structures.

The field assessment identified one likely grave on the edge of the proposed development footprint of the solar PV facility. All graves are of high local significance as a result of their social and cultural value, and are therefore graded IIIA.

While no Stone Age or Iron Age archaeological resources were identified during the field assessment, it is clear that this landscape is sensitive for impacts to historical archaeology in the form of ruins and kraals, as well as marked and unmarked burial grounds and graves. Appropriate mitigation measures are detailed below.

Recommendations

Based on the outcomes of this report, it is not anticipated that the proposed development of the solar energy facility will negatively impact on significant archaeological heritage on condition that:

- The mitigation measures detailed in Table 2 above are implemented in the development layout. These include a no development buffer of 100m around the identified grave (Site 004) and a no development buffer of 50m around sites 002, 003 and 008.
- A Management Plan for the ongoing conservation of these burials is developed prior to construction, along with a Guide on how to identify marked and unmarked burials and how to proceed should previously unidentified burials be uncovered during the construction process.
- Although all possible care has been taken to identify sites of cultural importance during the investigation of the study area, it is always possible that hidden or subsurface sites could be overlooked during the assessment. If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics,



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bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils, burials or other categories of heritage resources are found during the proposed development, work must cease in the vicinity of the find and SAHRA must be alerted immediately to determine an appropriate way forward.



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1. INTRODUCTION

1.1 Background Information on Project

Impala Platinum are being affected by loadshedding, sharply rising electricity supply costs and need to reduce their carbon footprint. The Rustenburg platinum complex is mostly located on Royal Bafokeng property. ESP did a Concept study for them recommending onsite solar PV and possible BESS. They have identified a preferred site (+/- 450 ha) which would be the target area for the EIA. At this point in time, they plan a phased development of 30MW x 3 and 60MW over a 4 to 5 year period.

Site 3C is the preferred site and Implats is already in the process of securing the site for the development. The Millenium substation (most likely point of integration) is adjacent to the northern border of site 3C which is the likely point of integration. Both the 66kV Eskom supply and 33kV Implats network are connected. As such, this field report only considers Site 3C.

1.2 Description of Property and Affected Environment

The study terrain is predominantly flat, with open trees, shrubs, and grasses. Rocky outcrops are scattered throughout the development site. The proposed site footprint has been disturbed by agricultural activities in the past, such as repeated livestock grazing. Numerous volcanic and quartzite outcrops are visible throughout the site footprint but are especially prominent in the dry riverbed. The soil is turf with a high clay component.

The vegetation consists predominantly of deciduous, open short thorny woodland, dominated by *Acacia* species with a layer of grasses. Dry riverbeds traverse the footprint from the northwest towards the south, southeast of the footprint. There are various water catchment areas, especially around the volcanic rock outcrops. The site is bounded north, south, east and west by veld and mining infrastructure.

Repeated livestock movement across the site has disturbed the soil throughout the development footprint. Flooding and animal movement have left deep scars in some footprint areas. Scraped road debris with earth-moving equipment can be seen in the northern section of the footprint. The area shows evidence of long-term livestock grazing. The surface soils suffer continuous disturbance by animal movement.



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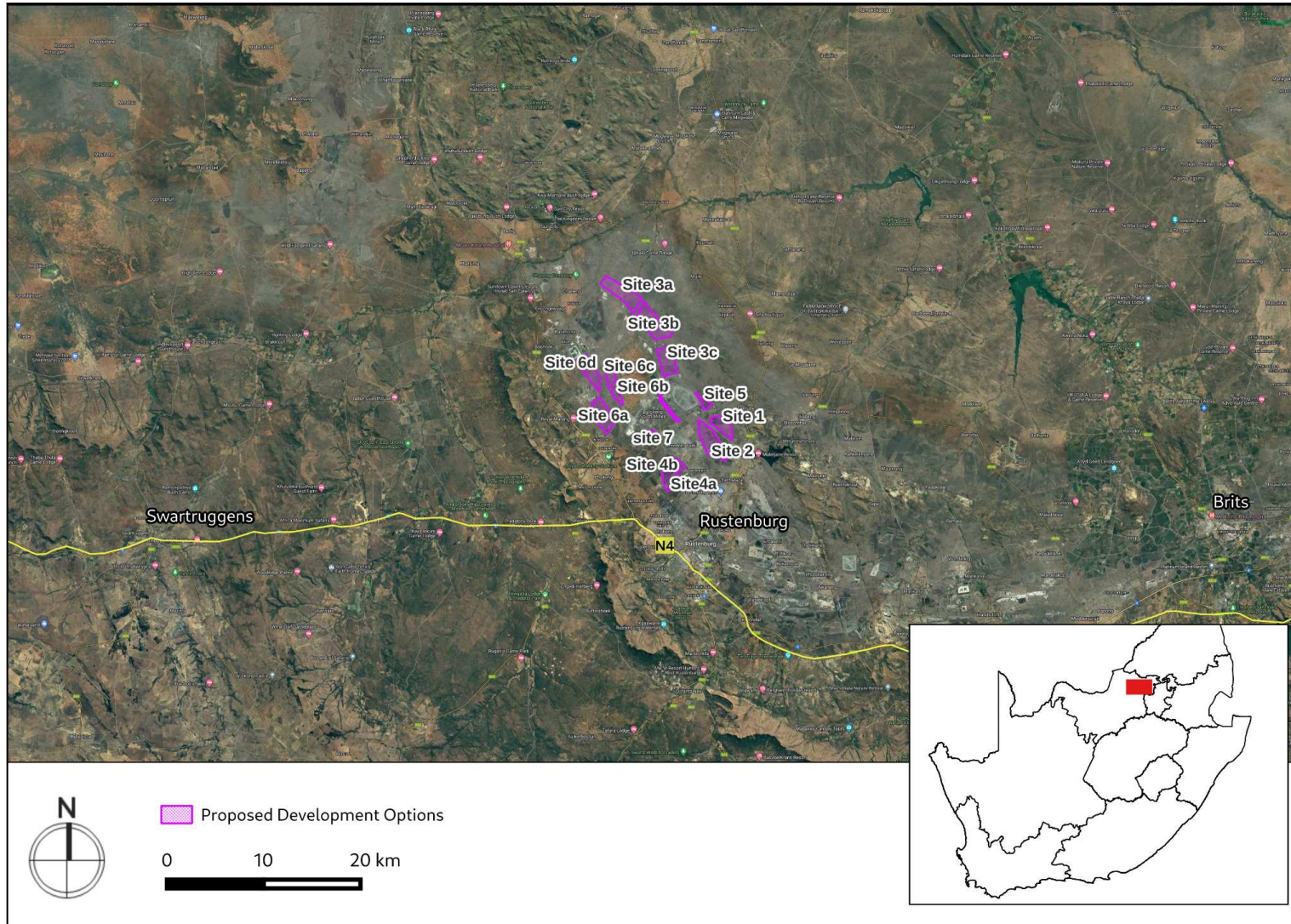
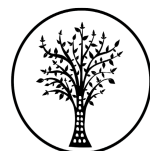


Figure 1.1: Satellite image indicating proposed location of development



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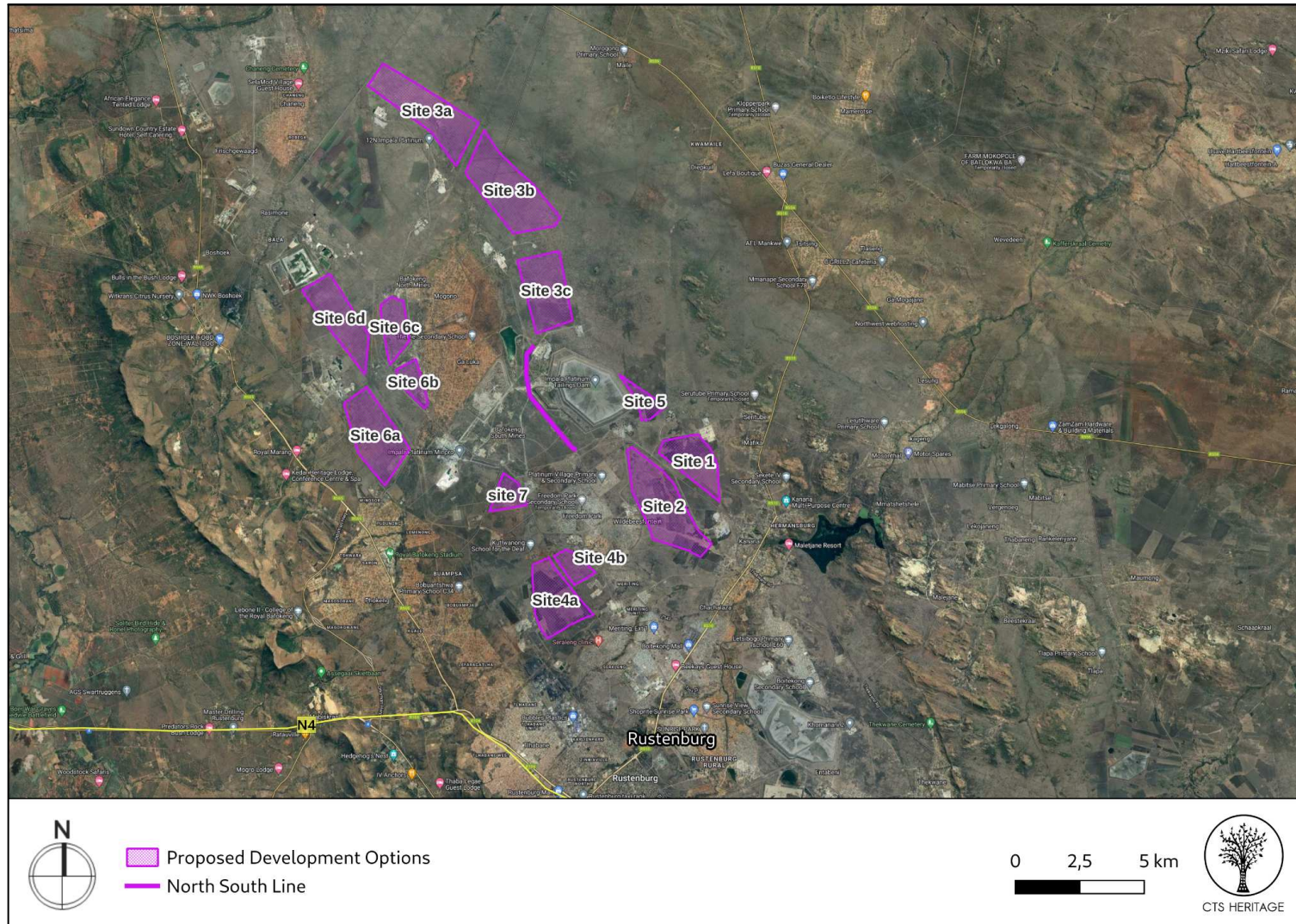


Figure 1.2: Project boundary with proposed layout



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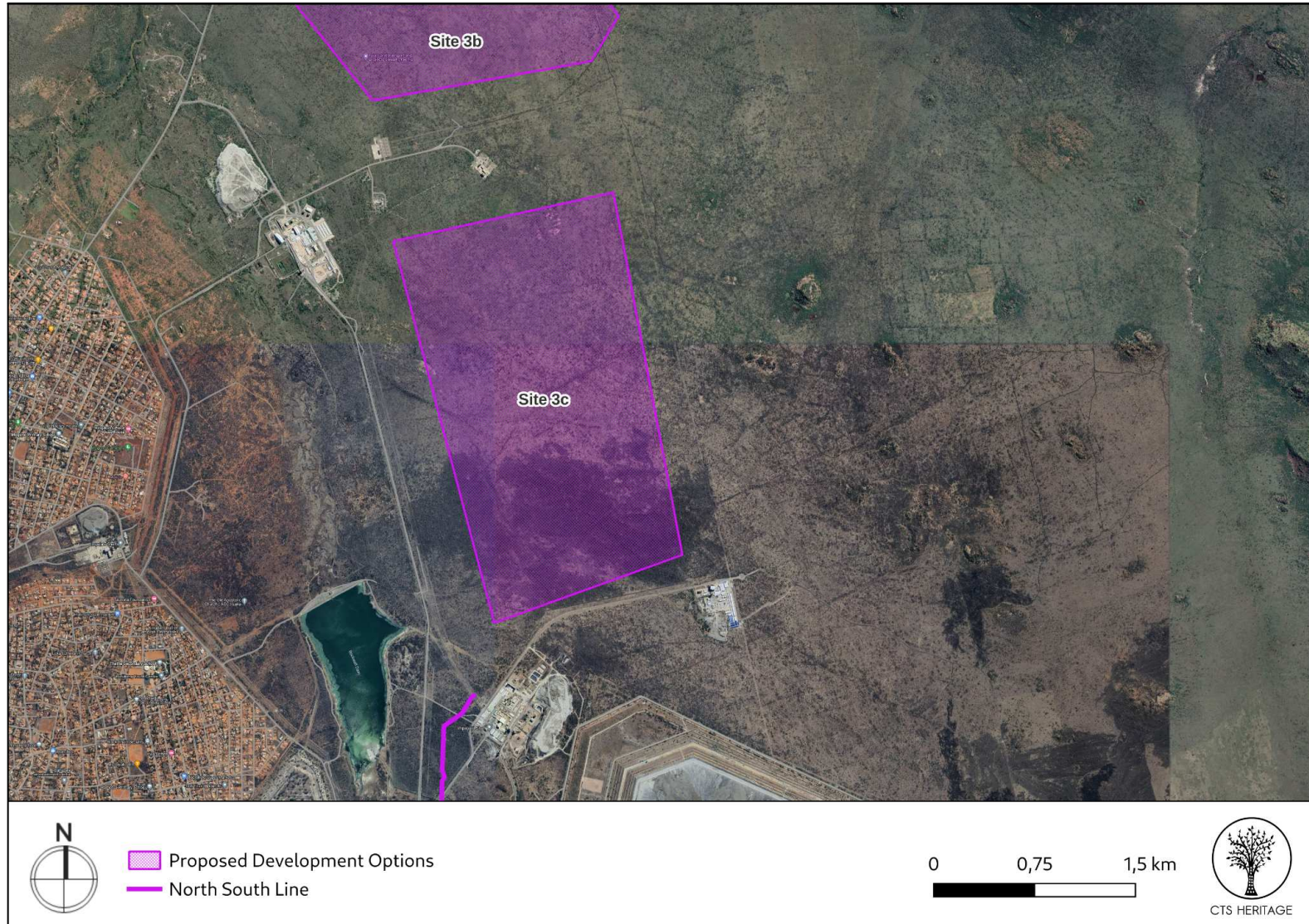
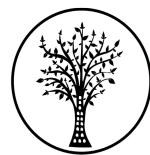


Figure 1.3. Overview Map. Satellite image (2022) indicating the proposed development area at closer range.



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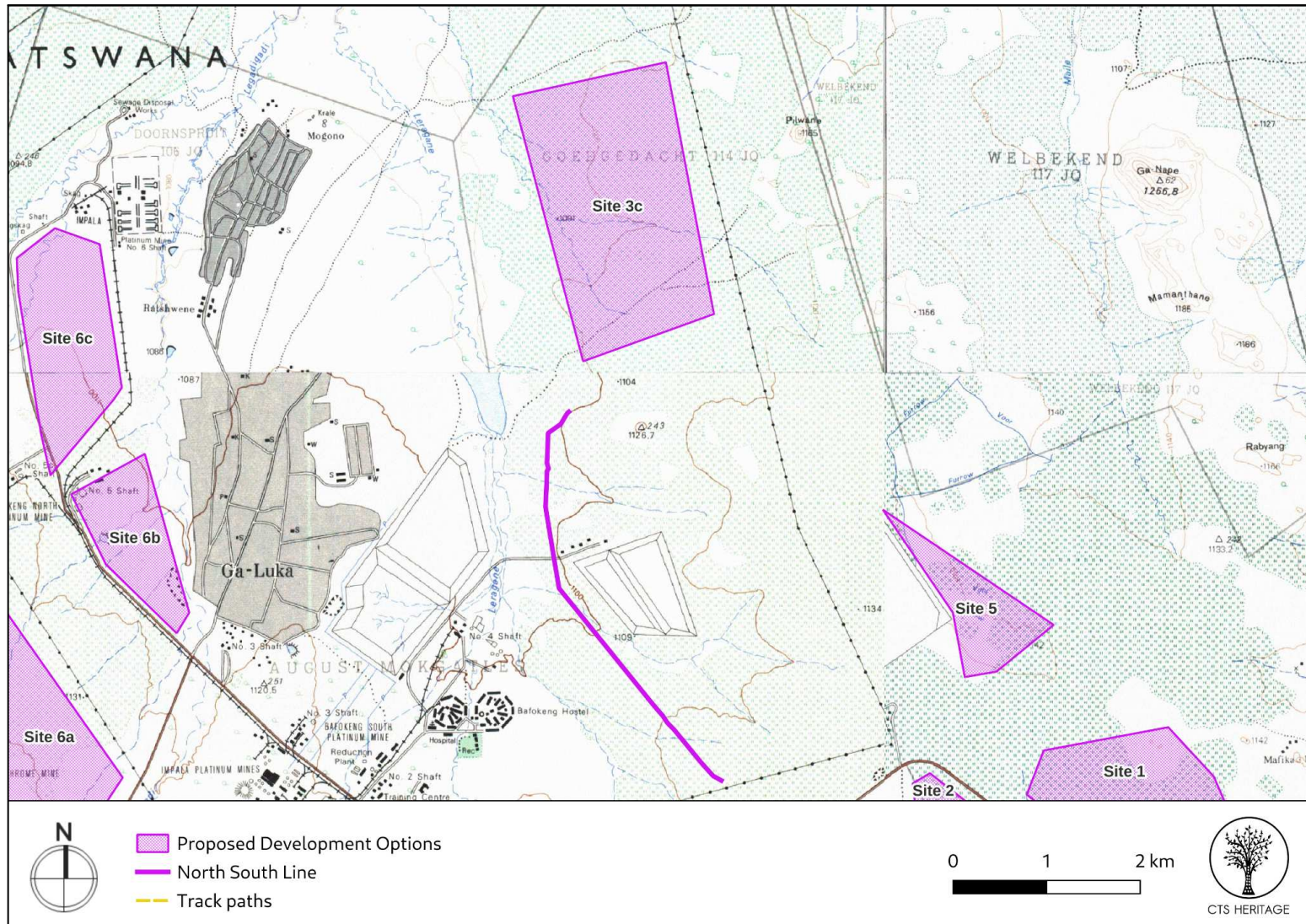


Figure 1.4: Project boundary on the 1:50 000 Topo Map



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2. METHODOLOGY

2.1 Purpose of Archaeological Study

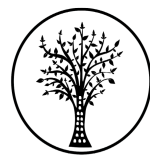
The purpose of this archaeological study is to satisfy the requirements of section 38(8), and therefore section 38(3) of the National Heritage Resources Act (Act 25 of 1999) in terms of impacts to archaeological resources.

2.2 Summary of steps followed

- An archaeologist conducted a survey of the site and its environs on 13 and 14 July 2023 to determine what archaeological resources are likely to be impacted by the proposed development.
- The area proposed for development was assessed on foot, photographs of the context and finds were taken, and tracks were recorded using a GPS.
- The identified resources were assessed to evaluate their heritage significance in terms of the grading system outlined in section 3 of the NHRA (Act 25 of 1999).
- Alternatives and mitigation options were discussed with the Environmental Assessment Practitioner.

2.3 Constraints & Limitations

No constraints or limitations were experienced during the field assessment.



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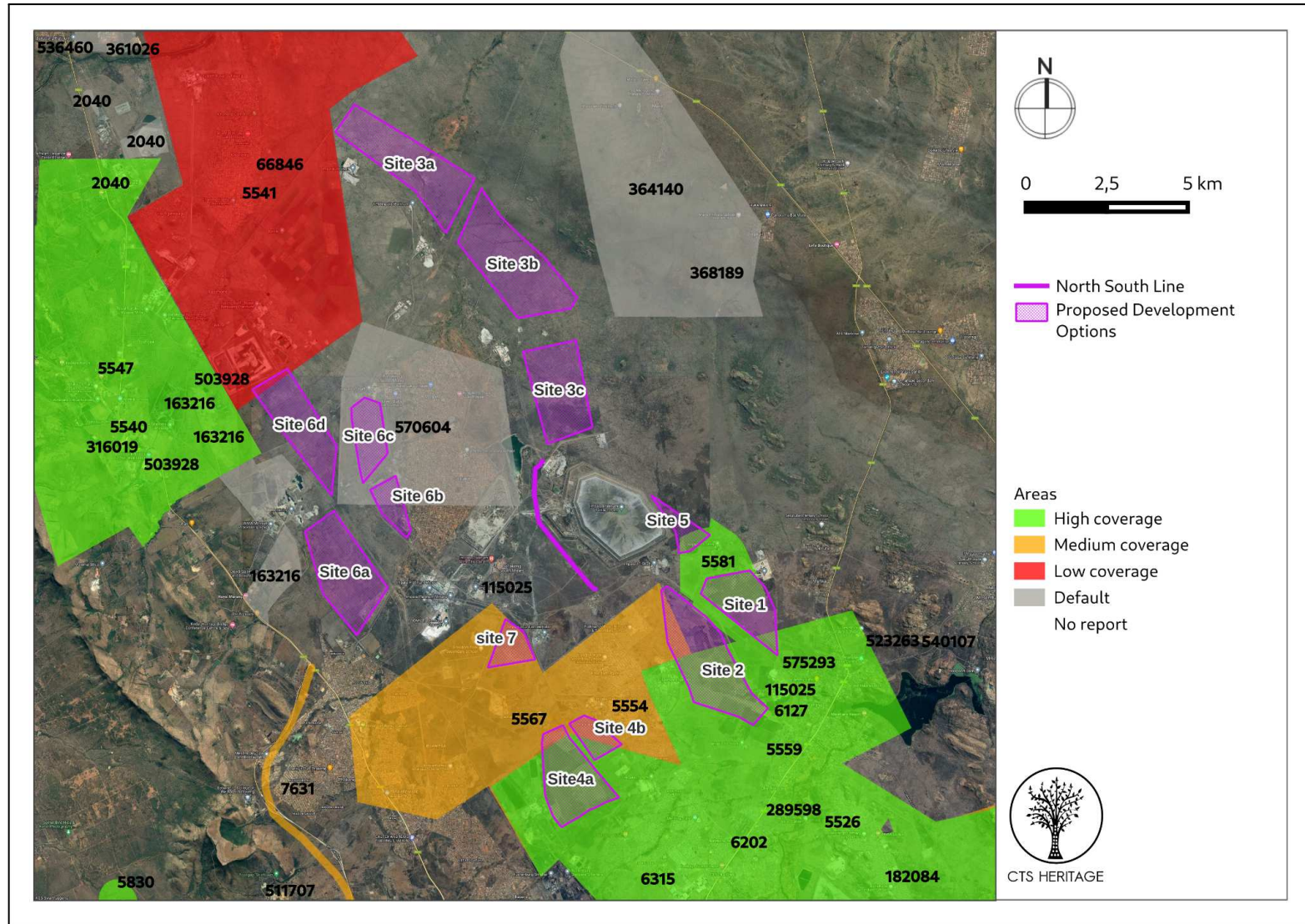


Figure 2: Close up satellite image indicating proposed location of development in relation to heritage studies previously conducted



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3. HISTORY AND EVOLUTION OF THE SITE AND CONTEXT

Background

This application is for the proposed development of a solar PV facility to support the activities at the Impala Platinum Mine located immediately north of Rustenburg in the North West Province. A number of options are proposed for review for the proposed PV infrastructure, however it has been noted that the preferred development area is mapped as Area 3c in the maps above.

Cultural Landscape

Rustenburg town was established at the foot of the Magaliesburg in 1851 as an administrative centre for the farmers of the broader region, and received its first church under a syringa tree in 1859. During the 1800's, more and more farmers settled in the area. The streets are lined with the ubiquitous jacaranda tree. It started out as a small farming community producing citrus and Virginia tobacco and still manages to retain its small-town atmosphere¹. The area surrounding Rustenburg was heavily impacted by the outbreak of both of the Anglo-Boer Wars. The siege of Rustenburg was a siege that took place between 1880 and 1881 during the first war. The siege was carried out by Boer forces on the British controlled town. Some of the final, decisive battles of the South African War were fought in and around the mountains near Hekpoort. During the war's guerilla phase, the maze of mountains provided a conduit by which the Boer forces moved through occupied territory². British blockhouses can still be seen guarding the approaches to some of the well-known passes³. It is possible that remnants of battlefields and other infrastructure are located within the areas proposed for development.

In 1925, a seam of platinum-bearing rock was discovered outside of Rustenburg which resulted in the accelerated growth of the town and the establishment of the Impala Platinum mine. All of the options under consideration in this assessment are located within the existing mines boundaries. As such, it is unlikely that the proposed development will negatively impact on any significant cultural landscape as the development will be read as part of the existing mine infrastructure.

Archaeology

Archaeological sites spanning the Earlier, Middle and Later Stone Age have been found in the region despite the extensive agricultural transformation of the area. According to Van Schalkwyk (2015), "No stratified sites dating to the Stone Age are known from the region. However, surface scatters of tools dating to the Early Stone Age are known to occur in the region of the Vaal River. Apart from that, rock engravings dating to the Late Stone Age are known from various sites in the larger region." He goes on to note that "The occupation of the larger geographical area (including the study area) did not start much before the 1500s. By the 16th century things changed, with the climate becoming warmer and wetter, creating conditions that allowed Late Iron Age (LIA) farmers to occupy areas previously unsuitable, for example the Witwatersrand and the treeless plains of the Free State. The earliest Iron Age settlers who moved into

¹ <https://www.century21.co.za/area-profiles/rustenburg/>

² <https://www.theheritageportal.co.za/article/battles-magaliesberg>

³ <https://southafrica.co.za/history-rustenburg.html>



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the North-West Province region were Sothospeaking groups such as the Hurutshe, Kwena, Fokeng, Kgatla and Rolong.” As such, stone age archaeology, Iron age archaeology and archaeological heritage associated with the colonial occupation of the region are known to be present in the broader area.

A broad history of the area is included in Murimbika (2010) and is referred to here. According to Murimbika (2010), the broader region has also yielded some significant Iron Age Sites such as the Mzonjani facies Broederstroom site (AD 430 to AD 780). According to Murimbika (2010), the broader region was subject to a number of instances of migration and settlement from 450 AD. Evidence indicates that Sotho-Tswana groups migrated in and out of the Magaliesberg region, and such groups are responsible for the many early stone-walled settlements in this region. One of the most documented migrations is the Mfecane (forced migration or scattering) which was a period of widespread chaos and warfare among indigenous ethnic communities in southern Africa during the period between 1815 and about 1840. During this time, the Ndebele under Mzilikazi reached the Magaliesberg region and are responsible for introducing the Doornspruit-type walled settlements that are known from this region. According to Murimbika (2010) this type of stone-walled settlement represents “typical Nguni-Sotho-Tswana acculturation”. By the mid-1800’s, Voortrekkers had begun to settle in the foothills of the Magaliesberg mountains and in so doing, clashed with Mzilikazi’s Ndebele in 1837. These early colonial battles forced the Ndebele north of the Limpopo River and effectively ended the independence of African Chiefdoms in the area. The Voortrekkers went on to establish the Republic of the Transvaal.

Previous heritage impact assessments conducted in the area have identified a number of heritage resources (Figure 3 and 3a, Appendix 1). These resources are largely associated with the extensive agricultural and mining past of the region and reflect historic farm werfs and infrastructure and associated burial grounds. Additionally, there are known Iron Age sites located in very close proximity to the area proposed for development, and reflected by the number of “stone-walling” sites identified on SAHRIS.



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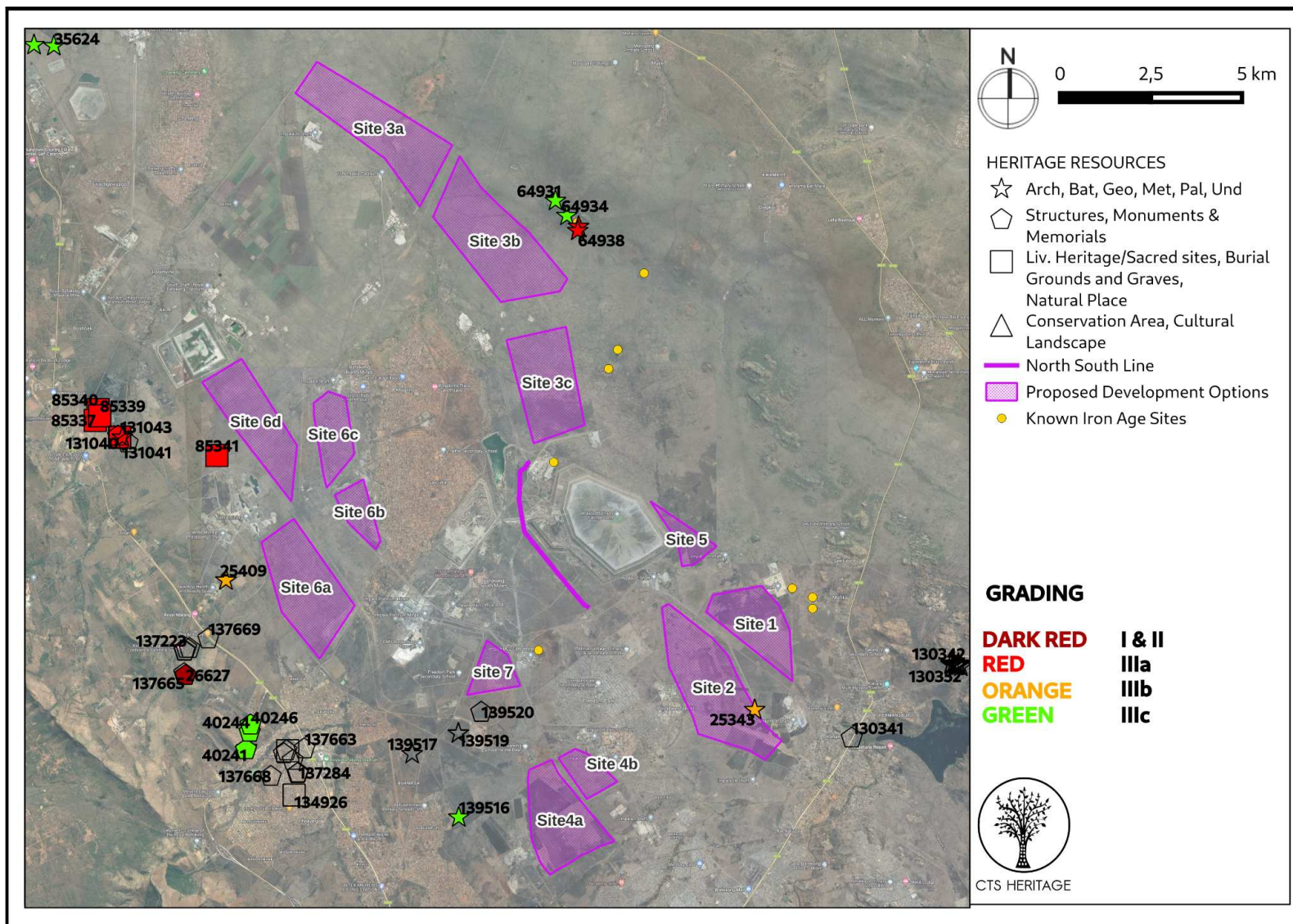


Figure 3. Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated



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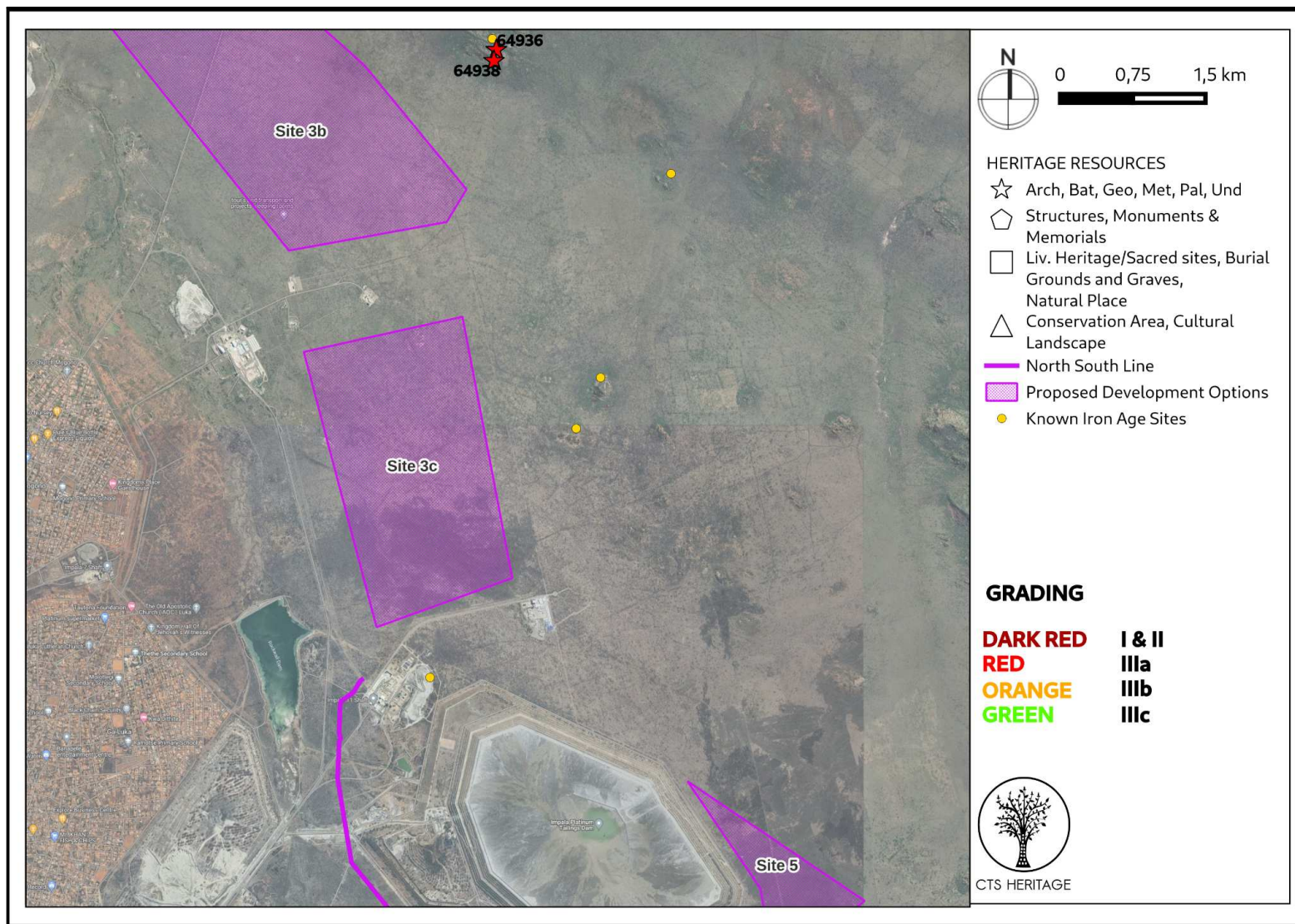


Figure 3.1. Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated - Inset A



4. IDENTIFICATION OF HERITAGE RESOURCES

4.1 Field Assessment

The field assessment proceeded with no constraints or limitations. The field assessment revealed one isolated occurrence of a Middle Stone Age retouched blade. The lithic find is without any perceivable archaeological context. The area where it was recorded has been disturbed by animal movement. The find is considered Not Conservation Worthy.

Four small pieces of undecorated low-fired ceramics were found in a 20 m² area. The pieces of ceramics were recorded in the vicinity of the MSA blade but are probably not associated. There were no other associated cultural material or archaeological contexts. The area has been disturbed by repeated animal movement. Without any identifying or datable markings, it is not possible to determine the ceramic pieces' age. The finds are therefore considered Not Conservation Worthy.

A cement beacon dating from the late 1950s was also identified. It is inscribed with beacon ID and date, B11 6-2-59. Although of minor relevance to site history, the find is without further archaeological and historical contexts. It is therefore considered Not Conservation Worthy.

Sites 002-003 represent a packed fieldstone circle, possibly utilised as a waterhole for livestock. The stones are packed around a rocky outcrop in what appears to be a natural water catchment area. The packed stones probably helped retain the water after rains for extended periods. There is no archaeological context, and the date of these circles is unknown. However, they form part of the historic long-term land use for livestock grazing, so we feel they are of low local significance (IIIC). There are other remnants of these water catchment circles, but the two recorded at these points are the most intact examples, together with a third recorded at 008, situated in front of the stone house.

Site 008 represents a small one-room stone structure with a water catchment stone circle that has been built on a large natural volcanic rock outcrop. The house's roof is gone, and the walls have been fixed at different times. The date of the building is unknown, but it could be older than 60 years. Some surface finds that were located within the dried trampled mud at the back of the house date to the late 1960s. The structure forms part of the historic long-term land use for livestock grazing, so we feel they are of low local significance (IIIC).

A possible grave was recorded close to the northern periphery of the development footprint. The grave has a few remnants of the stone cairn in an oblong shape. The grave is not clearly defined, but the grouping of stones does not appear natural. All graves are of high local significance as a result of their social and cultural value, and are therefore graded IIIA.



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Figure 4.1: Contextual image of development area



Figure 4.2: Contextual image of development area



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Figure 4.3: Contextual image of development area



Figure 4.4: Contextual image of development area



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Figure 4.5: Contextual image of development area



Figure 4.6: Contextual image of development area



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Figure 4.7: Contextual Images of landscape



Figure 4.8: Contextual Images of Landscape



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Figure 4.9: Contextual Images of Landscape



Figure 4.10: Contextual image of development



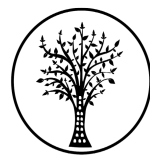
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Figure 4.11: Contextual image of development area



Figure 4.12: Contextual image of development area



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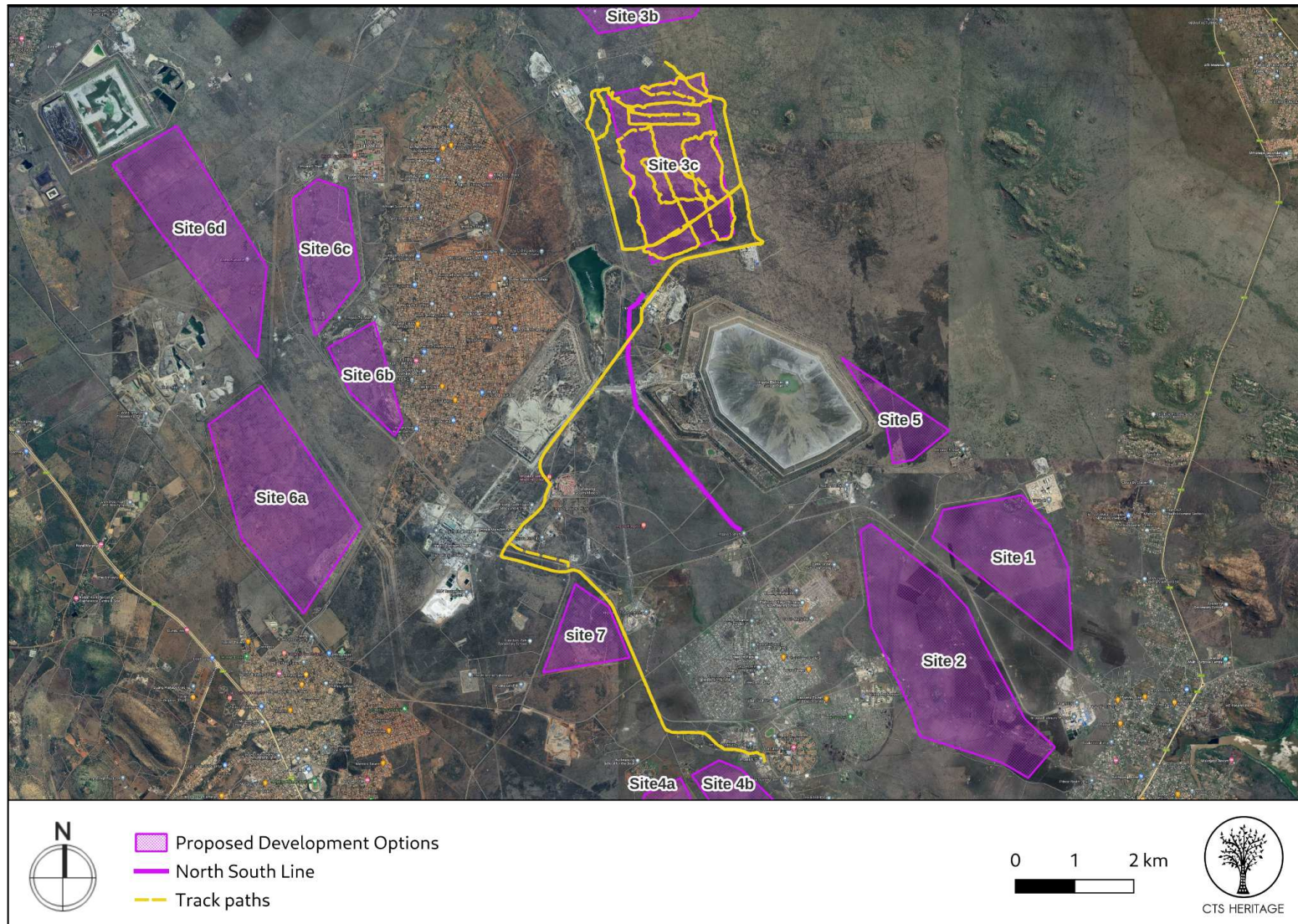


Figure 5.1: Overall track paths of foot survey for the proposed development



4.2 Archaeological Resources identified

Table 2: Observations noted during the field assessment

Obs#	Description	Type	Period	Density	Latitude	Longitude	Grade	Mitigation
1	Cement beacon with inscription B11 6-2-59	Structure	Modern	NA	26° 42' 15.14" S	20° 05' 44.62" E	NCW	NA
2	Stone circle. The packed stones appear to attempt to retain water for livestock in natural catchment areas.	Structure	Historic	1 in 20m2	25°28'32.70"S	27°12'59.50"E	IIC	50m Buffer
3	Stone circle. The packed stones appear to attempt to retain water for livestock in natural catchment areas.	Structure	Historic	1 in 20m2	25°28'57.35"S	27°12'44.67"E	IIC	50m Buffer
4	Possible grave marked by stone cairn with north-south orientation, approximately 1.2m in length. The stone cairn is dislodged, and few stones remain	Grave	Unknown	NA	25°28'20.53"S	27°13'6.97"E	IIIA	100m Buffer
5	Undecorated low-fired ceramics	Artefacts	Historic	4 in 20 m2	25°28'47.12"S	27°13'38.79"E	NCW	NA
6	Undecorated low-fired ceramics	Artefacts	Historic	4 in 20 m2	25°28'47.61"S	27°13'38.60"E	NCW	NA
7	Isolated retouched MSA Blade in dolerite	Artefacts	MSA	1 in 10 m2	25°28'46.64"S	27°13'39.01"E	NCW	NA
8	Stone structure with the stone circle. Some cultural material dating from the late 1960s to more modern lies behind the structure. Structure build on a natural volcanic rock outcrop.	Structure	Modern	1 in 20m2	25°29'23.84"S	27°13'35.42"E	IIC	50m Buffer



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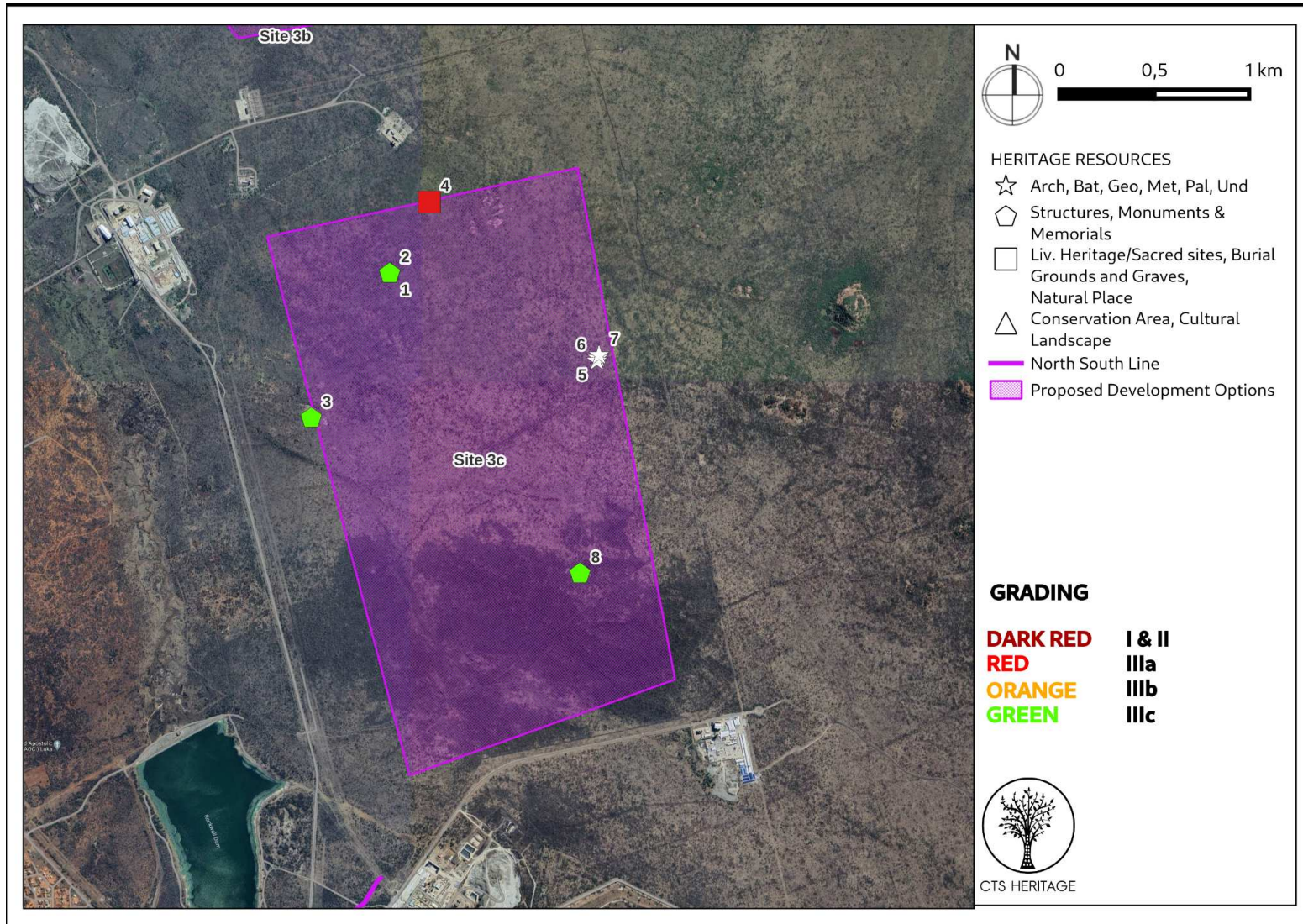


Figure 6: Map of all sites and observations noted within the development area



4.3 Selected photographic record

(a full photographic record is available upon request)



Figure 6.1: Observation 001



Figure 6.2: Observation 002



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Figure 6.3: Observation 003



Figure 6.4: Observation 004



Figure 6.5: Observation 005 and 006



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Figure 6.6: Observation 007



Figure 6.7: Observation 008



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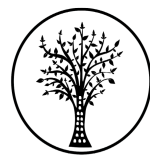
5. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT

5.1 Assessment of impact to Archaeological Resources

Based on the results of the field assessment, the area proposed for development is not very sensitive for impacts to significant archaeological heritage. Three resources of low local significance were identified - Sites 002, 003 and 008. These sites relate to the historic agricultural uses of the property. It is recommended that a no development buffer of 50m is implemented around these sites.

The field assessment also identified a possible grave located on the boundary of the proposed development area. All graves are of high local significance as a result of their social and cultural value, and are therefore graded IIIA. In order to retain a sense of place associated with a final resting place, a no development buffer of 100m is recommended around this site. Furthermore, the presence of this grave indicates the potential for additional unmarked burials to be located within the development area. As such, it is recommended that a Management Plan for the ongoing conservation of these burials be developed prior to construction, along with a Guide on how to identify marked and unmarked burials and how to proceed should previously unidentified burials be uncovered during the construction process.

No impact to significant archaeological heritage is anticipated on condition that the recommended mitigation measures are implemented.



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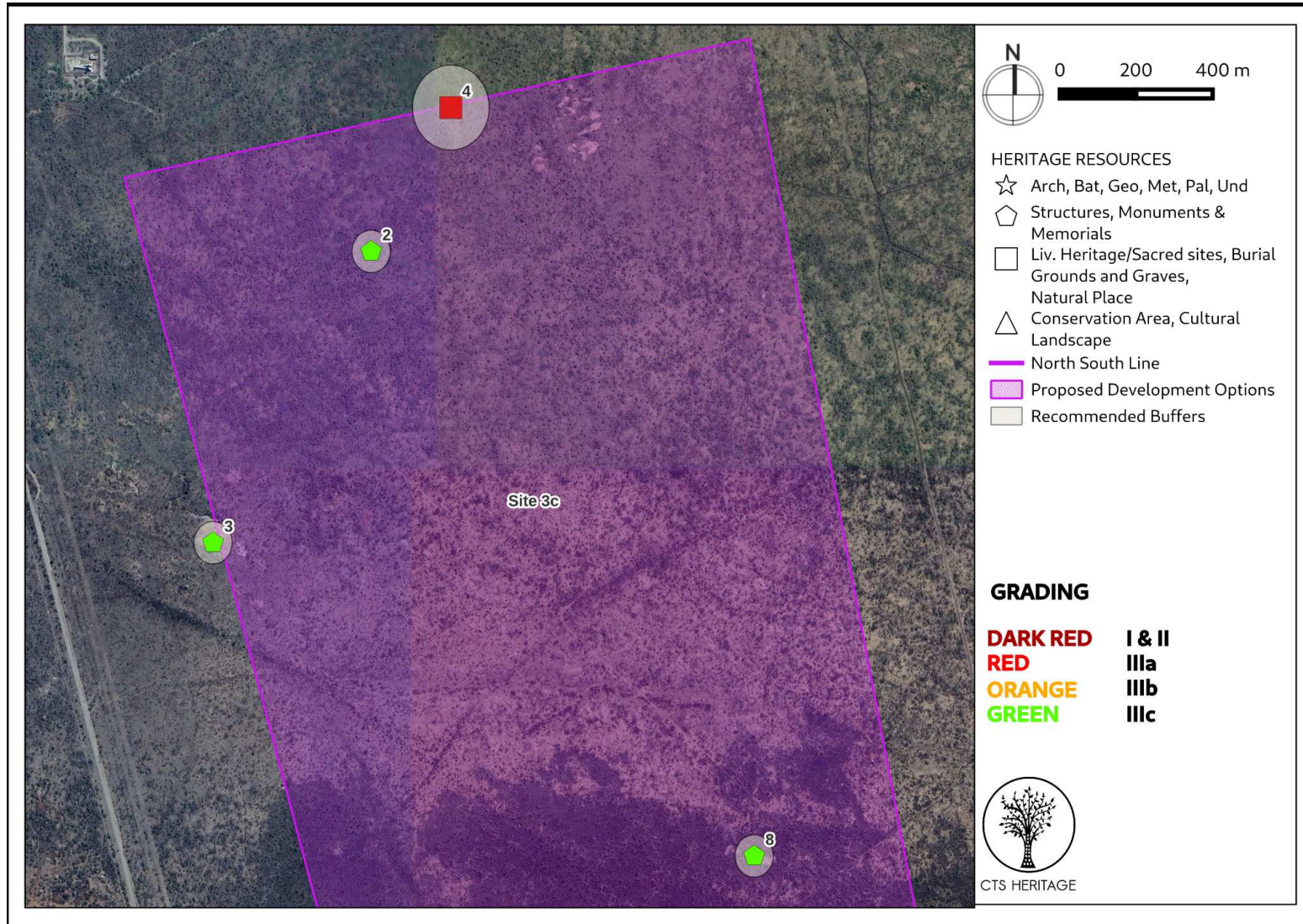


Figure 7.1: Map of heritage resources identified during the field assessment relative to the proposed development area



6. CONCLUSION AND RECOMMENDATIONS

Even though the area is rich in history, no significant archaeological heritage resources were identified during the field assessment. No significant Stone Age or Iron Age heritage resources were identified during the survey. The few heritage resources that were identified consist of the ruins of older farm structures and kraals. Due to the paucity of older farm structures in the area as a result of demolition, it is recommended that the identified ruins and kraals remain untouched and that a safety buffer should exist around all such structures.

The field assessment identified one likely grave on the edge of the proposed development footprint of the solar PV facility. All graves are of high local significance as a result of their social and cultural value, and are therefore graded IIIA.

While no Stone Age or Iron Age archaeological resources were identified during the field assessment, it is clear that this landscape is sensitive for impacts to historical archaeology in the form of ruins and kraals, as well as marked and unmarked burial grounds and graves. Appropriate mitigation measures are detailed below.

Recommendations

Based on the outcomes of this report, it is not anticipated that the proposed development of the solar energy facility will negatively impact on significant archaeological heritage on condition that:

- The mitigation measures detailed in Table 2 above are implemented in the development layout. These include a no development buffer of 100m around the identified grave (Site 004) and a no development buffer of 50m around sites 002, 003 and 008.
- A Management Plan for the ongoing conservation of these burials is developed prior to construction, along with a Guide on how to identify marked and unmarked burials and how to proceed should previously unidentified burials be uncovered during the construction process.
- Although all possible care has been taken to identify sites of cultural importance during the investigation of the study area, it is always possible that hidden or subsurface sites could be overlooked during the assessment. If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils, burials or other categories of heritage resources are found during the proposed development, work must cease in the vicinity of the find and SAHRA must be alerted immediately to determine an appropriate way forward.



7. REFERENCES

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
2040	AIA Phase 1	Jaco van der Walt	30/09/2011	Archaeological Impact Assessment FOR THE PROPOSED WBJV MASEVE PLATINUM PROJECT ON PORTION 2 OF THE FARM ELANDSFONTEIN 102 JQ AND VARIOUS PORTIONS OF THE FARM FRISCHGEWAAGD 96 JQ
5526	AIA Phase 1	Johnny Van Schalkwyk	01/06/2003	A Survey of Cultural Resources in the Boitekong Township Development Area, Rustenburg District, North West
5528	AIA Phase 1	Anton van Vollenhoven, Anton Pelsler	01/05/2008	A Report on a Cultural Heritage Impact Assessment for the Proposed Development of the Bellevue Extension 3 Residential Town, Located in the Rustenburg Local Municipality, Northwest Province
5540	AIA Phase 1	Julius CC Pistorius	01/08/2000	An Archaeological Scoping Report Supplemented with a Phase 1 Archaeological Survey for SA Chrome's Proposed New Ferrochrome Smelter on the Farm Boschhoek 103 JQ in the Rustenburg District of the Central Bankeveld in the North West Province
5541	AIA Phase 1	Julius CC Pistorius	01/10/2001	Rasimone Platinum Mine on the Farms Boschkoppie 104 JQ and Styldrift 90 JQ
5547	AIA Phase 1	Julius CC Pistorius	09/02/2003	A Heritage Impact Assessment (HIA) for SA Ferrochrome's New Proposed Expansion Operations in Boschhoek, North of Rustenburg in the North-West Province of South Africa
5553	AIA Phase 1	Udo Kusel	10/03/2005	Cultural Heritage Impact Assessment Cape Archaeological Survey CChan Extension 3 Rustenburg
5554	AIA Phase 1	Cobus Dreyer	28/06/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Development Site at the Farm Wildebeestfontein JQ 274, Rustenburg, North West Province
5559	AIA Phase 1	Julius CC Pistorius	01/05/2007	A Phase I Heritage Impact Assessment (HIA) Study for Eskom's Proposed New 3X88 kV Power Lines Between the Marang Substation and Impala Platinum's Shaft 16 in the North West Province of South Africa
5563	AIA Phase 1	Anton van Vollenhoven, Anton Pelsler	01/11/2007	A Report on a Cultural Heritage Impact Assessment at the Site for the Proposed New Laying House on the Farm Bulhoek 368 JP, Northwest Province
5567	AIA Phase 1	Johnny Van Schalkwyk	01/09/1996	A Survey of Cultural Resources in the Bafokeng District, North West
5574	AIA Phase 1	Polke Birkholtz, A van Rooyen	26/02/2004	Cultural Heritage Impact Assessment as Part of the Environmental Scoping Report for the Proposed Cape Archaeological Survey CChan Extension 7 Residential Development on the Remainder of Portion 43 of the Farm Waterval 306 JQ in North West Province, SA
5581	AIA Phase 1	Julius CC Pistorius	01/02/2006	A Phase 1 Heritage Impact Assessment (HIA) Study for the Impala Platinum Shaft 17 Complex on the Farm Vlakfontein 276 JQ near Rustenburg in the



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North-West Province of South Africa				
5830	AIA Phase 1	McEdward Murimbika	01/04/2008	Phase 1 Archaeological and Cultural Heritage Assessment Specialist Study for the Proposed Construction of Trident to Koster Power-Line in the Bojanala District Municipality, North West Province
6125	AIA Phase 1	Udo Kusel	01/08/2007	Cultural Heritage Resources Impact Assessment of Quality Vacation Club and a Golf Course at Sun City (Farm Ledig 909 JQ) North West Province
6127	AIA Phase 1	Julius CC Pistorius	01/04/2004	A Heritage Impact Assessment Study for Impact Platinum's Proposed New No. 16 Shaft Complex on the Farm Reinkoyalskraal 278 JQ in the Bokone-Bothlaba District Municipality of the North-West Province
6202	AIA Phase 1	Thomas Huffman	01/02/2005	The Archaeology of the Anglo Platinum Lease Area, Rustenburg
6315	AIA Phase 1	Thomas Huffman	01/08/2002	Archaeological Study of the Boschfontein East Options, Rustenburg
7138	AIA Phase 1	Johnny Van Schalkwyk	01/06/2001	A Survey of Cultural Resources on the Farm Kroondal 304 JQ, East of Rustenburg,
7366	AIA Phase 1	Jaco van der Walt	29/06/2007	Proposed Platinum Mining on Portions of the Farms Ledig 909 JQ, Frischgewaagd 96 JQ & Mimosa 81 JQ, North West Province
7631	AIA Phase 1	Johnny Van Schalkwyk	01/09/2008	Archaeological Impact Survey Report for the Proposed Phokeng Bypass Road Between the Rustenburg N4 Interchange and the R565 Junctions, North-West Province
8209	AIA Phase 1	Johnny Van Schalkwyk	01/10/2008	Archaeological impact survey report for the proposed development on Waagfontein 89 JQ, Mankwe Magisterial District, North West Province
8234	AIA Phase 1	Anton van Vollenhoven, Anton Pelser	01/02/2008	A Report on a Heritage Impact Assessment for the Proposed Development of Waterval East Extension 7 in Rustenburg, North West Province
8236	AIA Phase 1	Anton van Vollenhoven, Anton Pelser	01/02/2008	A Report on a Heritage Impact Assessment for the Proposed Development of Waterval Portion 8 in Rustenburg, North West Province
8238	AIA Phase 1	Anton van Vollenhoven	01/09/2008	A Report on a Cultural Heritage Impact Assessment for the Proposed Industrial Town Development on Holdings Re/31 and 3/31 of the Waterval Smallholdings, North West Province
8255	AIA Phase 1	Thomas Huffman	01/03/2002	Archaeological Study for the Western Limb Tailings Re-Treatment Project, Rustenburg
8306	AIA Phase 1	Wouter Fourie	09/11/2007	Ingwe Eco Estate Archaeological Impact Assessment. Residential Development on Portion 71 of the Farm Wysfontein 427 JP, North West Province
8374	HIA Phase 1	McEdward Murimbika	01/10/2008	Phase 1 Archaeological and Heritage Impact Assessment Specialist Study Report. Proposed Construction of a New 6 km 88 kV Koster Powerline in Kgetheng Local Municipality, Bojanala District, North West Province



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8484	HIA Phase 1	Robert de Jong	01/09/2008	Final Heritage Impact Assessment Report: Proposed Western Bypass Road (Phokeng Bypass Road) of 10 km Between the Rustenburg N4 Interchange and the R565 Junctions, North-West Province
8498	HIA Phase 1	Johnny Van Schalkwyk	03/01/2008	Heritage Survey Report for the Upgrading of a Section of Road P16/1 (R30), Rustenburg Magisterial District, North West Province
66846	HIA Phase 1	Francois P Coetzee	01/01/2012	Cultural Heritage Survey of the Proposed New Ventilation Shaft Phase 3 Project, Bafokeng Rasimone Platinum Mine, North West Province
89339	HIA Phase 1	Makhosazana Mngomezulu	01/07/2012	Heritage Impact Assessment: THE PROPOSED DEVELOPMENT OF A HOTEL, CONFERENCE AND WEDDING FACILITIES, HEALTH SPA AND RECREATIONAL FACILITIES ON PORTION 48 (A PORTION OF PORTION 39) OF THE FARM RIETVLY 271 JQ, RUSTENBURG, NORTH WEST PROVINCE
115025	HIA Phase 1	Julius CC Pistorius	01/07/2012	A PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR IMPALA PLATINUM LIMITED'S (IMPALA) PROPOSED OPEN CAST PIT&C AND THE EXPANSION OF THE SHAFT 16 WASTE ROCK DUMP IN THE NORTH-WEST PROVINCE
117447	Heritage Impact Assessment	Anton van Vollenhoven	15/03/2012	A REPORT ON A HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED STRUMOSA SOLID WASTE TRANSFER STATION NEAR RUSTENBURG IN THE NORTHWEST PROVINCE
145611	Heritage Impact Assessment Specialist Reports	Anton van Vollenhoven	30/09/2013	Heritage Impact Assessment for the proposed Waterval Retrofit E-Feed Project located in Rustenburg, North West Province.
161099	AIA Phase 1	Anton van Vollenhoven	01/02/2014	A REPORT ON THE UPDATING OF A PREVIOUS CULTURAL HERITAGE IMPACT ASSESSMENT FOR THE EMPR ALIGNMENT AND CONSOLIDATION PROCESS AT ANGLO AMERICAN PLATINUM: RUSTENBURG PLATINUM MINES & RUSTENBURG SECTION, NORTHWEST PROVINCE
163216	HIA Phase 1	Julius CC Pistorius	06/05/2014	Phase I Base Line Heritage study for the proposed Glencore Merafe Venture Operation - Boshhoek Operations near Boshhoek in the North-West Province of South Africa
182083	Archaeological Specialist Reports	Munyadziwa Magoma	18/01/2016	PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT SPECIALIST STUDY REPORT FOR THE PROPOSED RUSTENBURG STRENGTHENING PROJECT WITHIN RUSTENBURG LOCAL MUNICIPALITY OF BOJANALA MUNICIPALITY, NORTH WEST PROVINCE.
252212	Heritage Scoping	Johnny Van Schalkwyk	01/10/2013	Cultural heritage impact assessment for the PROPOSED TOWNSHIP DEVELOPMENT ON PORTIONS OF THE FARM ROOIWAL 285JQ, NORTH WEST PROVINCE
289598	Heritage Impact Assessment	Natasha Higgitt, Johan Nel	23/06/2015	Environmental Authorisation Application: Prospecting Right Application for Paardekraal 279JQ & Waterval 306JQ, Phase 2 Draft Heritage Basic Assessment Report
289748		Natasha Higgitt	23/06/2015	Environmental Authorisation Application: Prospecting Right Application for Waterval 306JQ, Phase 2



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				Notification of Intent to Develop:
289754		Natasha Higgitt	23/06/2015	Environmental Authorisation Application: Prospecting Right Application for Paardekraal 279JQ, Phase 2 Notification of Intent to Develop
316019	HIA Phase 1	Makhosazana Mngomezulu	10/06/2015	Phase 1 Heritage Impact Assessment for Section 24G rectification process and Water Use License Application for the chrome crushing, screening and washing plant on portion 8 of the Boshhoek 103 JQ in Rustenburg, Bojanala Platinum District Municipality, North West Province
361026	HIA Phase 1	Polke Birkholtz	31/03/2016	PROPOSED CHANGES TO INFRASTRUCTURE AT BAKUBUNG PLATINUM MINE, LEDIG, BOJANALA DISTRICT MUNICIPALITY, NORTH WEST PROVINCE Remaining Extent and Portions 1, 3, 4 and 11 of the farm Frischgewaagd 96 JQ and the Remainder of the farm Mimosa 81 JQ
361026	HIA Phase 1	Polke Birkholtz	31/03/2016	PROPOSED CHANGES TO INFRASTRUCTURE AT BAKUBUNG PLATINUM MINE, LEDIG, BOJANALA DISTRICT MUNICIPALITY, NORTH WEST PROVINCE Remaining Extent and Portions 1, 3, 4 and 11 of the farm Frischgewaagd 96 JQ and the Remainder of the farm Mimosa 81 JQ
361026	HIA Phase 1	Polke Birkholtz	31/03/2016	PROPOSED CHANGES TO INFRASTRUCTURE AT BAKUBUNG PLATINUM MINE, LEDIG, BOJANALA DISTRICT MUNICIPALITY, NORTH WEST PROVINCE Remaining Extent and Portions 1, 3, 4 and 11 of the farm Frischgewaagd 96 JQ and the Remainder of the farm Mimosa 81 JQ
364140	AIA Phase 1	Julius CC Pistorius	01/05/2013	A PHASE I HERITAGE IMPACT ASSESSMENT FOR IMPALA PLATINUM LIMITED (IMPLATS) PROPOSED NEW SHAFT 18 COMPLEX IN THE RUSTENBURG (BAFOKENG) DISTRICT IN THE NORTH-WEST PROVINCE (WITH AMENDMENTS TO THE SHAFT 18 COMPLEX IN ORDER TO AVOID SITES LIA03 AND SITE LIA04)
368189	HIA Phase 1	Julius Pistorius	29/07/2016	A HERITAGE ASSESSMENT STUDY FOR IMPALA PLATINUM LIMITED'S (IMPALA) PROPOSED PROSPECTING DRILL HOLES ON THE FARM DIEPKUIL 116JQ IN THE RUSTENBURG DISTRICT IN THE NORTH-WEST PROVINCE
374016	AIA Phase 1	Neels Kruger	02/11/2015	Archaeological Impact Assessment: Proposed Rustenburg Extension 30 Township Establishment on the Remaining Extent of Portion 1 of the farm Town and Townlands of Rustenburg 272-JQ, Rustenburg Local Municipality, North West Province



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APPENDIX 2: Heritage Screening Assessment



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HERITAGE SCREENER

CTS Reference Number:	CTS23_030
SAHRIS Case Number	
Client:	Savannah
Date:	May 2023
Title:	Proposed development of a solar PV plant and Battery energy storage system (BESS) to be located on Impala Platinum's Rustenburg operation site

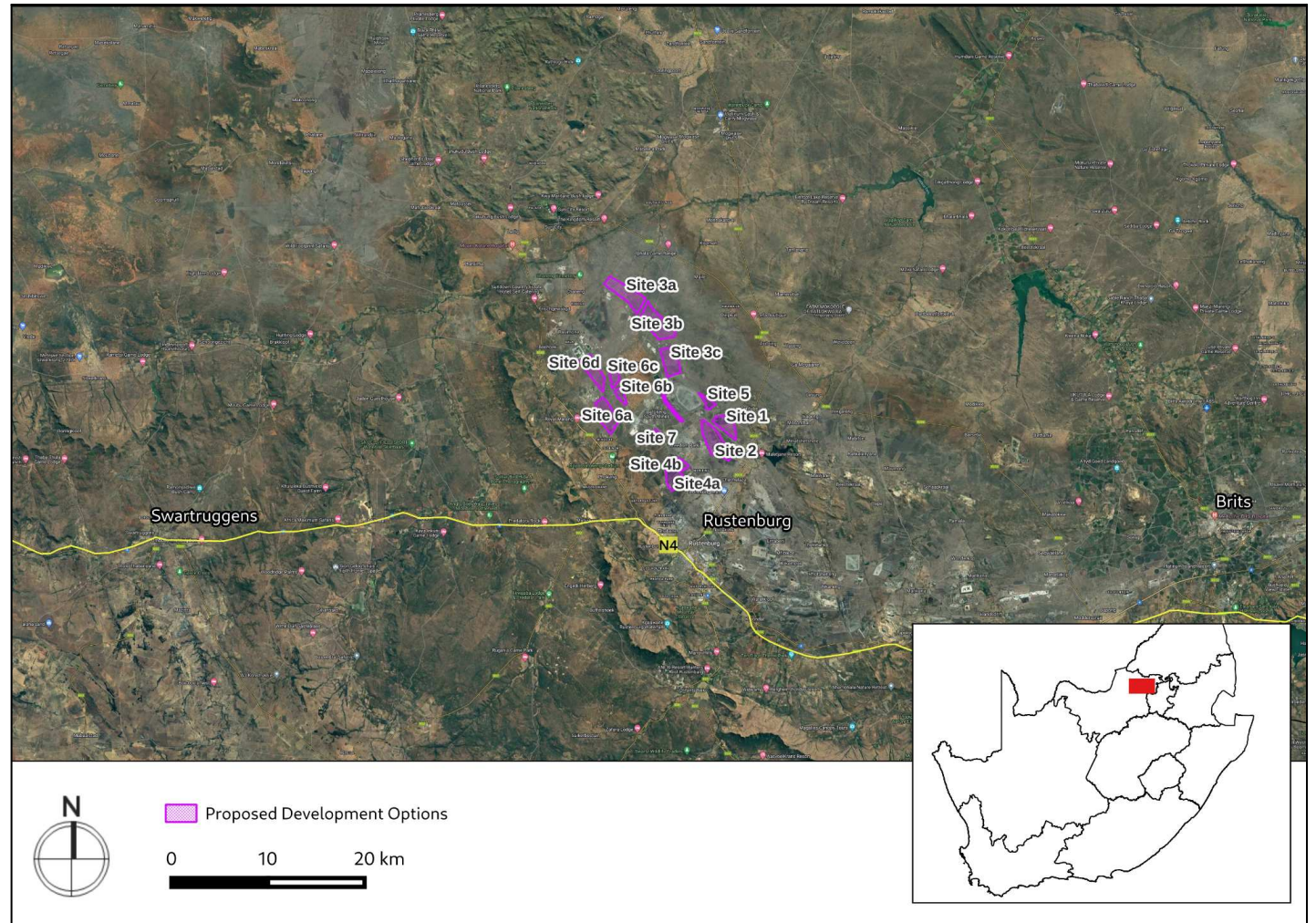


Figure 1a. Satellite map indicating the location of the proposed development in the North West Province

Recommendation:	RECOMMENDATION Based on the available information, the proposed development is not likely to impact on significant heritage resources and as such, it is recommended that no further heritage impact assessments are required in terms of section 38 of the NHRA.
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1. Proposed Development Summary

The Applicant, Impala Platinum Holding Limited, propose the development of a Solar Energy Facility and associated infrastructure, to be known as Impala Platinum Solar Energy Facility. The Solar Energy Facility with a contracted capacity of up to 140MWac will be located ~14km north west of Rustenburg on Portion 114 of the Farm Goedgecacht 114 JQ, within the Rustenburg Local Municipality and Bojanala District Municipality in the North West Province.

Infrastructure associated with Impala Platinum Solar Energy Facility will include the following:

- Solar PV array comprising bifacial PV modules and mounting structures, using single axis tracking technology. Once installed will stand up to 2.1m above ground level.
- Inverters and transformers.
- Cabling between the project components.
- Balance of Plant.
- On-site facility substation to facilitate the connection between the solar PV facility and Eskom electricity grid. The Size and Capacity of the on-site stations will be 33kV.
- An onsite medium voltage (MV) switching station.
- Battery Energy Storage System (BESS) with a size of 140MWh.
- Temporary Laydown areas.
- Access roads, internal roads and fencing around the development area.
- Up to 33kV Overhead Power Lines (OHPL) - up to 10m height with a 15m servitude width.
- Underground LV cabling will be used on the PV site.

Site 3C is the preferred site and Implats is already in the process of securing the site for the development. The Millenium substation (most likely point of integration) is adjacent to the northern border of site 3C which is the likely point of integration. Both the 66kV Eskom supply and 33kV Implats network are connected.

2. Application References

Name of relevant heritage authority(s)	SAHRA
Name of decision making authority(s)	Department of Mineral Resources and Energy

3. Property Information

Latitude / Longitude	25°29'21.36"S 27°13'11.16"E
Erf number / Farm number	Portion 114 of the Farm Goedgecacht 114 JQ
Local Municipality	Rustenburg

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District Municipality	Bojanala
Province	North West
Current Use	Mining
Current Zoning	Mining

4. Nature of the Proposed Development

Total Surface Area	The property has an extent of 706ha, of which 262ha will be used for the development of the Project
Depth of excavation (m)	TBA
Height of development (m)	PV panels will stand at 2.1m

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-
x	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

TBA

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

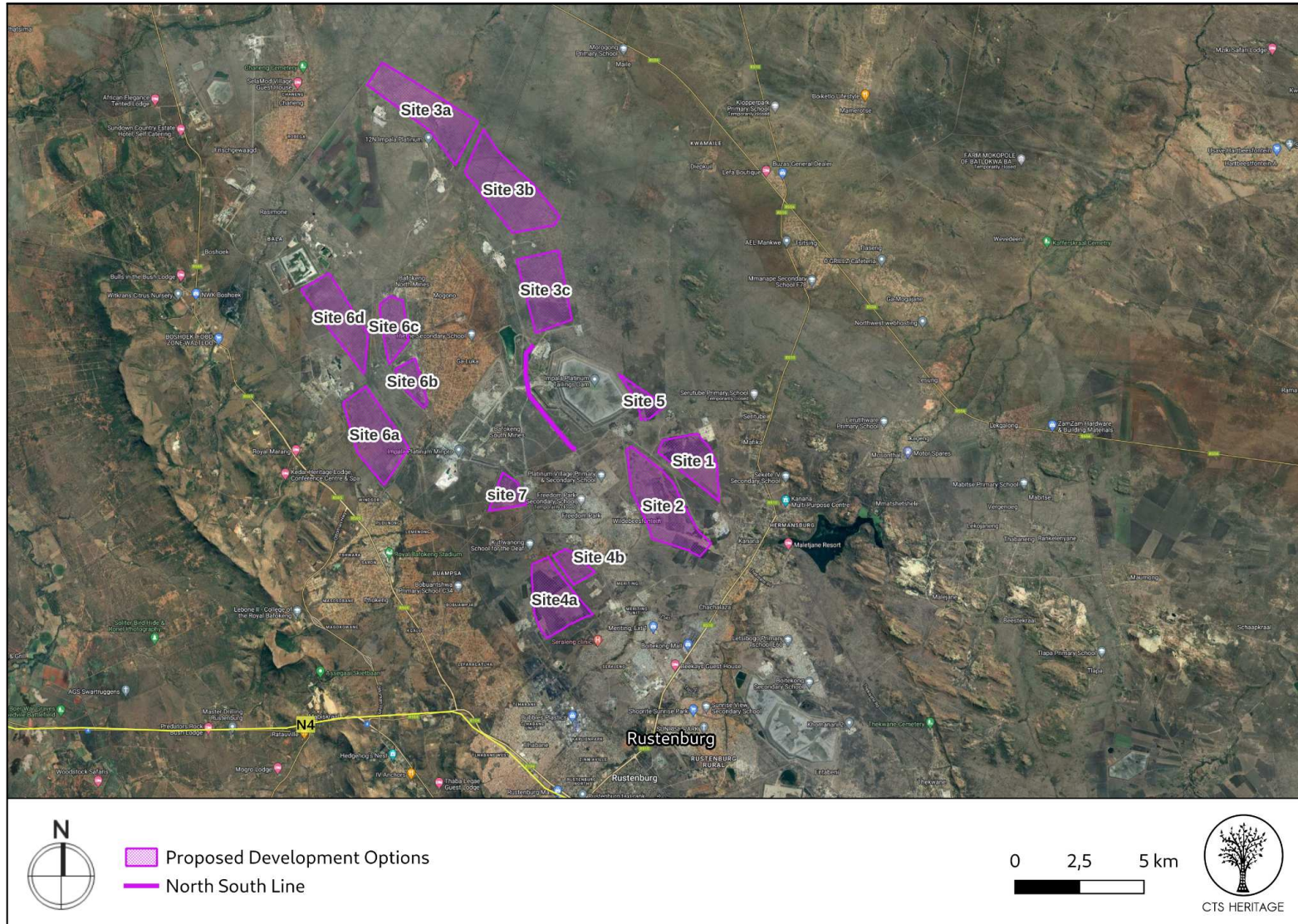


Figure 1b Overview Map. Satellite image (2022) indicating the proposed development area at closer range, relative to Rustenburg.

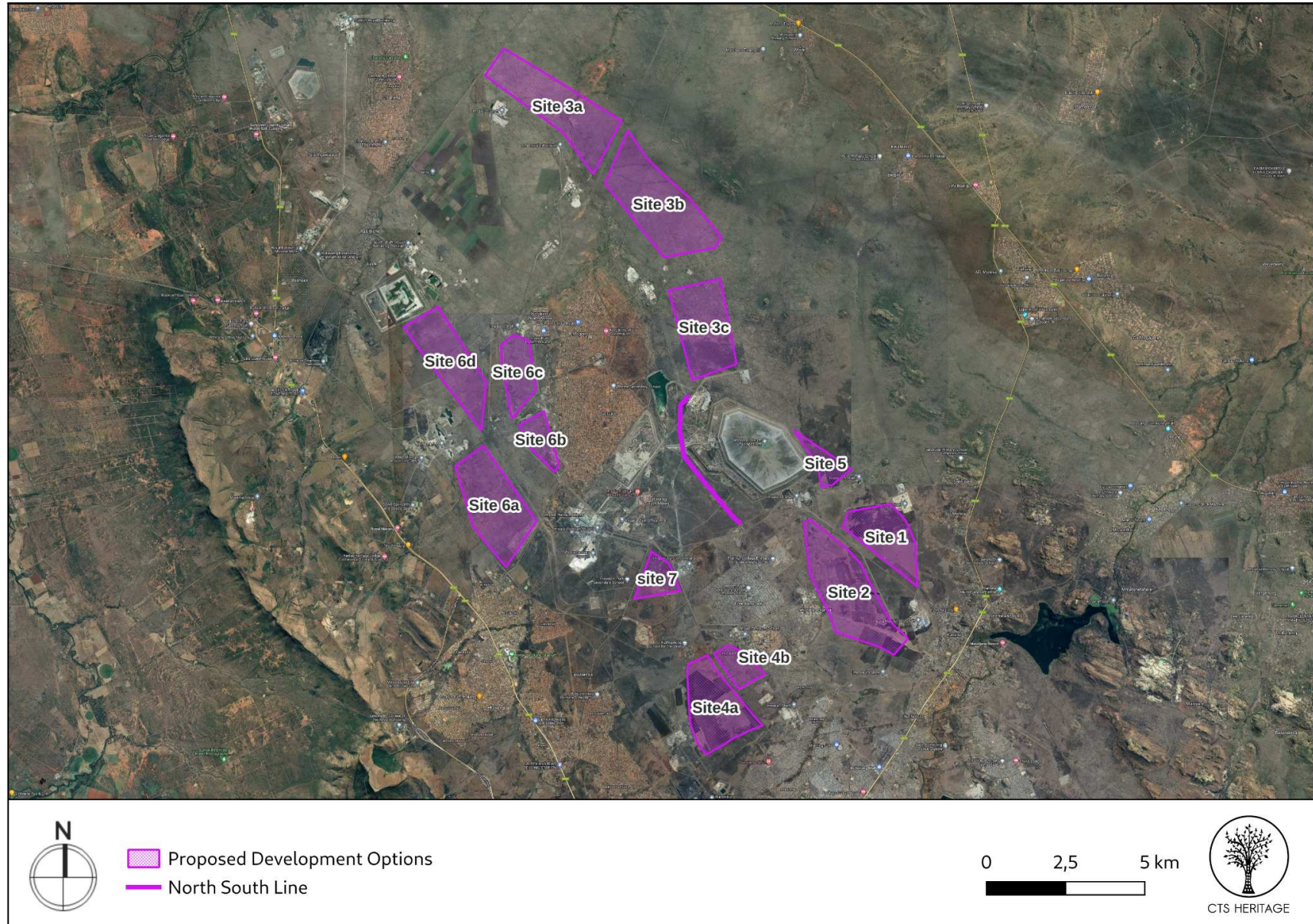


Figure 1c. Overview Map. Satellite image (2022) indicating the proposed development area at closer range.



Figure 1d. Overview Map. Satellite image (2022) indicating the proposed development area at closer range.

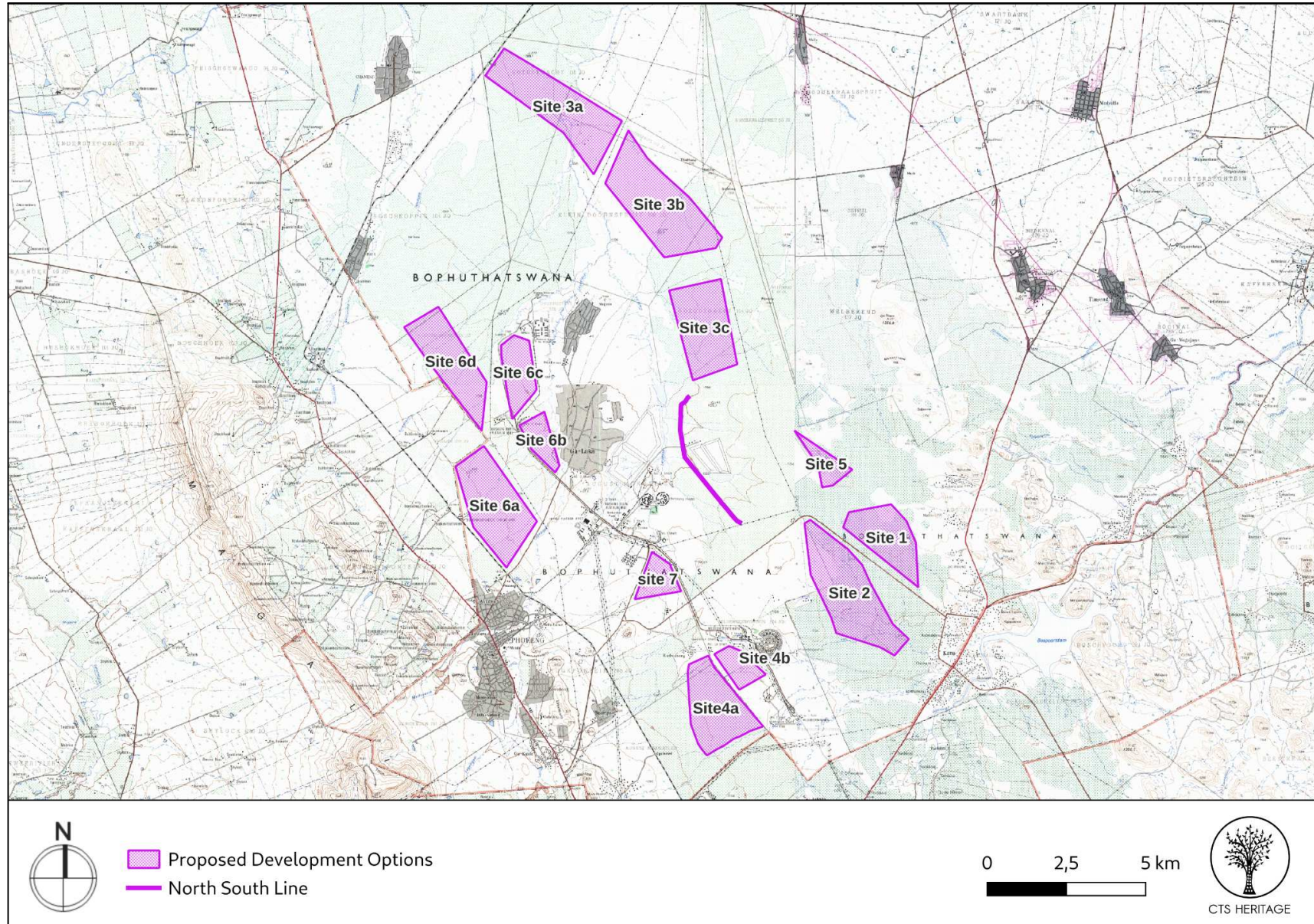


Figure 1f. Overview Map. Extract from the 1:50 000 Topo Map

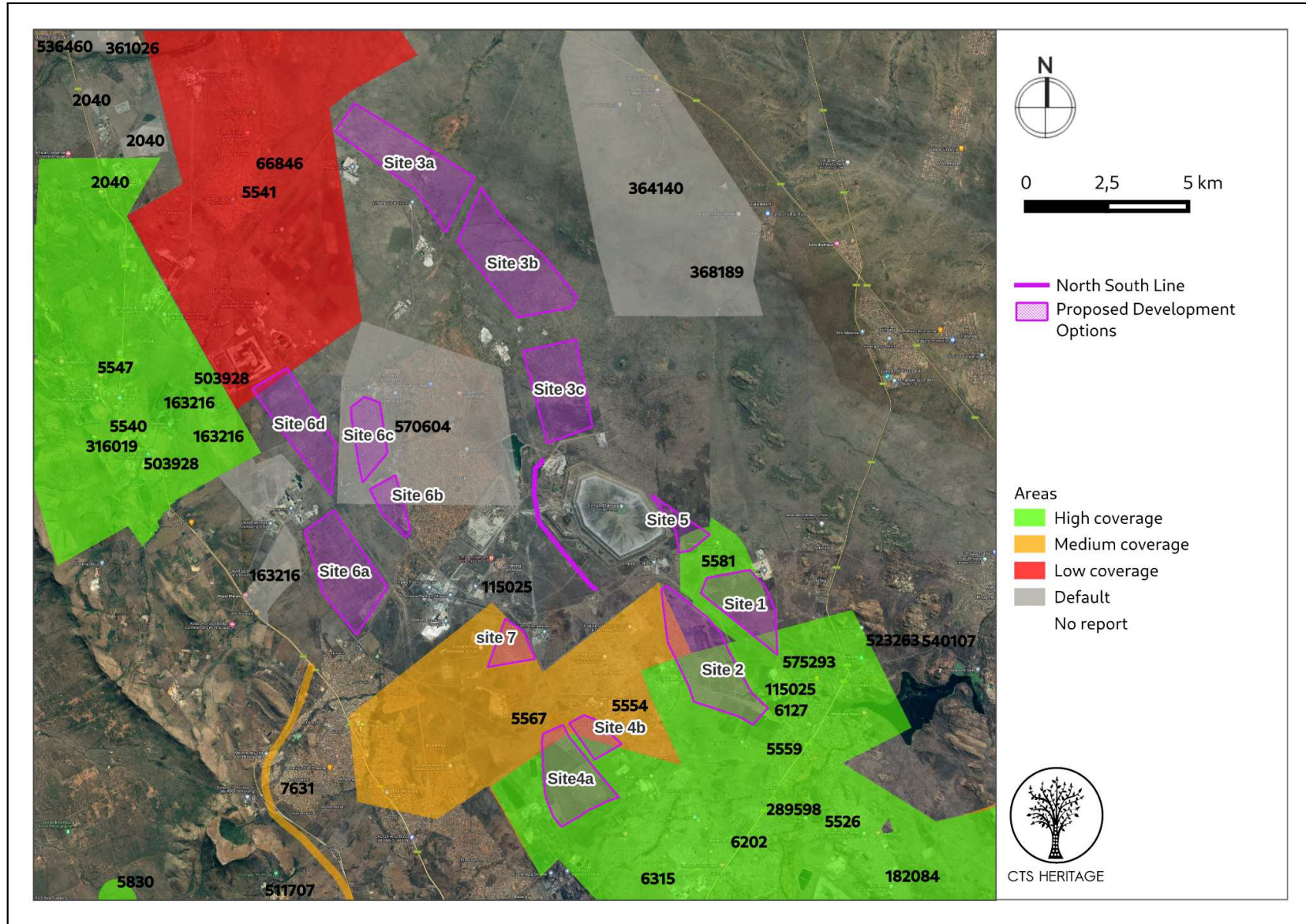


Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments surrounding the proposed development area within 10km, with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.

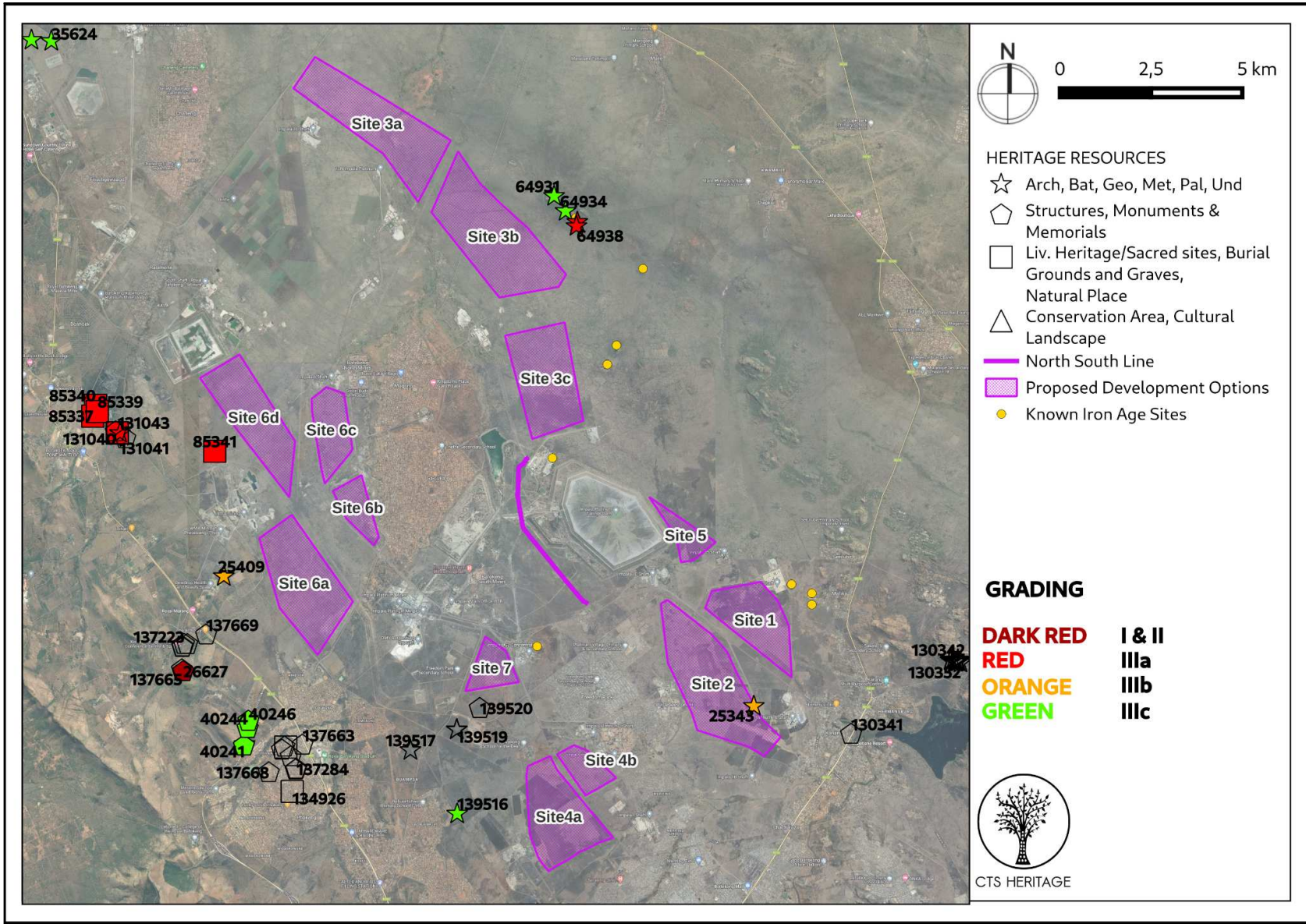


Figure 3. Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated. Please See Appendix 4 for full description of heritage resource types.



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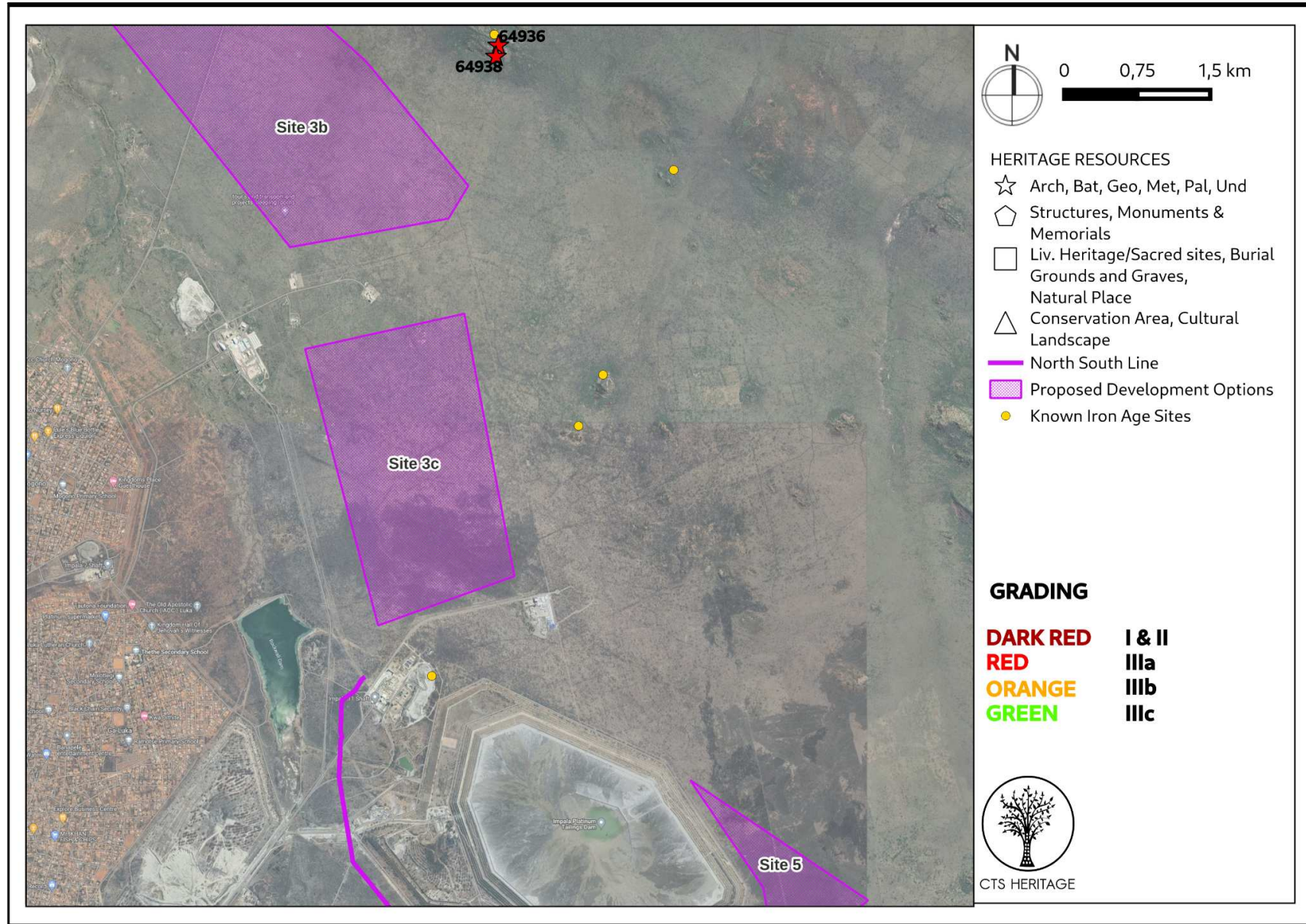


Figure 3a. Heritage Resources Map. Inset A

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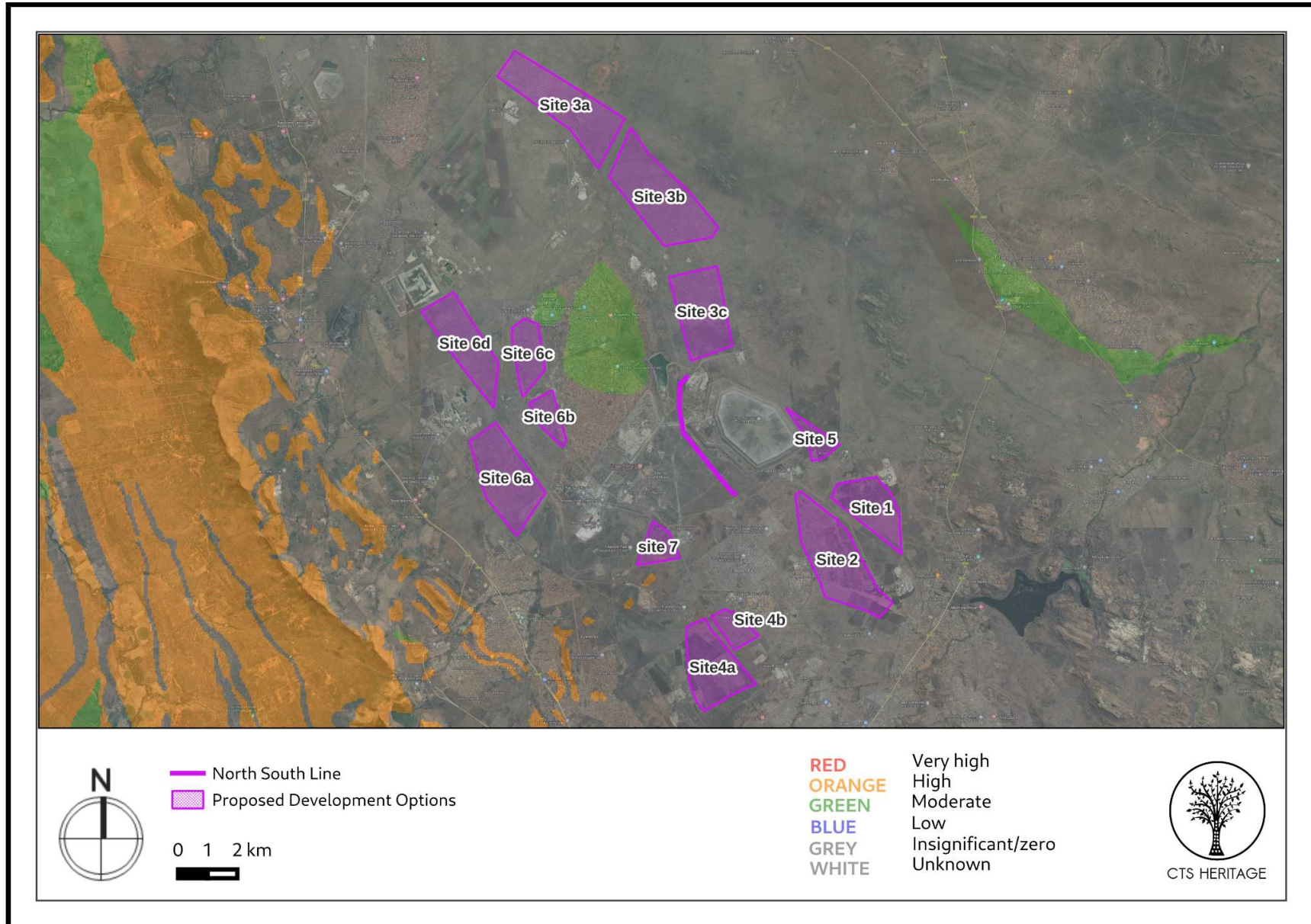


Figure 4. Palaeosensitivity Map. Indicating zero fossil sensitivity underlying the study area. Please See Appendix 3 for a full guide to the legend.

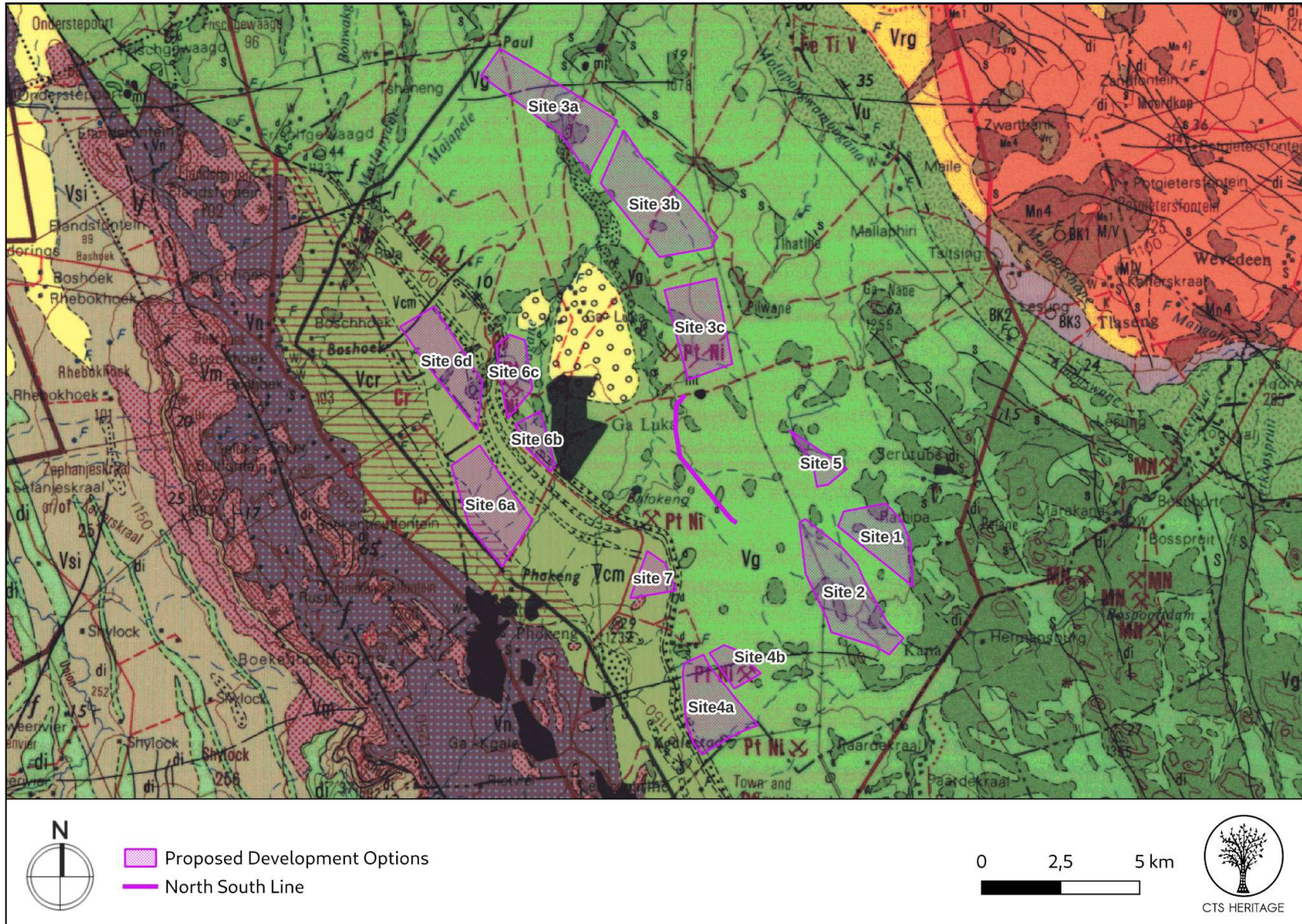


Figure 5. Geology Map. Extract from the Council for GeoScience Rustenburg Map 2526 indicating that the area proposed for development is underlain by Vg (Pyramid Gabbro-norite) and Vcr (Ruighoek Pyroxenite)



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8. Heritage statement and character of the area

Background

This application is for the proposed development of a solar PV facility to support the activities at the Impala Platinum Mine located immediately north of Rustenburg in the North West Province. A number of options are proposed for review for the proposed PV infrastructure, however it has been noted that the preferred development area is mapped as Area 3c in the maps above.

Cultural Landscape

Rustenburg town was established at the foot of the Magaliesburg in 1851 as an administrative centre for the farmers of the broader region, and received its first church under a syringa tree in 1859. During the 1800's, more and more farmers settled in the area. The streets are lined with the ubiquitous jacaranda tree. It started out as a small farming community producing citrus and Virginia tobacco and still manages to retain its small-town atmosphere¹. The area surrounding Rustenburg was heavily impacted by the outbreak of both of the Anglo-Boer Wars. The siege of Rustenburg was a siege that took place between 1880 and 1881 during the first war. The siege was carried out by Boer forces on the British controlled town. Some of the final, decisive battles of the South African War were fought in and around the mountains near Hekpoort. During the war's guerilla phase, the maze of mountains provided a conduit by which the Boer forces moved through occupied territory². British blockhouses can still be seen guarding the approaches to some of the well-known passes³. It is possible that remnants of battlefields and other infrastructure are located within the areas proposed for development.

In 1925, a seam of platinum-bearing rock was discovered outside of Rustenburg which resulted in the accelerated growth of the town and the establishment of the Impala Platinum mine. All of the options under consideration in this assessment are located within the existing mines boundaries. As such, it is unlikely that the proposed development will negatively impact on any significant cultural landscape as the development will be read as part of the existing mine infrastructure.

Archaeology

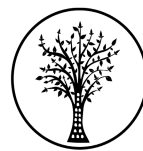
Archaeological sites spanning the Earlier, Middle and Later Stone Age have been found in the region despite the extensive agricultural transformation of the area. According to Van Schalkwyk (2015), "No stratified sites dating to the Stone Age are known from the region. However, surface scatters of tools dating to the Early Stone Age are known to occur in the region of the Vaal River. Apart from that, rock engravings dating to the Late Stone Age are known from various sites in the larger region." He goes on to note that "The occupation of the larger geographical area (including the study area) did not start much before the 1500s. By the 16th century things changed, with the climate becoming warmer and wetter, creating conditions that allowed Late Iron Age (LIA) farmers to occupy areas previously unsuitable, for example the Witwatersrand and the treeless plains of the Free State. The earliest Iron Age settlers who moved into the North-West Province region were Sothospeaking groups such as the Hurutshe, Kwena, Fokeng, Kgatla and Rolong." As such, stone age archaeology, Iron age archaeology and archaeological heritage associated with the colonial occupation of the region are known to be present in the broader area.

A broad history of the area is included in Murimbika (2010) and is referred to here. According to Murimbika (2010), the broader region has also yielded some significant Iron Age Sites such as the Mzonjani facies Broederstroom site (AD 430 to AD 780). According to Murimbika (2010), the broader region was subject to a number of instances of migration and settlement from 450 AD. Evidence indicates that Sotho-Tswana groups migrated in and out of the Magaliesberg region, and such groups are responsible for the many early stone-walled settlements in this region. One of the most documented migrations is the Mfecane (forced migration or scattering) which was a period of widespread chaos and warfare among indigenous ethnic communities in southern Africa during the period between 1815 and about 1840. During this time, the Ndebele under Mzilikazi reached the Magaliesberg region and are responsible for introducing the Doornspruit-type walled settlements that are known from this region. According to Murimbika (2010) this type of stone-walled settlement

¹ <https://www.century21.co.za/area-profiles/rustenburg/>

² <https://www.theheritageportal.co.za/article/battles-magaliesberg>

³ <https://southafrica.co.za/history-rustenburg.html>



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represents “typical Nguni-Sotho-Tswana acculturation”. By the mid-1800’s, Voortrekkers had begun to settle in the foothills of the Magaliesberg mountains and in so doing, clashed with Mzilikazi’s Ndebele in 1837. These early colonial battles forced the Ndebele north of the Limpopo River and effectively ended the independence of African Chiefdoms in the area. The Voortrekkers went on to establish the Republic of the Transvaal.

Previous heritage impact assessments conducted in the area have identified a number of heritage resources (Figure 3 and 3a, Appendix 1). These resources are largely associated with the extensive agricultural and mining past of the region and reflect historic farm werfs and infrastructure and associated burial grounds. Additionally, there are known Iron Age sites located in very close proximity to the area proposed for development, and reflected by the number of “stone-walling” sites identified on SAHRIS. It is therefore very likely that the proposed development may impact on significant archaeological heritage and it is recommended that this impact be further assessed in the recommended HIA.

Palaeontology

According to the SAHRIS Palaeosensitivity Map (Figure 4), the area proposed for development is underlain by sediments of zero palaeontological sensitivity. According to the extract from the Council of GeoScience Map for Rustenburg (Figure 5), the geology of the area consists of gabbro-norite and pyroxenite of the Rustenburg Layered Suite, Bushveld Complex which does not contain any fossil material. This geology includes platinum and is the reason why the mine has been established here. As per a recent letter for exemption from palaeontological studies completed by Butler (2022) for an adjacent property located within the same geology, “This correlates with the fact that the sediments of the Bushveld Complex are igneous in origin and thus unfossiliferous. For this reason, an overall Zero Palaeontological Sensitivity is allocated to the development footprint. Thus, the construction of the development may be authorised in its whole extent, as the development footprint is not considered sensitive in terms of palaeontological resources.” As such, it is *very unlikely that the proposed development here will impact on significant palaeontological heritage* and no further assessment of impacts to palaeontological heritage is recommended.

Site Sensitivity Verification

According to the DFFE Screening Tool analysis, the development area has MEDIUM levels of sensitivity for impacts to palaeontological heritage and LOW levels of sensitivity for impacts to archaeological and cultural heritage resources. The results of this desktop assessment in terms of site sensitivity are summarised below:

- The cultural value of the broader cultural landscape is LOW due to the existing mining infrastructure that dominates the area (LOW)
- Many significant archaeological resources have been identified within the broader area and may be present on site including archaeology associated with the South African War and Iron Age archaeological sites (known Iron Age sites are located less than 2km from Option 3C) (HIGH)
- The igneous geology underlying the development area is not sensitive for impacts to fossils at all (LOW)

As per the findings of this assessment, and its supporting documentation, the outcome of the sensitivity verification disputes the results of the DFFE Screening Tool for both Palaeontology - this should be LOW - and for Archaeology and Cultural Heritage - this should be HIGH. This evidence is provided in the body of this report and in the appendices (Appendix 1 and 2).

Conclusion

The Impala Platinum Mine proposed to develop a PV facility in one of many proposed areas for assessment. All of these areas are located within the footprint of the existing mine and as such, this proposed development is not likely to impact on any significant cultural landscape resources. In addition, the underlying geology of the development area is igneous in origin and as such, has no sensitivity for impacts to significant fossil resources.

Although the areas proposed for development are far from pristine due to their location within an existing platinum mine, it is known that the broader area has archaeological sensitivity for resources associated with the Iron Age occupation of the area, as well as its more recent agricultural and mining history.

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RECOMMENDATION

Based on the available information, the proposed development is likely to impact on significant archaeological resources and as such, it is recommended that a heritage impact assessment is required in terms of section 38 of the NHRA to assess this impact.

9. Scoping Assessment

Impact Destruction of significant heritage resources				
Issue	Nature of Impact	Extent of Impact	Likelihood	No-go Areas
Destruction of archaeological heritage	Direct impact to archaeological heritage of scientific significance	Within project boundary	High	None identified at this stage
Destruction of palaeontological heritage	Direct impact to palaeontological heritage of scientific significance	Within project boundary	Low	None identified at this stage
Negative impact to significant cultural landscapes	Direct and indirect impact to significant cultural landscapes and cultural landscape elements	Regional	Low	None identified at this stage
Description of expected significance of impact Field assessment will determine the significance of the archaeological resources likely to be impacted. Impacts can be minimised through the implementation of appropriate mitigation measures.				
Gaps in knowledge & recommendations for further study The project area and the area more broadly have been subjected to many heritage impact assessments however many of the areas proposed for the PV facility have not been specifically assessed. Field assessment will fill these gaps.				
Recommendations with regards to general field surveys Archaeological field surveys must provide sufficient ground-coverage of the areas to be developed to be able to determine the nature of the resources likely to be impacted.				

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APPENDIX 1: List of heritage resources in proximity to the development area

Site ID	Site no	Full Site Name	Site Type	Grading
26627	9/2/263/0007	Boekenhoutfontein, Rustenburg District	Building	Grade II
25409	BCM -01	Boekenhoutfontein Chrome Mine	Artefacts	Grade IIIb
25343	RKK -01	Reinkoyalskraal 278JQ	Stone walling	Grade IIIb
64931	BAFO001	BAFOKENG 001	Archaeological	Grade IIIc
64934	BAFO002	BAFOKENG 002	Settlement	Grade IIIc
64936	BAFO003	BAFOKENG 003	Stone walling, Settlement	Grade IIIa
64938	BAFO004	BAFOKENG 004	Stone walling	Grade IIIa
40241	PHOK002	Phokeng 002	Stone walling	Grade IIIc
40243	PHOK003	Phokeng 003	Structures	Grade IIIc
40244	PHOK004	Phokeng 004	Structures	Grade IIIc
40246	PHOK006	Phokeng 006	Structures	Grade IIIc
85337	BOSH001	Boshhoek Smelter 001	Burial Grounds & Graves	Grade IIIa
85338	BOSH002	Boshhoek Smelter 002	Burial Grounds & Graves	Grade IIIa
85339	BOSH003	Boshhoek Smelter 003	Burial Grounds & Graves	Grade IIIa
85340	BOSH004	Boshhoek Smelter 004	Burial Grounds & Graves	Grade IIIa
85341	BOSH005	Boshhoek Smelter 005	Burial Grounds & Graves	Grade IIIa
135015	DC37/NAMM/0002	Monumental grave, Saron, Phokeng	Burial Grounds & Graves	

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135818	DC37/NAMM/0008	Old Anglican Church Rustenburg, Saron, Phokeng	Monuments & Memorials	
130341	2527CB/Elandsheuvél 282 JQ/ Site BP 2	Roadside Memorial, Kanana, Rustenburg	Monuments & Memorials	Grade IV
130342	2527CB/ Municipal Infrastructure/ farms Elandsheuvél 282 JQ/ Site BP 3	Stone walling	Archaeological	Grade IV
130343	2527CB/ Municipal Infrastructure/ farms Elandsheuvél 282 JQ/ Site BP 4	Stone walling	Archaeological	Grade IV
130344	2527CB/ Municipal Infrastructure/ farms Elandsheuvél 282 JQ/ Site BP 5	Stone walling	Archaeological	Grade IV
130345	2527CB/ Municipal Infrastructure/ farms Elandsheuvél 282 JQ/ Site BP 6	Stone walling	Archaeological	Grade IV
130346	2527CB/ Municipal Infrastructure/ farms Elandsheuvél 282 JQ/ Site BP 7	Stone walling	Archaeological	Grade IV
130347	2527CB/ Municipal Infrastructure/ farms Elandsheuvél 282 JQ/ Site BP 8	Stone walling	Archaeological	Grade IV
130348	2527CB/ Municipal Infrastructure/ farms Elandsheuvél 282 JQ/ Site BP 9	Stone walling	Archaeological	Grade IV
139516	KFT-001	KOOFONTEIN	Artefacts	Grade IIIc
130349	2527CB/ Municipal Infrastructure/ farms Elandsheuvél 282 JQ/ Site BP 10	Stone walling	Archaeological	Grade IV
139517	KFT-002	KOOFONTEIN	Stone walling	
130350	2527CB/ Municipal Infrastructure/ farms Elandsheuvél 282 JQ/ Site BP 11	Stone walling	Archaeological	Grade IV
139518	KFT-003	KOOFONTEIN	Stone walling	

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139519	KFT-003	KOOFONTEIN	Stone walling	
130351	2527CB/ Municipal Infrastructure/ farms Elandsheuvel 282 JQ/ Site BP 12	Stone walling	Archaeological	Grade IV
130352	2527CB/ Municipal Infrastructure/ farms Elandsheuvel 282 JQ/ Site BP 13	Stone walling	Archaeological	Grade IV
139520	KFT-004	KOOFONTEIN	Structures	
139521	KFT-004	KOOFONTEIN	Structures	
132589	BP3	Bospoort LIA Site BP3	Archaeological, Stone walling	
132590	BP4	Bospoort LIA Site BP4	Archaeological, Stone walling	
132591	BP5	Bospoort LIA Site BP5	Archaeological, Stone walling	
131040	2527AC/ Infrastructure/ Farm Boschhoek 103JQ/ Site Exigo-TBL-HP01	Railway bridge	Structures	Ungraded
132592	BP6	Bospoort LIA Site BP6	Archaeological, Stone walling	
131041	2527AC/ Infrastructure/ Farm Boschhoek 103JQ/ Site Exigo-TBL-HP02	Box culverts	Structures	Ungraded
132593	BP7	Bospoort LIA Site BP7	Archaeological, Stone walling	
131042	2527AC/ Infrastructure/ Farm Boschhoek 103JQ/ Site Exigo-TBL-FT01	House foundation	Archaeological	Ungraded

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132594	BP8	Bospoort LIA Site BP8	Archaeological, Stone walling	
131043	2527AC/ Infrastructure/ Farm Boschhoek 103JQ/ Site Exigo-TBL-BP01	Grave	Burial Grounds & Graves	Ungraded
132595	BP9	Bospoort LIA Site BP9	Archaeological, Stone walling	
132596	BP10	Bospoort LIA Site BP10	Archaeological, Stone walling	
132597	BP11	Bospoort LIA Site BP11	Archaeological, Stone walling	
132598	BP12	Bospoort LIA Site BP12	Archaeological, Stone walling	
132599	BP13	Bospoort LIA Site BP13	Archaeological, Stone walling	
137221	DC37/NAMM/0005	Sol Plaatjie Statue, Kedar Heritage Lodge, Rustenburg	Monuments & Memorials	
137222	DC37/NAMM/0006	Anglo Boer War Memorial, Kedar Heritage Lodge, Rustenburg	Monuments & Memorials	
137223	DC37/NAMM/0011	Mahatma Gandhi Memorial, Kedar Heritage Lodge, Rustenburg	Monuments & Memorials	
134926	Monumental grave(traditional grave)	Monumental grave(traditional grave)	Burial Grounds & Graves	
137284	DC37/NAMM/0012	Setlogano Ramakgala Makgala Memorial, Saron, Phokeng	Monuments & Memorials	
137588	Memorial(saron cemetery)	Memorial(saron cemetery)	Monuments & Memorials	

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137667	Jan Smuts Memorial	Jan Smuts Memorial	Monuments & Memorials	
137668	Direpotsane Cemetery	Direpotsane Cemetery	Monuments & Memorials	
137669	Kgosigolo Lentswe I Memorial	Kgosigolo Lentswe I Memorial	Monuments & Memorials	
137662	Royal Compound	Royal Compound	Monuments & Memorials	
137663	Old Post Office, Direpotsane	Old Post Office, Direpotsane	Monuments & Memorials	
137665	Boekenhoutfontein Farm	Boekenhoutfontein Farm	Monuments & Memorials	
137666	Saron Lutheran Church	Saron Lutheran Church	Monuments & Memorials	

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APPENDIX 2: Reference List

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
2040	AIA Phase 1	Jaco van der Walt	30/09/2011	Archaeological Impact Assessment FOR THE PROPOSED WBJV MASEVE PLATINUM PROJECT ON PORTION 2 OF THE FARM ELANDSFONTEIN 102 JQ AND VARIOUS PORTIONS OF THE FARM FRISCHGEWAAGD 96 JQ
5526	AIA Phase 1	Johnny Van Schalkwyk	01/06/2003	A Survey of Cultural Resources in the Boitekong Township Development Area, Rustenburg District, North West
5528	AIA Phase 1	Anton van Vollenhoven, Anton Pelser	01/05/2008	A Report on a Cultural Heritage Impact Assessment for the Proposed Development of the Bellevue Extension 3 Residential Town, Located in the Rustenburg Local Municipality, Northwest Province
5540	AIA Phase 1	Julius CC Pistorius	01/08/2000	An Archaeological Scoping Report Supplemented with a Phase 1 Archaeological Survey for SA Chrome's Proposed New Ferrochrome Smelter on the Farm Boschhoek 103 JQ in the Rustenburg District of the Central Bankeveld in the North West Province
5541	AIA Phase 1	Julius CC Pistorius	01/10/2001	Rasimone Platinum Mine on the Farms Boschkoppie 104 JQ and Styldrif 90 JQ
5547	AIA Phase 1	Julius CC Pistorius	09/02/2003	A Heritage Impact Assessment (HIA) for SA Ferrochrome's New Proposed Expansion Operations in Boschhoek, North of Rustenburg in the North-West Province of South Africa
5553	AIA Phase 1	Udo Kusel	10/03/2005	Cultural Heritage Impact Assessment Cape Archaeological Survey CChan Extension 3 Rustenburg
5554	AIA Phase 1	Cobus Dreyer	28/06/2006	First Phase Archaeological and Cultural Heritage Assessment of the Proposed Development Site at the Farm Wildebeestfontein JQ 274, Rustenburg, North West Province
5559	AIA Phase 1	Julius CC Pistorius	01/05/2007	A Phase I Heritage Impact Assessment (HIA) Study for Eskom's Proposed New 3X88 kV Power Lines Between the Marang Substation and Impala Platinum's Shaft 16 in the North West Province of South Africa
5563	AIA Phase 1	Anton van	01/11/2007	A Report on a Cultural Heritage Impact Assessment at the Site for the Proposed New Laying House on the Farm

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		Vollenhoven, Anton Pelser		Bulhoek 368 JP, Northwest Province
5567	AIA Phase 1	Johnny Van Schalkwyk	01/09/1996	A Survey of Cultural Resources in the Bafokeng District, North West
5574	AIA Phase 1	Polke Birkholtz, A van Rooyen	26/02/2004	Cultural Heritage Impact Assessment as Part of the Environmental Scoping Report for the Proposed Cape Archaeological Survey CChan Extension 7 Residential Development on the Remainder of Portion 43 of the Farm Waterval 306 JQ in North West Province, SA
5581	AIA Phase 1	Julius CC Pistorius	01/02/2006	A Phase 1 Heritage Impact Assessment (HIA) Study for the Impala Platinum Shaft 17 Complex on the Farm Vlakfontein 276 JQ near Rustenburg in the North-West Province of South Africa
5830	AIA Phase 1	McEdward Murimbika	01/04/2008	Phase 1 Archaeological and Cultural Heritage Assessment Specialist Study for the Proposed Construction of Trident to Koster Power-Line in the Bojanala District Municipality, North West Province
6125	AIA Phase 1	Udo Kusel	01/08/2007	Cultural Heritage Resources Impact Assessment of Quality Vacation Club and a Golf Course at Sun City (Farm Ledig 909 JQ) North West Province
6127	AIA Phase 1	Julius CC Pistorius	01/04/2004	A Heritage Impact Assessment Study for Impact Platinum's Proposed New No. 16 Shaft Complex on the Farm Reinkoyalskraal 278 JQ in the Bokone-Bothlaba District Municipality of the North-West Province
6202	AIA Phase 1	Thomas Huffman	01/02/2005	The Archaeology of the Anglo Platinum Lease Area, Rustenburg
6315	AIA Phase 1	Thomas Huffman	01/08/2002	Archaeological Study of the Boschfontein East Options, Rustenburg
7138	AIA Phase 1	Johnny Van Schalkwyk	01/06/2001	A Survey of Cultural Resources on the Farm Kroondal 304 JQ, East of Rustenburg,
7366	AIA Phase 1	Jaco van der Walt	29/06/2007	Proposed Platinum Mining on Portions of the Farms Ledig 909 JQ, Frischgewaagd 96 JQ & Mimosa 81 JQ, North West Province
7631	AIA Phase 1	Johnny Van Schalkwyk	01/09/2008	Archaeological Impact Survey Report for the Proposed Phokeng Bypass Road Between the Rustenburg N4 Interchange and the R565 Junctions, North-West Province
8209	AIA Phase 1	Johnny Van	01/10/2008	Archaeological impact survey report for the proposed development on Waagfontein 89 JQ, Mankwe Magisterial

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		Schalkwyk		District, North West Province
8234	AIA Phase 1	Anton van Vollenhoven, Anton Pelser	01/02/2008	A Report on a Heritage Impact Assessment for the Proposed Development of Waterval East Extension 7 in Rustenburg, North West Province
8236	AIA Phase 1	Anton van Vollenhoven, Anton Pelser	01/02/2008	A Report on a Heritage Impact Assessment for the Proposed Development of Waterval Portion 8 in Rustenburg, North West Province
8238	AIA Phase 1	Anton van Vollenhoven	01/09/2008	A Report on a Cultural Heritage Impact Assessment for the Proposed Industrial Town Development on Holdings Re/31 and 3/31 of the Waterval Smallholdings, North West Province
8255	AIA Phase 1	Thomas Huffman	01/03/2002	Archaeological Study for the Western Limb Tailings Re-Treatment Project, Rustenburg
8306	AIA Phase 1	Wouter Fourie	09/11/2007	Ingwe Eco Estate Archaeological Impact Assessment. Residential Development on Portion 71 of the Farm Wysfontein 427 JP, North West Province
8374	HIA Phase 1	McEdward Murimbika	01/10/2008	Phase 1 Archaeological and Heritage Impact Assessment Specialist Study Report. Proposed Construction of a New 6 km 88 kV Koster Powerline in Kgetheng Local Municipality, Bojanala District, North West Province
8484	HIA Phase 1	Robert de Jong	01/09/2008	Final Heritage Impact Assessment Report: Proposed Western Bypass Road (Phokeng Bypass Road) of 10 km Between the Rustenburg N4 Interchange and the R565 Junctions, North-West Province
8498	HIA Phase 1	Johnny Van Schalkwyk	03/01/2008	Heritage Survey Report for the Upgrading of a Section of Road P16/1 (R30), Rustenburg Magisterial District, North West Province
66846	HIA Phase 1	Francois P Coetzee	01/01/2012	Cultural Heritage Survey of the Proposed New Ventilation Shaft Phase 3 Project, Bafokeng Rasimone Platinum Mine, North West Province
89339	HIA Phase 1	Makhosazana Mngomezulu	01/07/2012	Heritage Impact Assessment: THE PROPOSED DEVELOPMENT OF A HOTEL, CONFERENCE AND WEDDING FACILITIES, HEALTH SPA AND RECREATIONAL FACILITIES ON PORTION 48 (A PORTION OF PORTION 39) OF THE FARM RIETVLY 271 JQ, RUSTENBURG, NORTH WEST PROVINCE
115025	HIA Phase 1	Julius CC Pistorius	01/07/2012	A PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR IMPALA PLATINUM LIMITEDâ€™S (IMPALA) PROPOSED OPEN CAST PIT8C AND THE EXPANSION OF THE SHAFT 16 WASTE ROCK DUMP IN THE

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117447	Heritage Impact Assessment	Anton van Vollenhoven	15/03/2012	A REPORT ON A HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED STRUMOSA SOLID WASTE TRANSFER STATION NEAR RUSTENBURG IN THE NORTHWEST PROVINCE
145611	Heritage Impact Assessment Specialist Reports	Anton van Vollenhoven	30/09/2013	Heritage Impact Assessment for the proposed Waterval Retrofit E-Feed Project located in Rustenburg, North West Province.
161099	AIA Phase 1	Anton van Vollenhoven	01/02/2014	A REPORT ON THE UPDATING OF A PREVIOUS CULTURAL HERITAGE IMPACT ASSESSMENT FOR THE EMPR ALIGNMENT AND CONSOLIDATION PROCESS AT ANGLO AMERICAN PLATINUM: RUSTENBURG PLATINUM MINES “ RUSTENBURG SECTION, NORTHWEST PROVINCE
163216	HIA Phase 1	Julius CC Pistorius	06/05/2014	Phase I Base Line Heritage study for the proposed Glencore Merafe Venture Operation - Boshhoek Operations near Boshhoek in the North-West Province of South Africa
182083	Archaeological Specialist Reports	Munyadziwa Magoma	18/01/2016	PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT SPECIALIST STUDY REPORT FOR THE PROPOSED RUSTENBURG STRENGTHENING PROJECT WITHIN RUSTENBURG LOCAL MUNICIPALITY OF BOJANALA MUNICIPALITY. NORTH WEST PROVINCE.
182084	PIA Desktop	JF Durand	15/02/2014	Proposed construction of Marang B - a new 3 x 500MVA 400/132kV Main Transmission Substation east of Rustenburg, North West Province
252212	Heritage Scoping	Johnny Van Schalkwyk	01/10/2013	Cultural heritage impact assessment for the PROPOSED TOWNSHIP DEVELOPMENT ON PORTIONS OF THE FARM ROOIWAL 285JQ, NORTH WEST PROVINCE
289598	Heritage Impact Assessment	Natasha Higgitt, Johan Nel	23/06/2015	Environmental Authorisation Application: Prospecting Right Application for Paardekraal 279JQ & Waterval 306JQ, Phase 2 Draft Heritage Basic Assessment Report
289748		Natasha Higgitt	23/06/2015	Environmental Authorisation Application: Prospecting Right Application for Waterval 306JQ, Phase 2

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				Notification of Intent to Develop:
289754		Natasha Higgitt	23/06/2015	Environmental Authorisation Application: Prospecting Right Application for Paardekraal 279JQ, Phase 2 Notification of Intent to Develop
316019	HIA Phase 1	Makhosazana Mngomezulu	10/06/2015	Phase 1 Heritage Impact Assessment for Section 24G rectification process and Water Use License Application for the chrome crushing, screening and washing plant on portion 8 of the Boshhoek 103 JQ in Rustenburg, Bojanala Platinum District Municipality, North West Province
361026	HIA Phase 1	Polke Birkholtz	31/03/2016	PROPOSED CHANGES TO INFRASTRUCTURE AT BAKUBUNG PLATINUM MINE, LEDIG, BOJANALA DISTRICT MUNICIPALITY, NORTH WEST PROVINCE Remaining Extent and Portions 1, 3, 4 and 11 of the farm Frischgewaagd 96 JQ and the Remainder of the farm Mimosa 81 JQ
361026	HIA Phase 1	Polke Birkholtz	31/03/2016	PROPOSED CHANGES TO INFRASTRUCTURE AT BAKUBUNG PLATINUM MINE, LEDIG, BOJANALA DISTRICT MUNICIPALITY, NORTH WEST PROVINCE Remaining Extent and Portions 1, 3, 4 and 11 of the farm Frischgewaagd 96 JQ and the Remainder of the farm Mimosa 81 JQ
361026	HIA Phase 1	Polke Birkholtz	31/03/2016	PROPOSED CHANGES TO INFRASTRUCTURE AT BAKUBUNG PLATINUM MINE, LEDIG, BOJANALA DISTRICT MUNICIPALITY, NORTH WEST PROVINCE Remaining Extent and Portions 1, 3, 4 and 11 of the farm Frischgewaagd 96 JQ and the Remainder of the farm Mimosa 81 JQ
364140	AIA Phase 1	Julius CC Pistorius	01/05/2013	A PHASE I HERITAGE IMPACT ASSESSMENT FOR IMPALA PLATINUM LIMITED (IMPLATS) PROPOSED NEW SHAFT 18 COMPLEX IN THE RUSTENBURG (BAFOKENG) DISTRICT IN THE NORTH-WEST PROVINCE (WITH AMENDMENTS TO THE SHAFT 18 COMPLEX IN ORDER TO AVOID SITES LIA03 AND SITE LIA04)
368189	HIA Phase 1	Julius Pistorius	29/07/2016	A HERITAGE ASSESSMENT STUDY FOR IMPALA PLATINUM LIMITED (IMPALA) PROPOSED PROSPECTING DRILL HOLES ON THE FARM DIEPKUIL 116JQ IN THE RUSTENBURG DISTRICT IN THE NORTH-WEST PROVINCE
374016	AIA Phase 1	Neels Kruger	02/11/2015	Archaeological Impact Assessment: Proposed Rustenburg Extension 30 Township Establishment on the Remaining Extent of Portion 1 of the farm Town and Townlands of Rustenburg 272-JQ, Rustenburg Local Municipality, North West Province

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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

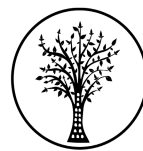
(2) The heritage resources and the area proposed for development are only partially recorded - The surveys undertaken in the area have not adequately captured the heritage resources and/or there are sites which require mitigation or management plans. Further specific heritage work is recommended for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

APPENDIX 5 -Summary of Specialist Expertise

Jenna Lavin, an archaeologist with an MSc in Archaeology and Palaeoenvironments, and currently completing an MPhil in Conservation Management, heads up the heritage division of the organisation, and has a wealth of experience in the heritage management sector. Jenna's previous position as the Assistant Director for Policy, Research and Planning at Heritage Western Cape has provided her with an in-depth understanding of national and international heritage legislation. Her 8 years of experience at various heritage authorities in South Africa means that she has dealt extensively with permitting, policy formulation, compliance and heritage management at national and provincial level and has also been heavily involved in rolling out training on SAHRIS to the Provincial Heritage Resources Authorities and local authorities.

Jenna is a member of the Association of Professional Heritage Practitioners (APHP), and is also an active member of the International Committee on Monuments and Sites (ICOMOS) as well as the International Committee on Archaeological Heritage Management (ICAHM). In addition, Jenna has been a member of the Association of Southern African Professional Archaeologists (ASAPA) since 2009. Recently, Jenna has been responsible for conducting training in how to write Wikipedia articles for the Africa Centre's WikiAfrica project.

Since 2016, Jenna has drafted over 70 Heritage Impact Assessments throughout South Africa.

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