

Heritage Impact Assessment

Diepwater Agricultural Development

Heritage Impact Assessment for the Proposed Agricultural Development on parts of Portions 4 to 8 of the Farm Diepwater 302 KQ near Makoppa, north-west of Thabazimbi in the Thabazimbi Local Municipality, Limpopo Province.

Compiled for:

Jonk Begin Environmental Services

Survey conducted & Report compiled by:

Marko Hutten

21 October 2015

Hutten Heritage Consultants
P.O. Box 4209
Louis Trichardt
0920
Tel: +27 76 038 4185
E-mail: marko@pgsheritage.co.za

Acknowledgements:

CLIENT: Jonk Begin Environmental Services

CONTACT PERSON: Ms. L. du Plessis
PO Box 6
Koedoeskop
0361
+27 (0) 14 785 0600
bothadp@gmail.com / botha@alliedgroup.co.za

CONSULTANT: Hutten Heritage Consultants

CONTACT PERSON: Marko Hutten (BA Hons. Archaeology, UP)
Accredited Member of the Association of Southern African
Professional Archaeologists (#057)

REPORT AUTHOR: Marko Hutten

FIELD WORKERS: Thomas Mulaudzi & Edward Khorommbi

SIGNED OFF:



Marko Hutten

Executive Summary

Site name and location: Proposed agricultural development on parts of Portions 4 to 8 of the Farm Diepwater 302 KQ near Makoppa, north-west of Thabazimbi in the Thabazimbi Local Municipality, Limpopo Province.

Local Authority: Thabazimbi Local Municipality.

Developer: Mr. Albertus Nel.

Date of field work: 28 August 2015.

Date of report: 21 October 2015.

Findings: Hutten Heritage Consultants was appointed by Jonk Begin Environmental Services to undertake a Heritage Impact Assessment (HIA), which forms part of the Environmental Impact Assessment (EIA) for the proposed agricultural development on parts of Portions 4 to 8 of the Farm Diepwater 302 KQ near Makoppa, north-west of Thabazimbi in the Thabazimbi Local Municipality, Limpopo Province.

The developer was ordered by the Department of Environmental Affairs and Tourism to conduct a Rectifying Environmental Impact Assessment Process after it came to light that they started with the proposed agricultural development without having the Environmental Impact Assessment (which included the Heritage Impact Assessment) completed and the Register of Decisions (ROD) finalised.

An archival and historical desktop study was undertaken which was used to compile a historical layering of the study area within its regional context. This component indicated that the landscape within which the project area is located has a rich and diverse history. However, the desktop study did not reveal any historic or heritage sites from within the specific locations of the study area.

The Sahrís Palaeontological Sensitivity Map was also consulted and it was found that the palaeontological sensitivity for the study area was moderate and that a Palaeontological Impact Assessment is required.

Dr. J.F. Durand completed a desktop palaeontological study for the study area. He concluded that the region is of no palaeontological importance. The study area is underlain by igneous rocks of Archaean age and Tertiary to Quaternary sediments including Kalahari sands, alluvium and soil. No fossils have been reported from this region.

He therefore recommended that due to the improbability of fossils occurring in the study area, that the project should be exempted from further palaeontological studies.

The desktop studies were followed by a fieldwork component which comprised an inspection of the study area. The proposed agricultural development site was already mechanically bush cleared and the top soil was ripped. If any sites or objects of heritage significance were present, the site clearing and ripping of the top soil would have destroyed any of it. No sites or finds of any heritage value or potential were identified on the site during the fieldwork investigations.

Van Schalkwyk (2007b) carried out a Heritage Impact Assessment on the Farm Aapieskraal 376 KQ, approximately 60km to the south-east, and also within the floodplains of the Crocodile River and recommended that the proposed development could go ahead from a heritage point of view. The HIA found no features, sites or artefacts of cultural significance and stated that the flat terrain, without landscape features such as rocky hills, coupled with the fact that the study area is near the floodplain of the Crocodile River, made the locality highly unsuitable for settlement (Van Schalkwyk, 2007b) compared to the more mountainous areas to the south and east.

The study area in this report is also located near the floodplains of the Crocodile River and the same deductions will also apply. As for the proposed site, no site-specific actions or any further heritage mitigation measures are recommended as no heritage resource sites or finds of any value or significance were identified in the indicated study area.

The proposed agricultural development on parts of Portions 4 to 8 of the Farm Diepwater 302 KQ at the indicated area can continue from a heritage point of view.

Disclaimer: *Although all possible care is taken to identify all sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites and/or graves could be overlooked during the study. Hutten Heritage Consultants and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

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1. Introduction

Hutten Heritage Consultants was contracted by Jonk Begin Environmental Services to conduct a Heritage Impact Assessment (HIA) for the proposed agricultural development on parts of Portions 4 to 8 of the Farm Diepwater 302 KQ near Makoppa, north-west of Thabazimbi in the Thabazimbi Local Municipality, Limpopo Province.

The aim of the study was to identify all heritage sites, to document and to assess their significance within Local, Provincial and National context. The report outlines the approach and methodology implemented before and during the survey, which includes in Phase 1: Information collection from various sources and social consultations; Phase 2: Physical surveying of the area on foot and by vehicle; and Phase 3: Reporting the outcome of the study.

This HIA forms part of the Environmental Impact Assessment (EIA) as required by various Acts and Laws as described under the next heading and is intended for submission to the provincial South African Heritage Resources Agency (SAHRA) for peer review.

Minimum standards for reports, site documentation and descriptions are set by the Association of Southern African Professional Archaeologists (ASAPA) in collaboration with SAHRA. ASAPA is a legal body representing professional archaeology in the Southern African Development Community (SADC) region.

The extent of the proposed development site was determined as well as the extent of the areas to be affected by secondary activities (access routes, construction camps, etc.) during the development.

2. Legislative Requirements

The identification, evaluation and assessment of any cultural heritage site, artefact or find in the South African context is required and governed by the following legislation:

National Environmental Management Act (NEMA) Act 107 of 1998
National Heritage Resources Act (NHRA) Act 25 of 1999
Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
Development Facilitation Act (DFA) Act 67 of 1995

The following sections in each Act refer directly to the identification, evaluation and assessment of cultural heritage resources.

National Environmental Management Act (NEMA) Act 107 of 1998
Basic Environmental Assessment (BEA) – Section (23)(2)(d)

Environmental Scoping Report (ESR) – Section (29)(1)(d)
Environmental Impacts Assessment (EIA) – Section (32)(2)(d)
Environmental Management Plan (EMP) – Section (34)(b)
National Heritage Resources Act (NHRA) Act 25 of 1999
Protection of Heritage resources – Sections 34 to 36; and
Heritage Resources Management – Section 38
Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
Section 39(3)
Development Facilitation Act (DFA) Act 67 of 1995
The GNR.1 of 7 January 2000: Regulations and rules in terms of the Development Facilitation Act, 1995. Section 31.

3. Project Area Description

The proposed agricultural development will be situated on parts of Portions 4 to 8 of the Farm Diepwater 302 KQ near Makoppa, north-west of Thabazimbi in the Thabazimbi Local Municipality, Limpopo Province.

The proposed agricultural development will consist of one crop-circle which will measure 50 hectares in size each and will be situated on parts of the property which measured approximately 60 hectares in size.

The proposed site for the agricultural development was previously developed as agricultural fields during the 1960's and the 1970's. These fields were abandoned during the droughts of the early 1980's and were left lying fallow until 2011 when they were cleared again by the current developer.

The proposed area for development is bordered by the Crocodile River (figure 1) to the north, a game farm (figure 2) on the eastern side and a large earthen dam (figure 3) on the southern side. More ploughed and developed fields (figure 4) are situated on the western side of the study area.

The proposed site was bush cleared and the top soil was ripped during site preparations in 2011 (figures 5 & 6). Further developments such as the installation of pumps and irrigation systems still need to follow.

The proposed development will be situated on the Makoppa 2427 AC and the Kaaldraai 2427 CA 1:50 000 topographical maps.



Figure 1: View of the Crocodile River and existing irrigation system to the north.



Figure 2: A view of the game farm and game fencing on the eastern side.



Figure 3: View of the earthen dam to the south of the study area.



Figure 4: View of the neighbouring ploughed and planted fields.



Figure 5: View of the already cleared and ripped fields.



Figure 6: Another view of the cleared and ripped fields.

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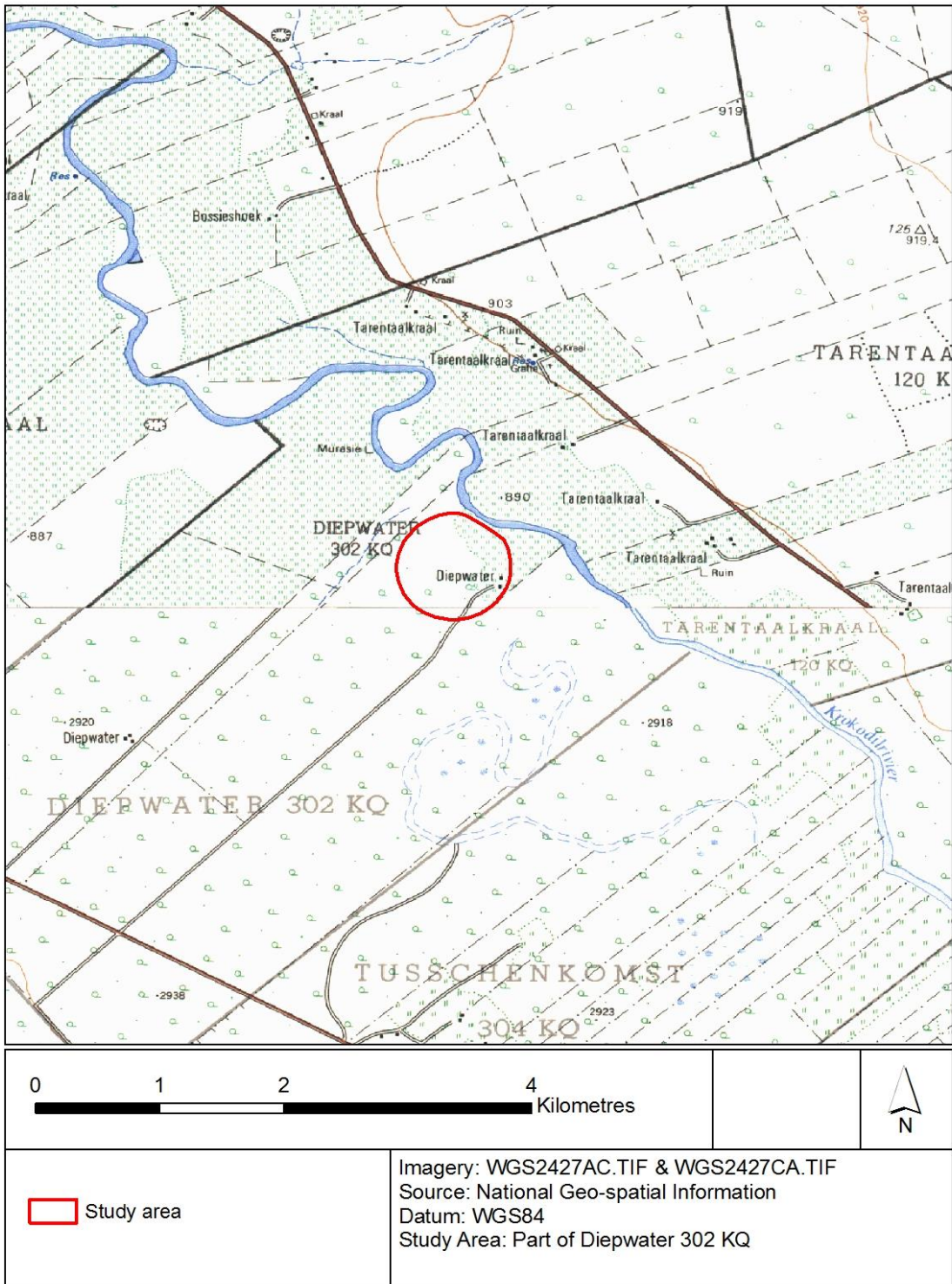


Figure 7: General topographical map of the proposed study area.

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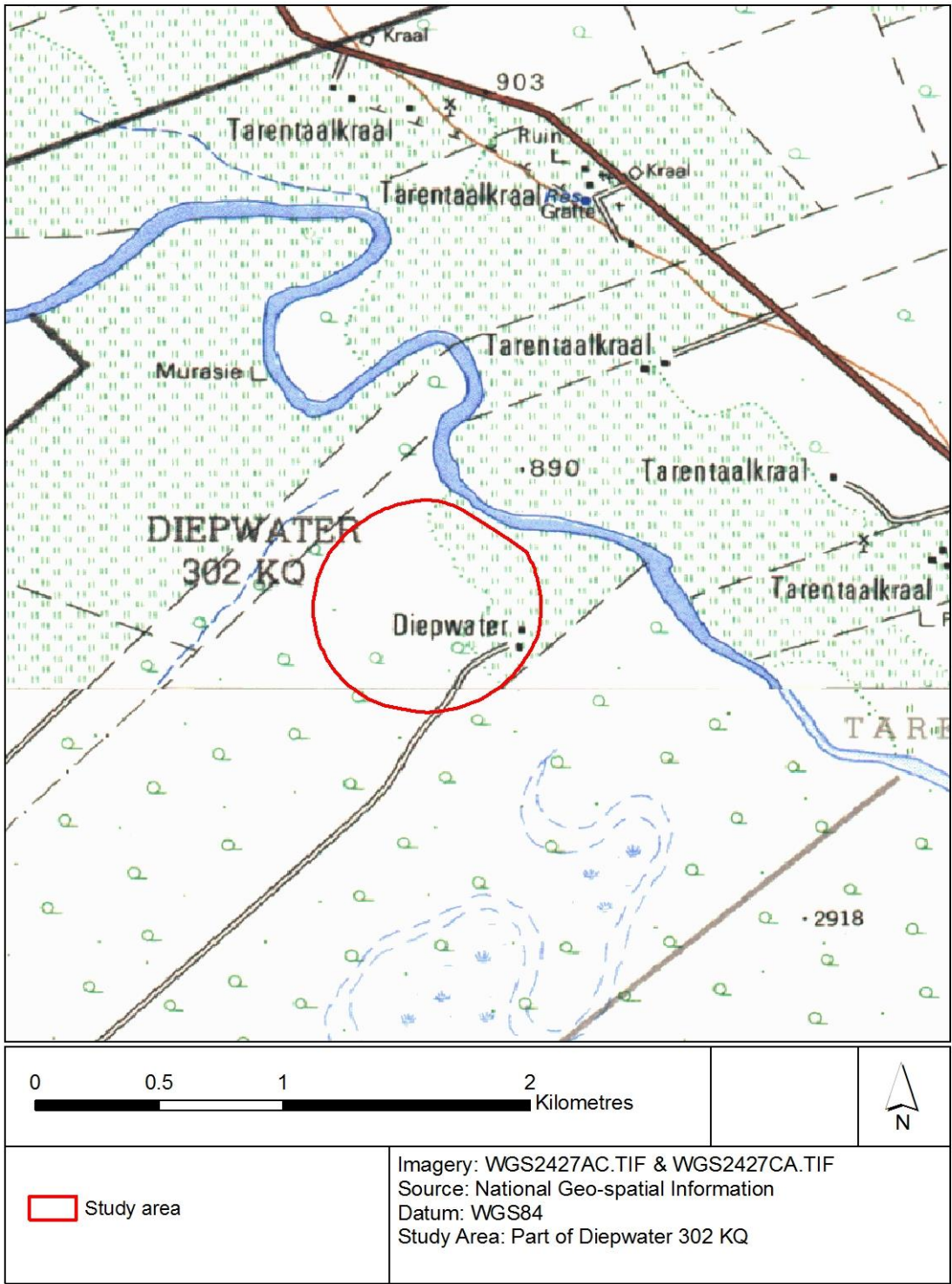


Figure 8: Topographical map of the proposed study area.

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Figure 9: Close-up satellite image of the proposed study area.

4. Proposed Project

The developer, Mr Albertus Nel, was ordered by the Department of Environmental Affairs and Tourism (DEAT) to conduct a Rectifying Environmental Impact Assessment Process after it came to light that they started with the proposed agricultural development without having the Environmental Impact Assessment (which included the Heritage Impact Assessment) completed and the Register of Decisions (ROD) finalised. The developer is in close contact with the Department during the remainder of the project.

The developer completed the process of bush clearing and the ripping of the top soil. The bush clearing involved the mechanical up-rooting and removal of trees and other vegetation. The ripping of the top soil involved the mechanical ripping of the soil with a tractor and a ripper across the entire area. The ripping of the top soil will aid in the later ploughing and planting processes. This process of bush clearing and ripping of the top soil was completed in 2011.

Mr. Nel proposed the development of a single crop circle of approximately 50ha on the proposed property. The agricultural development will include the complete bush clearing and the ripping of the top soil. It will also include the installation of water pumps and an irrigation system for the effective irrigation of planted crops. The irrigation system will be connected to existing irrigation systems, or new systems which will source their water from the nearby Crocodile River.

The proposed agricultural development will be located on parts of Portions 4 to 8 of the Farm Diepwater 302 KQ, which measured approximately 60ha in size. The anticipated footprint of the proposed development will cover most of the 60ha, but no site development maps were available for the purpose of this report.

The purpose of the study was to determine if the proposed area was suitable for the agricultural development from a heritage point of view.

The project was tabled during August 2015 and the developer intends to commence as soon as possible after receipt of the ROD from the Department of Environmental Affairs.

5. Desktop Study Findings

The examination of heritage databases, historical data and cartographic resources represents a critical additional tool for locating and identifying heritage resources and in determining the historical and cultural context of the study area. Therefore an internet literature search was conducted and relevant archaeological and historical texts were also consulted. Relevant topographic maps and satellite imagery were studied. Researching the SAHRA APM Report Mapping Project records and the SAHRIS online database (<http://www.sahra.org.za/sahris>), it was determined no previous archaeological studies had been carried out in the study area. A number of previous archaeological or historical studies had been performed within the wider vicinity of the study area.

5.1. Previous Heritage Studies

Previous studies listed for the wider area in the APM Report Mapping Project included the following studies listed in chronological order below:

- Van Schalkwyk, J.A. 1994. **A Survey of Archaeological and Cultural Historical Resources in the Amandelbult Mining Lease Area.** An unpublished report by the National Cultural History Museum on file at SAHRA as 1994-SAHRA-0024.
- Van Schalkwyk, J.A. 2003. **Arch Survey Mantserre-Kraalhoek-Mopyane Water Scheme, NW Province.** An unpublished report by the National Cultural History Museum on file at SAHRA as 2003-SAHRA-0026.
- Van Schalkwyk, J.A., Teichert, F., & Pelsler, A.J. 2003. **A Survey of Archaeological Sites for the Amandelbult Platinum Mine Seismic Exploration Program.** An unpublished report by the National Cultural History Museum on file at SAHRA as: 2003-SAHRA-0086.
- Küsel, U. 2005. **Cultural Heritage Resources Impact Assessment on the Farm Koedoesfontein 324 K.Q. Thabazimbi.** An unpublished report by African Heritage Consultants CC on file at SAHRA as 2005-SAHRA-0219.
- Gaigher, S. 2006. **Heritage Impact Assessment for the Proposed Wildlife Estate on the Farm Grootfontein 352 KQ, Limpopo Province.** An unpublished report by Archaeo-Info on file at SAHRA as: 2006-SAHRA-0262.
- Roodt, F. 2006. **Heritage Resources Scoping Report: Nooitgedacht Open Cast Mine on the Farm Nooitgedacht 22 JQ Northam: Thabazimbi Municipality.** An unpublished report by R & R Cultural Resource Consultants on file at SAHRA as: 2006-SAHRA-0280.
- Van Schalkwyk, J.A., 2007. **Survey of Heritage Resources in the Location of the Proposed Merensky Mining Project, Amandelbult Section, Rustenburg Platinum, Limpopo Province.** An unpublished report by the National Cultural History Museum on file at SAHRA as: 2007-SAHRA-0028.
- Pistorius, J.C.C. 2007a. **A Phase 1 Heritage Impact Assessment (HIA) Study for Eskom's Proposed New 400 kV Power Line Route between the Matimba B Power Station and the Marang Substation near Rustenburg.** An unpublished report by Archaeologist and Cultural Heritage Management Consultants on file at SAHRA as: 2007-SAHRA-0048.
- Roodt, F. 2007. **Phase 1 Heritage Resources Impact Assessment (Scoping & Evaluation) Rhebokkloof Wild Life Estate Thabazimbi, Limpopo.** An

unpublished report by R & R Cultural Resource Consultants on file at SAHRA as: 2007-SAHRA-0072.

- Küsel, U. 2007. **Cultural Heritage Resources Impact Assessment of Hanover 341 KQ in the Thabazimbi Area Limpopo Province.** An unpublished report by African Heritage Consultants CC on file at SAHRA as: 2007-SAHRA-0338.
- Pistorius, J.C.C. 2007b. **A Phase 1 Heritage Impact Assessment Study for a Proposed New 132 kV Power Line Running from the New Matlabas Substation to the Proposed New Bulge Substation in the Limpopo Province.** An unpublished report by Archaeologist and Cultural Heritage Management Consultants on file at SAHRA as 2007-SAHRA-0395b.
- Maguire, J.M. & van Wyk, C. 2008. **Phase 1 Archaeological Impact Assessment for Portion 128 of the Farm Koedoesdoorns KQ 414, Northam, Limpopo Province.** An unpublished report by Adansonia Heritage Consultants on file at SAHRA as: 2008-SAHRA-0293.
- Coetzee, F.P. 2008. **Cultural Heritage Survey of PPC Dwaalboom.** An unpublished report by the University of South Africa on file at SAHRA as 2008-SAHRA-0598.
- Küsel, U. 2008. **Cultural Heritage Resources Impact Assessment for Portions 1, 4, 5, 6, 7, 18, 19, 27 and 28 of the Farm Maroeloesfontein 366 KQ, Limpopo Province.** An unpublished report by African Heritage Consultants CC on file at SAHRA as: 2008-SAHRA-0369.

Researching the SAHRIS online database (<http://www.sahra.org.za/sahris>) further studies were identified in the wider vicinity of the study area and are listed in numerical order below:

- SAHRIS case number 548. **Kumba Iron Ore Thabazimbi Mine Mostert Tunnel Level Cave (MTC) Wachteenbietjesdraai 350 KQ and Kwaggashoek 345 KQ. Heritage Impact Report on proposed mining activities of project Phoenix.** An unpublished report by Professional Grave Solutions.
- SAHRIS case number 579. **Dishaba Mine Backfill Project Draft Scoping Report.** An unpublished report by Prime Resources Environmental Consultants.
- SAHRIS case number 725. **Environmental Management Plan.** An unpublished report by Thathong Development Consulting.
- SAHRIS case number 1480. **Proposed development of Kambaku Private School on Portion 7 of the farm Vlakplaats 137 KQ.**

- SAHRIS case number 1591. **Cultural Heritage Resources Impact Assessment of Farm Roodedam 368 KQ (a portion of portion 17) Thabazimbi Area Limpopo Province.** An unpublished report by African Heritage Consultants CC.
- SAHRIS case number 2910. **The Applicant, Rustenburg Platinum Limited – Amandelbult Section intends to erect a Chrome Recover Plant (CRP) and associated support infrastructure at its Amandelbult Concentrator. The proposed Amandelbult CRP would allow for the optimal use of the UG2 tailings, which are currently being discarded, by extracting the chromite from the tailings. The proposed Amandelbult Chrome Recovery Project, which encompasses the construction of a chrome recovery plant and associated chromite stockpiles, access road and railway line extension, is located within Rustenburg Platinum Mine’s mining right area 25 km south of the town of Thabazimbi in the Limpopo Province of South Africa, on the farm Amandelbult 383 KQ.**
- SAHRIS case number 4402. **Marakele Park (Pty) Ltd is proposing the development of a 12 bed tented trails camp on a total footprint not exceeding 3000 square meters in extent, on Jagtersrus 418 KQ, 1000 ha in extent, in the Marakele Contract National Park, approximately 20 000 ha in extent. The proposed site is located approximately 30km north east of Thabazimbi, Limpopo Province.**
- SAHRIS case number CTS-166894. **1st Phase Cultural Heritage Impact Assessment for the farms Donkerpoort 448 KQ, Randstephne 455 KQ and Waterval 443 KQ, Thabazimbi, Limpopo Province.**
- SAHRIS case number CTS-166896. **Palaeontological assessment: combined desktop & site visit report proposed Meletse iron ore project on Remaining Extent of the farms Donkerpoort 448KQ and Randstephane 455KQ near Thabazimbi, Waterberg District, Limpopo Province**

In addition the author has carried out two surveys close to the current study area, neither of which located any significant heritage resources:

- **Heritage Impact Assessment for the Proposed Agricultural Development on the Remainder Portion of the Farm Tussenkoms 304 KQ near Makoppa, North-west of Thabazimbi in the Limpopo Province. December 15, 2014.**
- **Heritage Impact Assessment for the Proposed Agricultural Development and the Expansion of an Earthen Storage Dam on parts of Portion 8 of the Farm Faure 72 KQ at Makoppa, north-west of Thabazimbi in the Thabazimbi Local Municipality, Limpopo Province. February 26, 2015.**

A number of the studies consulted reported no indications of Stone or Iron Age heritage sites or artefacts (e.g. Küsel 2005; Gaigher 2006; Roodt 2007; Küsel 2007; Van

Schalkwyk 2007; Pistorius 2007b; Küsel 2008; SAHRIS case number 725; SAHRIS case number 1480; SAHRIS case number 1591) although a number mentioned graves and historical heritage resources including farmsteads (e.g. Coetzee 2008). Some reports were incomplete copies or not located on the SAHRA & SAHRIS databases (e.g. Roodt 2006; Maguire & van Wyk 2008) or included no relevant heritage studies (e.g. SAHRIS case number 4402). One development (SAHRIS case number 2910) relied on an earlier heritage study and report, being located within a previous development area. One SAHRIS case (number CTS-166894) is erroneously mapped as occurring within the town of Thabazimbi whereas the study area, for a mining development, is located some 30 km east of the town in the same vicinity as SAHRIS case number CTS-166896.

Van Schalkwyk (1994) carried out a study in the Amandelbult platinum mining area approximately 45 km to the south east of the current study area. Van Schalkwyk et al. (2003) also carried out a far more extensive survey of heritage resources for the Amandelbult area further to the south of this. A large number of sites dating to the Late Iron Age were identified (e.g. Pistorius 2007a). All of these were stone walled sites with large deposits containing ash, faunal remains, potsherds and other cultural remains and located in areas close to the hills or on outcrops. These sites were related to Tswana habitation from the late 17th Century to the late 19th Century (Van Schalkwyk et al. 2003). Van Schalkwyk (2007) carried out a subsequent survey of this mining area. This survey identified a considerable number of heritage resources including a large number of MSA and LSA sites and artefacts and noted that MSA lithics were often encountered singly and in open areas near watercourses while LSA lithics were rather found in accumulations on rocky outcrops. The survey also located a number of Iron Age sites, most belonging to the Late Iron Age but two possibly belonging to the early Iron Age and recommended that sites be protected from development as from an archaeological perspective the area is highly sensitive (Van Schalkwyk 2007).

Also some 40 km to the south east of the south of the study area, Middle Stone Age and Late Stone Age artefacts were described as being well represented as well as a large number of Late Iron Age sites of the Kwena baPhalane, some settled as late as the 1820s, and a number of possible Early Iron Age sites (Van Schalkwyk 1994; SAHRIS case number 579). In the vicinity of Thabazimbi some 25 km to the south east the Mostert Tunnel Cave contains speleothems that would qualify as rare geological specimens under the National Heritage Resources Act (SAHRIS case number 548). Further to the east of Thabazimbi, sites of both cultural and historical significance were identified (SAHRIS case number CTS-166894). The former is a cave, Gatkop, in use by traditional healers. A palaeontological study (SAHRIS case number CTS-166896) found the site to be of low significance but recommended protection in line with the findings of the Cultural Heritage Impact Assessment (SAHRIS case number CTS-166894).

5.2. Archaeological & Historical Sequence

The historical background and timeframe of the study area and other areas in Southern Africa can be divided into the Stone Age, Iron Age and Historical period. These can be divided as follows:

Stone Age sites

The Stone Age is divided into the Early; Middle and Late Stone Age. The *Early Stone Age* (ESA) includes the period from 2.5 million years B.P. to 250 000 years B.P. and is associated with Australopithecines and early *Homo* species who practiced stone tool industries such as the Oldowan and Acheullian. The *Middle Stone Age* (MSA) covers various tool industries, for example the Howiesons Poort industry, in the period from 250 000 years B.P. to 25 000 years B.P. and is associated with archaic and modern *Homo sapiens*. The *Late Stone Age* (LSA) incorporates the period from 25 000 years B.P. up to the Iron Age and Historical Periods and contact between hunter-gatherers and Iron Age farmers or European colonists. This period is associated with modern humans and characterised by lithic tool industries such as Smithfield and Robberg.

Although no ESA sites were recorded within Marakele National Park (Birkholtz & Steyn 2002), excavations at several well-known sites in the region attest to ESA occupation. Makapansgat provided evidence of long occupation, initially by *Australopithecus africanus* from approximately 3.3 million years B.P. (Bergh 1999) while the Olieboompoort shelter indicated the presence of ESA people from between 1 million to 400 000 years B.P. (Birkholtz & Steyn 2002). A number of MSA sites are known from Marakele as well as the wider region including an MSA layer in the Olieboompoort Shelter dated to 33 000 year B.P. (Mason 1962) and MSA sites at New Belgium 608 LR, Schurfpoot 112 KR and Goergap 113 KR (Birkholtz & Steyn 2002).

Interestingly, research on the LSA in the Waterberg Plateau suggests a discontinuity between MSA and LSA settlement of several thousand years, with settlement of the area by LSA hunter gatherers occurring in the 11th and 12th Centuries and coinciding with settlement by Iron Age peoples (van der Ryst 1998). While the relationship between stone-age people and Iron Age settlers was initially characterised by peaceful interaction and trade, the relationship seems to have degraded into one of subjugation of the former, exacerbated by increasing numbers of white settlers. The farm Vaalpensspan 90 KQ located some distance to the north of the study area is a reminder of the marginalised remnants of the hunter gatherers, 'Vaalpense' being the name given to people of mixed Bantu and hunter gatherer descent (van der Ryst 1998; Birkholtz & Steyn 2002). In Southern Africa the Late Stone Age is characterised by the appearance of rock art in the form of paintings and engravings and the Waterberg to the east is known for its many rock art sites including those containing shaded paintings such as at Haakdoorndraai (Pager, 1973) and the depiction of a fat tailed sheep at Dwaalhoek 185 KQ (van der Ryst 1998).

Iron Age

The Iron Age incorporates the arrival and settlement of Bantu speaking people and overlaps the Pre-Historic and Historical Periods. It can be divided into three phases. The *Early Iron Age* includes the majority of the first millennium A.D. and is characterised by traditions such as Happy Rest and Silver Leaves. The *Middle Iron Age* spans the 10th to the 13th Centuries A.D. and includes such well known cultures as those at K2 and

Mapungubwe. The *Late Iron Age* is taken to stretch from the 14th Century up to the colonial period and includes traditions such as Icon and Letaba.

The earliest Iron Age site in the region lies some 100 km to the north-east of the study area at Ongelukskraal 48 KR, dated to 140 A.D. and is associated with the Bambata ceramic typology (van der Ryst 1998). Research on the Waterberg Plateau and within the Motlhabatsi (Matlabas) River valley to the north of the study area and in the Rooiberg area to the south east has indicated three phases of Early Iron Age settlement. The first phase is characterised by ceramics of the Western Stream similar to those from Happy Rest and Klein Africa and dated to Circa 570 A.D. (Huffman 1990; van der Ryst 1998). The second phase, circa 700 A.D., is similar to the Rooiberg Unit 1 (Hall 1981; Huffman 1990) ceramics described from a site to the north-east of the study area and the third phase, circa 1000 A.D. is associated with the Eiland tradition, marking the end of the Early Iron Age in the area (Huffman 1990). The site at Diamant on the western edge of the Waterberg has yielded Middle Iron Age imported glass beads like those excavated at Schroda on the Limpopo, the latter being the likely centre of distribution for this early trade (Huffman 2007).

Several Sotho-Tswana communities settled in the North-west Province, Gauteng, Limpopo Province and in Botswana during the 14th and 15th centuries. These communities spread over the region as several lineages developed under their separate leaders. One of these lineages was the Bahurutshe-Bakwena which divided into the Bakwena, Bahurutshe and Bakgatla chiefdoms. The Bakgatla settled at first in the Hammanskraal area during the 17th century. Over the years and after several succession disputes, the divided and separated Bakgatla tribes settled in a much wider region. This region extended to the north of Pretoria up to Nylstroom and further to the north-west to the Marico River (Pistorius, 1992; Bergh, 1999; Huffman, 2007). Later Iron Age presence in the region was associated with the arrival in the area of the Northern Ndebele in the 16th and 17th Centuries with characteristic hilltop settlements (van der Ryst 1998). It must be noted that the influx of Ndebele people was not to uninhabited country given the established Kwena and Kgatla groups of Sotho-Tswana lineage (Hall 1981; Birkholtz & Steyn 2002).

Pistorius mentioned the occurrence of damaged stone walled sites and a graveyard along the base of Sefikile hill at Sefikile village approximately 40 km to the south-west of the study area where Phetso of the Kgatla Kgafela had his settlement (Pistorius 2012). There is quite some evidence, in the form of defensive hilltop settlement and aggregation that the Late Iron Age in the region was a time of upheaval and conflict, initially as a result of the influx of the Ndebele and later by European settlers (Hall 1985). The Difaqane period saw Mzilikazi settling in the Marico River valley in the 1830's, unsettling many people who fled east to seek refuge (Huffman 1990) where the Kransberg were known as 'Marakeli' or 'place of refuge' (Coetzee undated) or fled south as did the Bakgatla Chief Kgamanyane who settled at Saulspoort south-west of the study area. According to Breutz (1953) the Kwena baPhalane lived on the western bank of the Crocodile river possibly on the farms Haakdoorndrift 374 KQ and Buffelshoek 351 KQ (a few kilometres north west of the current study area) while the Kgatla бага Kgafela were settled on the farm

Schilpadnest 385 KO where they were attacked by Mzilikazi in about 1828 and fled, returning years later (Breutz 1953; Van Schalkwyk 2007). Since 1995, an ongoing archaeological survey has been conducted in the Pilanesberg National Park approximately 80 km to the south of the study area which has documented Late Iron Age archaeological sites within a temporal and spatial framework, for example indicating Moloko settlement between AD 1300 and AD 1600 (L'abbé et al. 2008).

Historical Period

The beginning of the Historical Period overlaps the demise of the late Stone and Iron Ages and is characterised by the first written accounts of the region from 1600 A.D. A number of early European travellers visited the area from the early 19th Century onwards including Cowan & Donovan in 1808, David Hume in 1825, Cornwallis Harris in 1836, Livingstone in 1847 and Carl Mauch in 1869 (Birkholtz & Steyn 2002). Carl Mauch described how he found himself at the base of the “Marikele Point...a mighty mountain mass with its three peaks” (Burke 1969).

The first settlers in the area and up to the Waterberg established themselves in the late 1830's and initially sustained themselves through hunting, particularly of elephant, before the emergence of cattle farming and later, agriculture (Pont 1965; Naudé 1998). Early settler towns included Nylstroom, now renamed Modimolle, to the east which was established in 1865 and the Waterberg District was declared in 1866. The outbreak of the Boer War in 1899 had a considerable impact on the region with many Boer homesteads abandoned or destroyed as part of the British scorched earth policy and many women and children interned in concentration camps, one located in then-Nylstroom. Black involvement in the war in the region was significant with the Kgatla under Linchwe 1 taking the side of the British and becoming actively involved in the fighting (Birkholtz & Steyn 2002).

The discovery of iron ore deposits at Thabazimbi 35 km to the south east and the Merensky Reef with platinum and chrome deposits at Rustenburg in the south during the 1920's introduced the region to mining activities. These mining activities, some immediately adjacent to the study area, continued to grow and expand up to what we see today (Bergh, 1999).

5.3. Palaeontology

The SAHRIS online database (<http://www.sahra.org.za/sahris>) was accessed and the Palaeontological Sensitivity Map was consulted. This map is colour coded to indicate the varied palaeontological sensitivities across the country. The following guidelines/recommendations are provided in the table below regarding the palaeontological sensitivity for each identified colour.

PalaeoSensitivity Map Action Guideline.

Colour	Sensitivity	Required Action
RED	VERY HIGH	Field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	Desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	Desktop study is required
BLUE	LOW	No palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	No palaeontological studies are required
WHITE/CLEAR	UNKNOWN	These areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.



Figure 10: Palaeontological Sensitivity Map of the study area indicated in blue (Sahris Palaeosensitivity Map).

It was found that the palaeontological sensitivity for the study area was moderate and that a palaeontological desktop study is required.

Dr. J.F. Durand completed a Palaeontological Desktop Study for the proposed development (Durand, 2015). The following is an excerpt from that study:

“The study area is underlain by pre-3100 Mya granite and granitic gneisses of the Archaean Complex associated with the Kaapvaal Craton (Brandl *et al.*, 2009). Large parts of the geology are obscured by a cover of unconsolidated Tertiary to Quaternary sediments consisting of Kalahari sand and alluvium.

The aeolian (wind-blown) sand, which covers large areas along the Crocodile River, is correlated with the Kalahari beds. Black and red soil and calcrete also cover large areas which are poorly drained. Leached red soil tends to form on sand-yielding formations resistant to erosion. The black unleached soil has formed on formations which are easily eroded and do not yield sand. Residual and alluvial clays occur along poorly defined watercourses in broad shallow depressions (Jansen, 1978). No fossils have been reported from this region.”

6. Assessment Criteria

This chapter describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The significance of archaeological and heritage sites were based on the following criteria:

- The unique nature of a site
- The amount/depth of the archaeological deposit and the range of features (stone walls, activity areas etc.)
- The wider historic, archaeological and geographic context of the site
- The preservation condition and integrity of the site
- The potential to answer present research questions.

6.1. Site Significance

Site significance classification standards prescribed by the South African Heritage Resources Agency (2006) and approved by the Association for Southern African Professional Archaeologists (ASAPA) for the Southern African Development Community (SADC) region, were used for the purpose of this report.

<i>FIELD</i>	<i>GRADE</i>	<i>SIGNIFICANCE</i>	<i>RECOMMENDED</i>
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<i>RATING</i>			<i>MITIGATION</i>
National Significance (NS)	Grade 1	-	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected (GP.A)	Grade 4A	High / Medium Significance	Mitigation before destruction
Generally Protected (GP.B)	Grade 4B	Medium Significance	Recording before destruction
Generally Protected (GP.C)	Grade 4C	Low Significance	Destruction

6.2. Impact Rating:

Low or No Significance:

The constraint is absent, but in instances where present, poses a negligible significance on the proposed development in terms of heritage concerns.

Moderate Significance:

The constraint is present and poses a notable but not major significance on the proposed development in terms of heritage concerns. If the constraint can't be avoided, appropriate mitigation measures must be implemented to minimize the significance.

High Significance:

The constraint is present and poses a high significance on the proposed development in terms of heritage concerns. It is recommended that the constraint be avoided or appropriate mitigation measures must be implemented to minimize the significance.

6.3. Certainty

DEFINITE: More than 90% sure of a particular fact. Substantial supportive data exist to verify the assessment.

PROBABLE: Over 70% sure of a particular fact, or of the likelihood of an impact occurring.

POSSIBLE: Only over 40% sure of a particular fact, or of the likelihood of an impact occurring.

UNSURE: Less than 40% sure of a particular fact, or of the likelihood of an impact occurring.

6.4. Duration

SHORT TERM: 0 – 5 years

MEDIUM: 6 – 20 years

LONG TERM: more than 20 years

DEMOLISHED: site will be demolished or is already demolished

6.5. Mitigation

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

- **A** – No further action necessary
- **B** – Mapping of the site and controlled sampling required
- **C** – Preserve site, or extensive data collection and mapping required; and
- **D** – Preserve site

7. Methodology

7.1. Physical Survey

The extent of the proposed development site was determined as well as the extent of the areas to be affected by secondary activities (access route, construction camp, etc.) during the development.

The physical survey was along the extent of the development which was already disturbed. The central part of the development area was damaged and disturbed to such an extent that it did not warrant any inspection. The field work was conducted on 28 August 2015 and most of the morning was spent on the survey, which was performed by M. Hutten and field worker T. Mulaudzi and E. Khorommbi. The survey focused on the indicated study area as provided by the developer where the proposed developments will be situated. Areas outside of the indicated study areas were not surveyed.

7.2. Interviews

The owner of the property, Mr. Albertus Nel, was questioned during the survey and he indicated that a house was present at the location, but that it was completely demolished. He also indicated electrical infrastructure from the 1980's which was abandoned and

needed replacing. He was not aware of any other heritage sites (such as graves) on the proposed area to be developed.

7.3. Restrictions

The processes of mechanical bush clearing and the ripping of the top soil disturbed and possibly destroyed most heritage resources if any were present. These processes restricted the chance of identifying any resources accurately

7.4. Documentation

All sites/find-spots, if any, located during the foot surveys were briefly documented. The documentation included digital photographs and descriptions as to the nature and condition of the site and recovered materials. The sites/find-spots were plotted using a Global Positioning System (GPS) (Garmin GPSmap 60CSx) and numbered accordingly. The track logs and identified sites are depicted on the following map and satellite image.

Diepwater Agricultural Extension

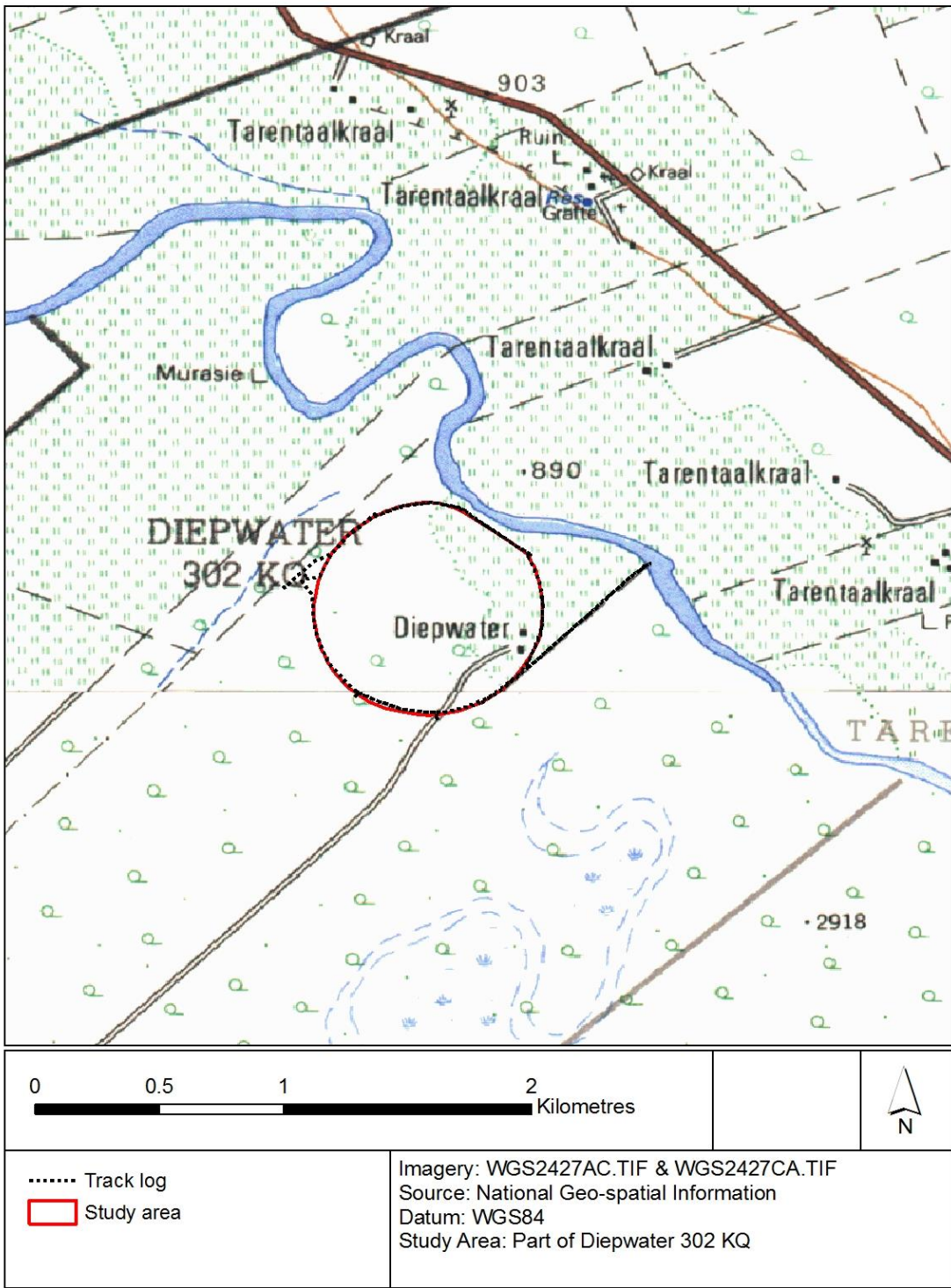


Figure 11: Topographic map of the study area with the track logs.

Diepwater Agricultural Development

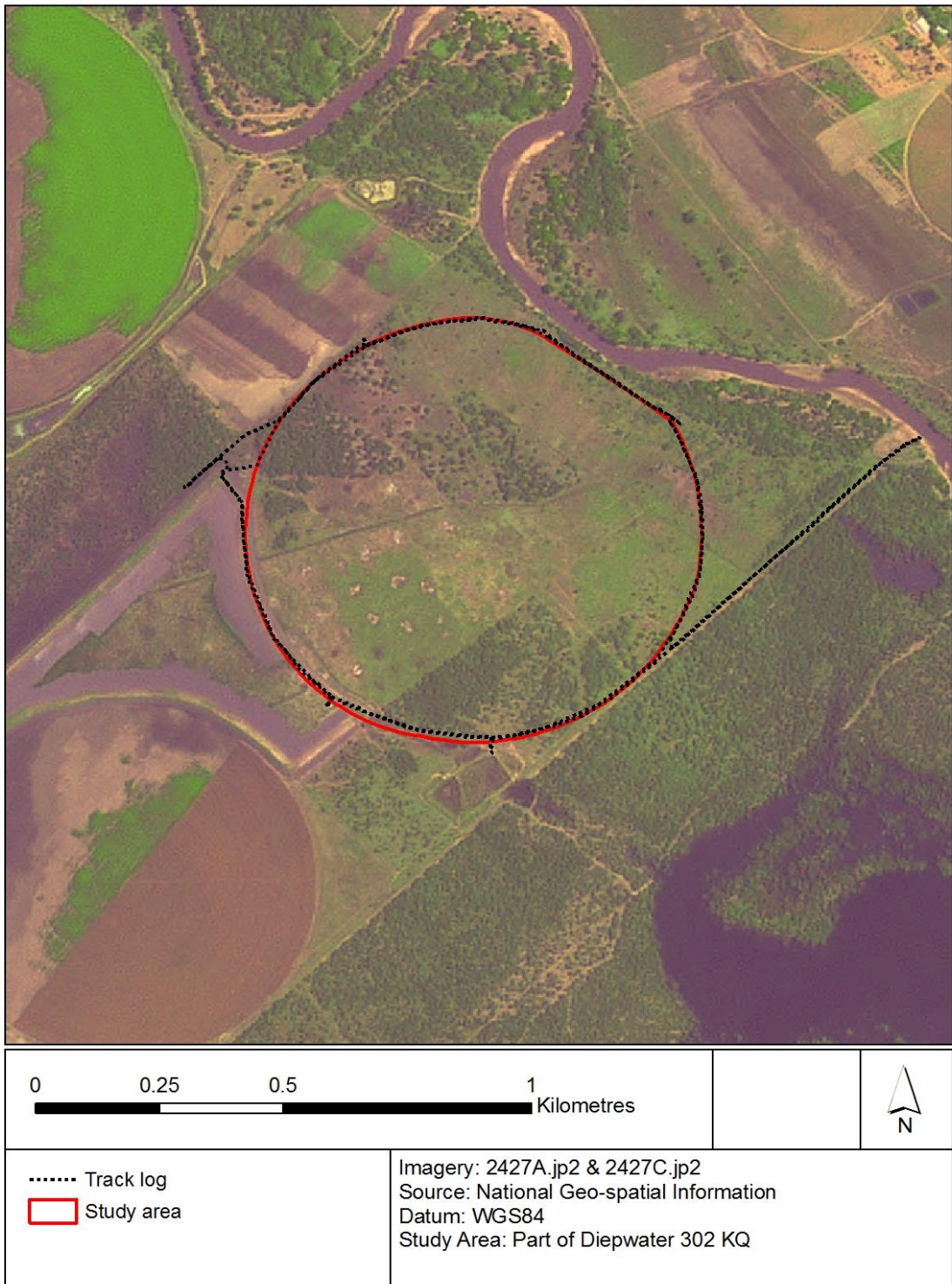


Figure 12: Satellite image of the study area with the track logs.

8. Assessment of Sites and Finds

This section contains the results of the heritage site/find assessment.

Diepwater Agricultural Development

The proposed agricultural development will be situated on parts of Portions 4 to 8 of the Farm Diepwater 302 KQ near Makoppa, north-west of Thabazimbi in the Thabazimbi Local Municipality, Limpopo Province.

The proposed agricultural development will consist of one crop-circle which will measure 50 hectares in size each and will be situated on parts of the property which measured approximately 60 hectares in size.

The proposed site for the agricultural development was previously developed as agricultural fields during the 1960's and the 1970's. These fields were abandoned during the droughts of the early 1980's and were left lying fallow until 2011 when they were cleared again by the current developer.

The proposed site was bush cleared and the top soil was ripped during site preparations in 2011. Further developments such as the installation of pumps and irrigation systems still need to follow.



Figure 13: General view of the study area and the cleared and ripped fields.



Figure 14: View of the irrigation system to be completed at the developed fields.

After intensive investigations across the study area, no sites or finds of any heritage value or potential were identified.

Field Rating:	None
Heritage Significance:	None
Impact:	None
Certainty:	None
Duration:	None
Mitigation:	A – No further action necessary

9. Conclusion and Recommendations

The following steps and measures are recommended regarding the investigated area:

Diepwater Agricultural Development

Hutten Heritage Consultants was appointed by Jonk Begin Environmental Services to undertake a Heritage Impact Assessment (HIA), which forms part of the Environmental Impact Assessment (EIA) for the proposed agricultural development on parts of Portions 4 to 8 of the Farm Diepwater 302 KQ near Makoppa, north-west of Thabazimbi in the Thabazimbi Local Municipality, Limpopo Province.

The developer was ordered by the Department of Environmental Affairs and Tourism to conduct a Rectifying Environmental Impact Assessment Process after it came to light that they started with the proposed agricultural development without having the Environmental Impact Assessment (which included the Heritage Impact Assessment) completed and the Register of Decisions (ROD) finalised.

An archival and historical desktop study was undertaken which was used to compile a historical layering of the study area within its regional context. This component indicated that the landscape within which the project area is located has a rich and diverse history. However, the desktop study did not reveal any historic or heritage sites from within the specific locations of the study area.

The Sahrís Palaeontological Sensitivity Map was also consulted and it was found that the palaeontological sensitivity for the study area was moderate and that a Palaeontological Impact Assessment is required.

Dr. J.F. Durand completed a desktop palaeontological study for the study area. He concluded that the region is of no palaeontological importance. The study area is underlain by igneous rocks of Archaean age and Tertiary to Quaternary sediments including Kalahari sands, alluvium and soil. No fossils have been reported from this region.

He therefore recommended that due to the improbability of fossils occurring in the study area, that the project should be exempted from further palaeontological studies.

The desktop studies were followed by a fieldwork component which comprised an inspection of the study area. The proposed agricultural development site was already mechanically bush cleared and the top soil was ripped. If any sites or objects of heritage significance were present, the site clearing and ripping of the top soil would have destroyed any of it. No sites or finds of any heritage value or potential were identified on the site during the fieldwork investigations.

Van Schalkwyk (2007b) carried out a Heritage Impact Assessment on the Farm Aapieskraal 376 KQ, approximately 60km to the south-east, and also within the floodplains of the Crocodile River and recommended that the proposed development could go ahead from a heritage point of view. The HIA found no features, sites or artefacts of cultural significance and stated that the flat terrain, without landscape features such as rocky hills, coupled with the fact that the study area is near the floodplain of the Crocodile River, made the locality highly unsuitable for settlement (Van Schalkwyk, 2007b) compared to the more mountainous areas to the south and east.

The study area in this report is also located near the floodplains of the Crocodile River and the same deductions will also apply. As for the proposed site, no site-specific actions or any further heritage mitigation measures are recommended as no heritage resource sites or finds of any value or significance were identified in the indicated study area.

The proposed agricultural development on parts of Portions 4 to 8 of the Farm Diepwater 302 KQ at the indicated area can continue from a heritage point of view.

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