ARCHAEOLOGICAL DESKTOP STUDY

for the Application of a Prospecting Right on the Remaining Extent of the Farm Adams 328, Kuruman, Northern Cape

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An Archaeological Desktop Study for the Application of a Prospecting Right on the Remaining Extent of the Farm Adams 328, Kuruman, Northern Cape

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- I, Tobias Coetzee, declare that –
- I act as the independent specialist;
- I am conducting any work and activity relating to the proposed Trentra Project in an objective manner, even if this results in views and findings that are not favourable to the client;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have the required expertise in conducting the specialist report and I will comply with legislation, regulations and any guidelines that have relevance to the proposed activity;
- I have not, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this declaration are true and correct.

Coetzee

Date: 11 December 2020

Executive Summary

The author was appointed by Eco Elementum (Pty) Ltd to undertake an Archaeological Desktop study for Trentra (Pty) Ltd on the Remaining Extent of the Farm Adams 328 within the Joe Morolong Local Municipality and the John Taolo Gaetsewe District Municipality in the Northern Cape Province. The study area is located 20 km south-southeast of Hotazel, 42 km west-northwest of Kuruman and 36 km north of Kathu. The aim of this report is to contextualise the general study area in terms of heritage resources and will provide the developers with general information regarding potentially sensitive areas. This will also shed light on what is to be expected during a Phase 1 Archaeological Impact Assessment and aid in interpreting finds.

Archaeological evidence from the general study area as noted in literary sources suggest an archaeological landscape likely to include burial sites, Stone Age material, historical buildings and Iron Age settlements near riverbanks. Also, the earliest topographical maps of the study area date to 1972/1973. These maps indicate two localities along the north-eastern boundary and one locality near the western border of the study area that are associated with buildings or structures. Aerial images dating to 1957 reflect the same buildings and structures along the north-eastern boundary, while possible structures are observed near the centre of the study area. The aerial image dating to 1965 shows the buildings along the western border of the study area. The buildings/structures along the north-eastern boundary and centre of the study area therefore exceed 60 years of age, while a possibility exists that the buildings/structures along the western boundary exceed 60 years as well. It should also be noted that not all infrastructure might be visible on historical topographical maps and aerial imagery. Additionally, key areas generally include drainage lines, pans, hills/rocky outcrops and homesteads. These areas, therefore, were marked as sensitive on **Figure 4** and should preferably be excluded when selecting prospecting locations.

Should the prospecting outcome result in further development or construction, a full Phase 1 Archaeological Impact Assessment must be conducted on the affected area if triggered. Also, a full Phase 1 AIA must be done should the cumulative impact of the proposed prospecting exceed 0.5 ha.

Should skeletal remains be exposed during the prospecting phase, all activities must be suspended and the relevant heritage resources authority contacted (See National Heritage and Resources Act, 25 of 1999 section 36 (6)). Also, should culturally significant material be discovered during the course of the said prospecting, all activities must be suspended pending further investigation by a qualified archaeologist.

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1. Project Background

1.1 Introduction

Eco Elementum (Pty) Ltd appointed the author to undertake an Archaeological Desktop study for Trentra (Pty) Ltd on the Remaining Extent of the Farm Adams 328 within the Joe Morolong Local Municipality and the John Taolo Gaetsewe District Municipality in the Northern Cape Province. The affected farm portion is listed in **Table 1**. The study area is located 20 km south-southeast of Hotazel, 42 km west-northwest of Kuruman and 36 km north of Kathu (**Figure 1**). The purpose of this study is to contextualise the demarcated study area in order to determine the scope of heritage resources that might be encountered during the prospecting phase and subsequent heritage studies, as well as to provide recommendations for the safeguarding of archaeological resources during prospecting. The aim of this report is to provide the developer with information regarding heritage resources in the vicinity of the study area based on results from previous studies, written historical information and historical topographical maps and aerial images.

The following report provides a broad overview of the proposed prospecting and contextualises the study area in terms of heritage resources. The application is for a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act 28 of 2002 as amended to prospect for Manganese. The legislation section included serves as a guide towards the effective identification and protection of heritage resources and will apply to any such material unearthed during the prospecting phase.

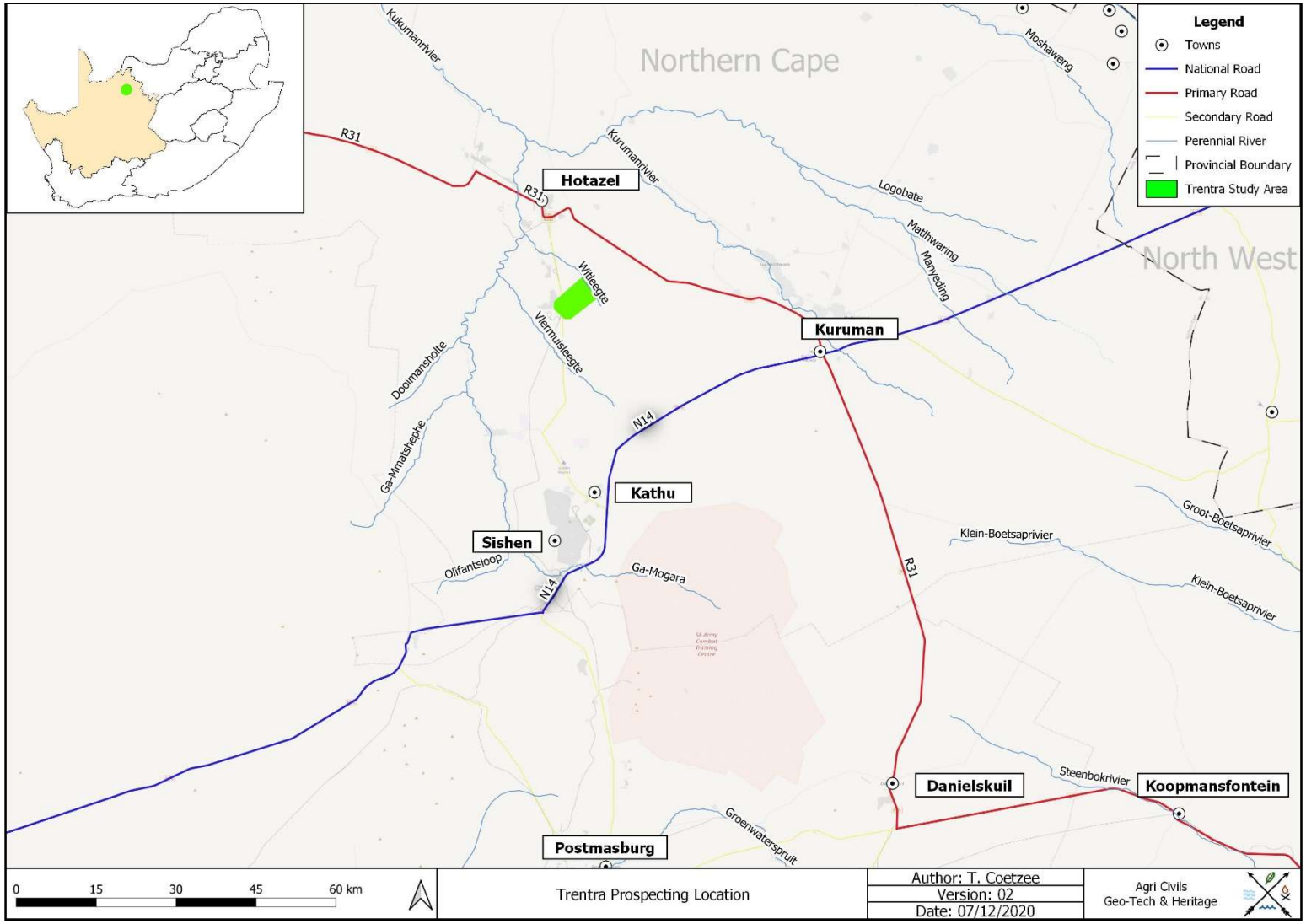

Figure 1: Regional and Provincial location of the study area.

1.2 Legislation

The South African Heritage Resources Agency (SAHRA) aims to conserve and control the management, research, alteration and destruction of cultural resources of South Africa and to prosecute if necessary. It is therefore crucially important to adhere to heritage resource legislation contained in the Government Gazette of the Republic of South Africa (Act No.25 of 1999), as many heritage sites are threatened daily by development. Conservation legislation requires an impact assessment report to be submitted for development authorisation that must include an AIA if triggered.

AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources that might occur in areas of development and (b) make recommendations for protection or mitigation of the impact of the sites.

1.2.1 The EIA and AIA processes

Phase 1 Archaeological Impact Assessments generally involve the identification of sites during a field survey with assessment of their significance, the possible impact that the development might have, and relevant recommendations.
All Archaeological Impact Assessment reports should include:

a. Location of the sites that are found;

b. Short descriptions of the characteristics of each site;

c. Short assessments of how important each site is, indicating which should be conserved and which mitigated;

d. Assessments of the potential impact of the development on the site(s);

e. In some cases a shovel test, to establish the extent of a site, or collection of material, to identify the associations of the site, may be necessary (a pre-arranged SAHRA permit is required); and

f. Recommendations for conservation or mitigation.

This AIA report is intended to inform the client about the legislative protection of heritage resources and their significance and make appropriate recommendations. It is essential to also provide the heritage authority with sufficient information about the sites to enable the authority to assess with confidence:

a. Whether or not it has objections to a development;

b. What the conditions are upon which such development might proceed;

c. Which sites require permits for mitigation or destruction;

d. Which sites require mitigation and what this should comprise;

e. Whether sites must be conserved and what alternatives can be proposed to relocate the development in such a way as to conserve other sites; and

f. What measures should or could be put in place to protect the sites which should be conserved.

When a Phase 1 AIA is part of an EIA, wider issues such as public consultation and assessment of the spatial and visual impacts of the development may be undertaken as part of the general study and may not be required from the archaeologist. If, however, the Phase 1 project forms a major component of an AIA it will be necessary to ensure that the study addresses such issues and complies with Section 38 of the National Heritage Resources Act.

1.2.2 Legislation regarding archaeology and heritage sites

National Heritage Resource Act No.25 of April 1999

Buildings are among the most enduring features of human occupation, and this definition therefore includes all buildings older than 60 years, modern architecture as well as ruins, fortifications and Farming Community settlements. The Act identifies heritage objects as:

- objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects, meteorites and rare geological specimens;
- visual art objects;
- military objects;
- numismatic objects;
- objects of cultural and historical significance;
- objects to which oral traditions are attached and which are associated with living heritage;
- objects of scientific or technological interest;
- books, records, documents, photographic positives and negatives, graphic material, film or video or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996), or in a provincial law pertaining to records or archives;
- any other prescribed category.

With regards to activities and work on archaeological and heritage sites this Act states that:

"No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority." (34. [1] 1999:58)

and

"No person may, without a permit issued by the responsible heritage resources authority:

(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;

(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;

(c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or

(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites." (35. [4] 1999:58)

and

"No person may, without a permit issued by SAHRA or a provincial heritage resources authority:

(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;

(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority;

(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) and excavation equipment, or any equipment which assists in the detection or recovery of metals." (36. [3] 1999:60)

On the development of any area the gazette states that:

"…any person who intends to undertake a development categorised as:

(a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of a site-

i. exceeding 5000m² in extent; or

ii. involving three or more existing erven or subdivisions thereof; or

iii. involving three or more erven or divisions thereof which have been consolidated within the past five years; or

iv. the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10000m² in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development."(38. [1] 1999:62-64)

and

"The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:

(a) The identification and mapping of all heritage resources in the area affected;

(b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;

(c) an assessment of the impact of the development on such heritage resources;

(d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;

(e) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;

(f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and

(g) plans for mitigation of any adverse effects during and after the completion of the proposed development." (38. [3] 1999:64)

Human Tissue Act and Ordinance 7 of 1925

The Human Tissues Act (65 of 1983) and Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) protects graves younger than 60 years. These fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial MEC as well as the relevant Local Authorities. Graves 60 years or older fall under the jurisdiction of the National Heritage Resources Act as well as the Human Tissues Act, 1983.

2. Study Area and Project Description

2.1 Location & Physical Environment

According to the DMR acceptance letter the proposed Trentra (Pty) Ltd prospecting project is situated on the following property (**Figure 2**):

Table 1: Property name & coordinates according to DMR acceptance letter.

Property	Portion	Map Reference (1:50 000)	Lat (y)	Lon (x)	Extent (ha)
Adams 328	RE	2722 BD & 2723 AC	-27.370945	23.020694	1651

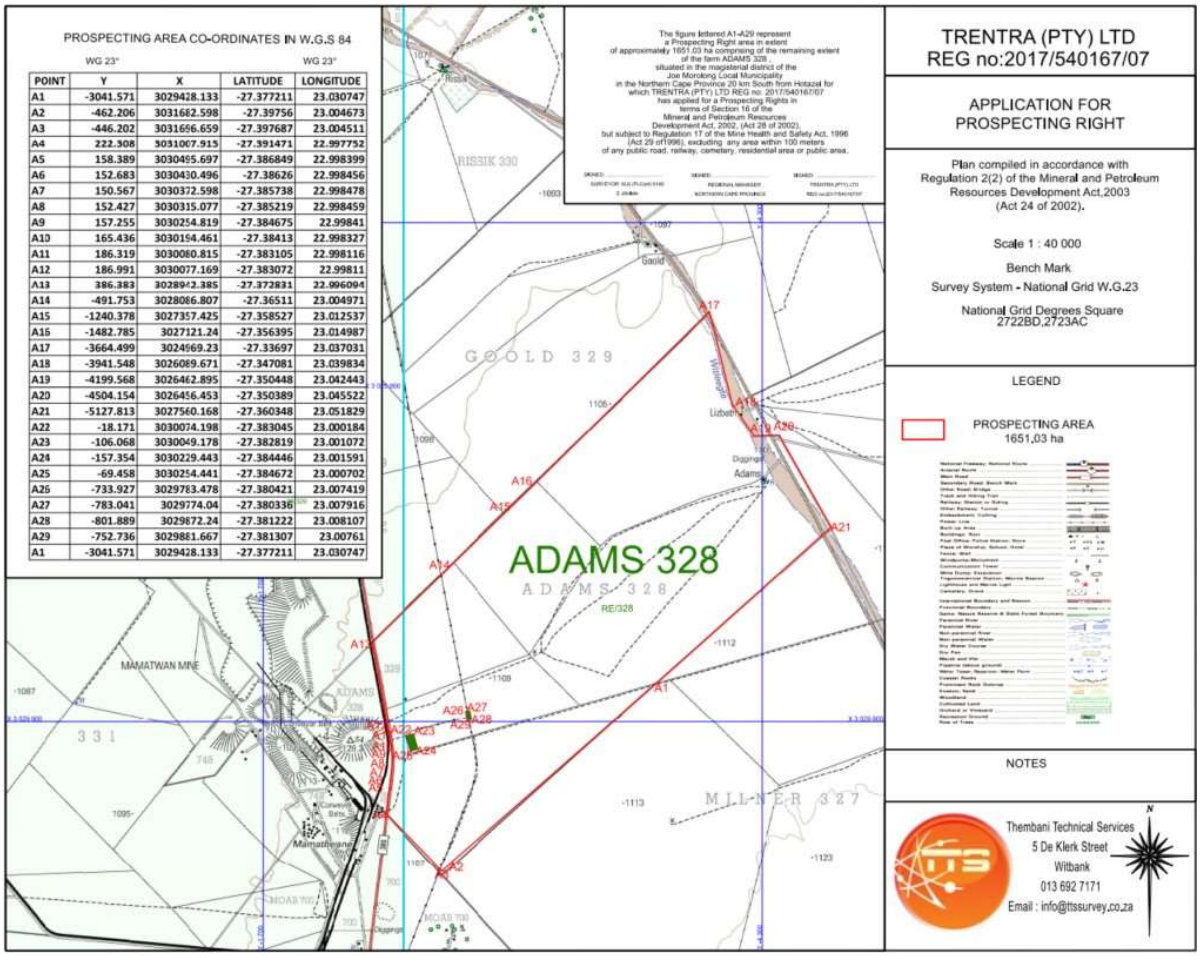

Figure 2: Proposed prospecting map (Provided by Eco Elementum 2020).

The study area is located 20 km south-southeast of Hotazel, 42 km west-northwest of Kuruman and 36 km north of Kathu. The study area falls within the Joe Morolong Local Municipality and the John Taolo Gaetsewe District Municipality in the Northern Cape Province. The R380 Secondary Road and a railway line runs north-south along the western boundary of the study area, while a local road runs along the north-eastern boundary. Other infrastructure include a powerline 1 km east of the R380, an Eskom substation and a solar farm.

In terms of vegetation, the study area falls within the Savanna Biome and Eastern Kalahari Bioregion. On a local scale, the study area falls within Kathu Bushveld. According to Mucina & Rutherford (2006), Kathu Bushveld is associated with the plains from Kathu and Dibeng in the south, through Hotazel, covering the area between Van Zylsrus and McCarthysrus to the Botswana border in the north. This vegetation unit is considered least threatened with a conservation status of 16%. More than 1% has been transformed and erosion is considered to be low.

The average elevation for Kathu Bushveld varies between 960 and 1300 MASL (Mucina & Rutherfords 2006). The elevation for the study area varies between 1104 MASL in the west and 1114 MASL in the east.

The study area falls within the summer rainfall region and the average annual rainfall is roughly 472 mm per year. The average maximum temperature for the study area is recorded during January when an average of 24.4 ºC is reached. The average minimum temperature is recorded during July when an average of 9.6 ºC is reached (Climate-data.org 08/12/2020).

The majority of the study area falls within the D41K Quaternary Catchment within the Vaal Water Management Area. The closest perennial river to the study area is the Harts River that flows 180 km to the southeast of the proposed prospecting area, while several non-perennial rivers are located within the general vicinity. One such dry watercourse, Witleegte, forms the north-eastern boundary of the proposed study area. The Spitskop Dam is located 185 km to the southeast of the study area.

On a local scale, the proposed prospecting area is associated with relatively flat terrain and a solar farm measuring roughly 217 ha along the north-western boundary. The remaining extent appears to be open veldt of which the use is unknown. The heritage study done by Pelser (2012), however, mentions that the demarcated portion of the Remaining Extent of the Farm Adams 328 has extensively been used for cattle grazing in the past and that at the time of surveying, cattle grazing still occurred in certain areas. Also, the Mamatwan Manganese Mine borders the demarcated study area to the southwest and partially intersects the parent farm.

Several structures were identified on historical aerial images and topographical maps falling within the area demarcated for prospecting. Pelser (2012) states that evidence of mining activities were observed, as well as the presence of an Eskom substation, powerline and pylons.

2.2 Project description

The prospecting right application for manganese and covers about 1651 ha (**Figures 3 & 4**). For the prospecting phase, however, several sites will be selected for geotechnical drilling. These boreholes and its associated activities will impact on a surface area of between 250 and 625 m². The full extent of the drill site will also be demarcated and no drilling will be done outside of the boundary.

Prospecting activities will include the following:

Current access roads will be used as far as possible, but in cases where access roads to drill sites do not exist, a single track will be selected based on the area where the least environmental impact will occur. The same tracks will be used should repeated access be required. Vegetation and topsoil excavated during the drilling process will be stockpiled next to sumps where it will serve as a storm water diversion berm. On completion of the drilling process, the rehabilitated sumps will be backfilled with the stockpiled material. Because a constant water supply is needed for the drilling process, 15 000l will be stored in tanks. The plastic-lined sumps will be used to recycle water through a filter process in order to maintain a constant clean water source for the purpose of drilling. In terms of potable water for employees and workers, a temporary 260l tank will be placed on-site. Additional facilities will include temporary portable toilets, berms, and a maximum of 60m³ of diesel fuel located on an impermeable surface with bunds.

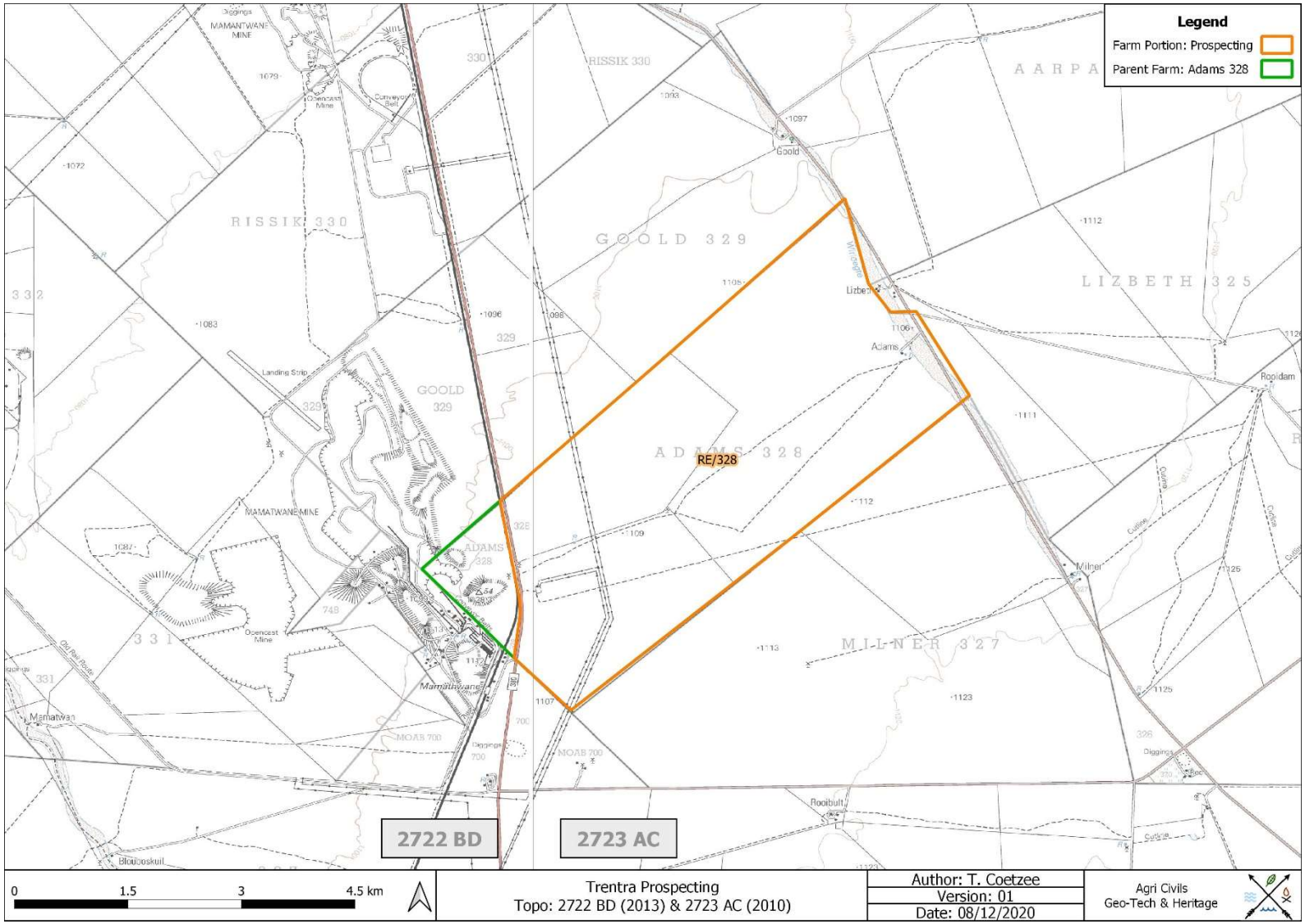

Figure 3: Segments of SA 1: 50 000 2722 BD & 2723 AC indicating the study area.

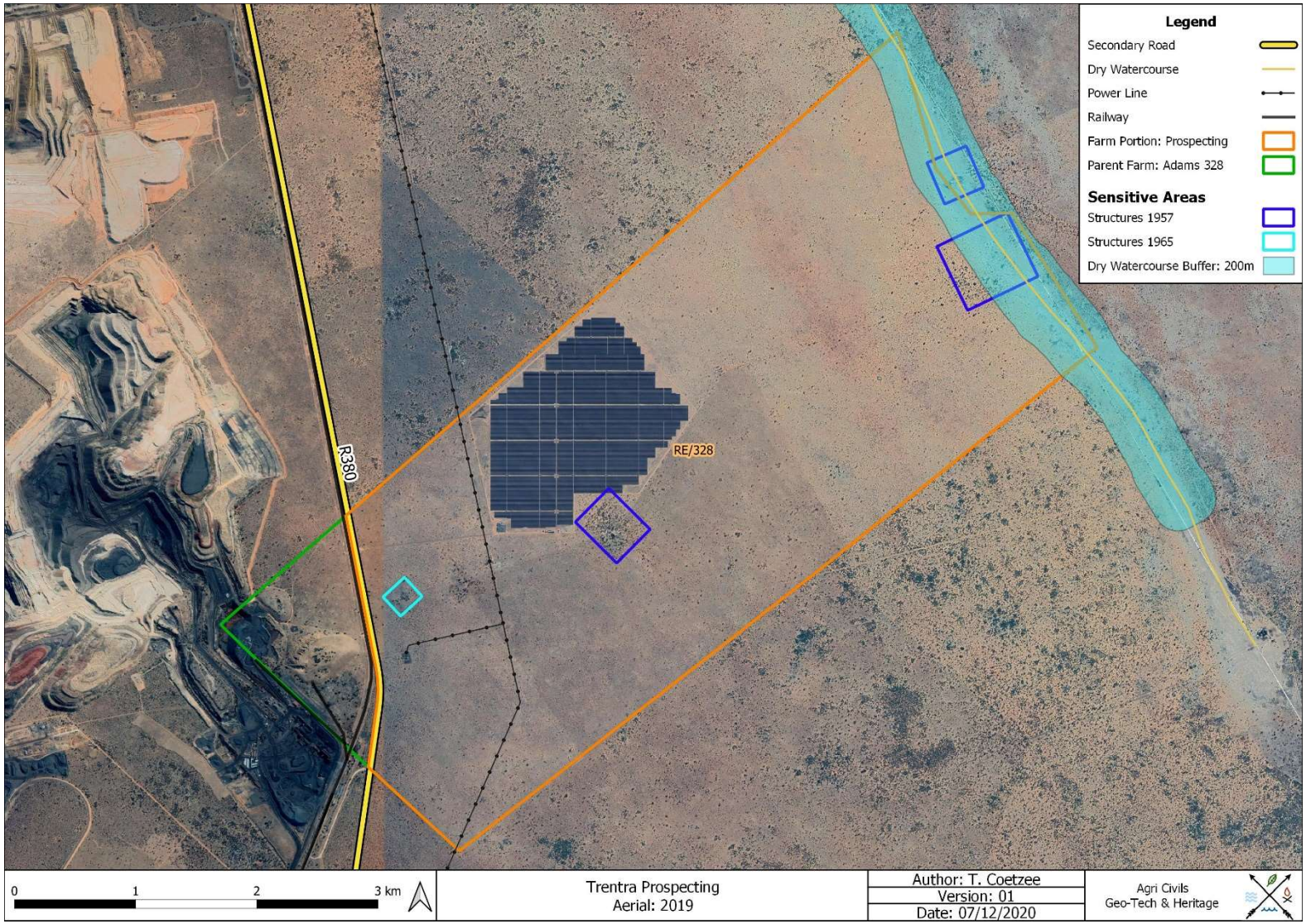

Figure 4: Proposed prospecting area with potentially sensitive areas.

3. Archaeological Background

Southern African archaeology is broadly divided into the Early, Middle and Later Stone Ages; Early, Middle and Later Iron Ages; and Historical or Colonial Periods. This section of the report provides a general background to archaeology in South Africa.

3.1 The Stone Age

The earliest stone tool industry, the Oldowan, was developed by early human ancestors which were the earliest members of the genus *Homo,* such as *Homo habilis*, around 2.6 million years ago. It comprises tools such as cobble cores and pebble choppers (Toth & Schick 2007). Archaeologists suggest these stone tools are the earliest direct evidence for culture in southern Africa (Clarke & Kuman 2000). The advent of culture indicates the advent of more cognitively modern hominins (Mitchell 2002: 56, 57).

The Acheulean industry completely replaced the Oldowan industry. The Acheulian industry was first developed by *Homo ergaster* between 1.8 to 1.65 million years ago and lasted until around 300 000 years ago. Archaeological evidence from this period is also found at Swartkrans, Kromdraai and Sterkfontein. The most typical tools of the ESA are handaxes, cleavers, choppers and spheroids. Although hominins seemingly used handaxes often, scholars disagree about their use. There are no indications of hafting, and some artefacts are far too large for it. Hominins likely used choppers and scrapers for skinning and butchering scavenged animals and often obtained sharp ended sticks for digging up edible roots. Presumably, early humans used wooden spears as early as 5 million years ago to hunt small animals.

Middle Stone Age artefacts started appearing about 250 000 years ago and replaced the larger Early Stone Age bifaces, handaxes and cleavers with smaller flake industries consisting of scrapers, points and blades. These artefacts roughly fall in the 40-100 mm size range and were, in some cases, attached to handles, indicating a significant technical advance. The first *Homo sapiens* species also emerged during this period. Associated sites are Klasies River Mouth, Blombos Cave and Border Cave (Deacon & Deacon 1999).

Although the transition from the Middle Stone Age to the Later Stone Age did not occur simultaneously across the whole of southern Africa, the Later Stone Age ranges from about 20 000 to 2000 years ago. Stone tools from this period are generally smaller, but were used to do the same job as those from previous periods; only in a different, more efficient way. The Later Stone Age is associated with: rock art, smaller stone tools (microliths), bows and arrows, bored stones, grooved stones, polished bone tools, earthenware pottery and beads. Examples of Later Stone Age sites are Nelson Bay Cave, Rose Cottage Cave and Boomplaas Cave (Deacon & Deacon 1999). These artefacts are often associated with rocky outcrops or water sources. **Figures 5 – 7** below shows examples of stone tools often associated with the ESA, MSA and LSA of southern Africa.

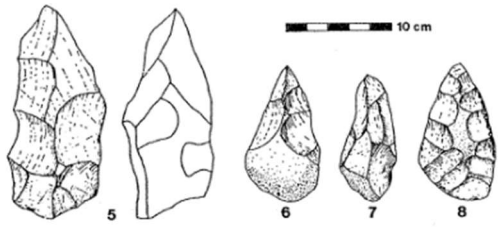

Figure 5: ESA artefacts from Sterkfontein (Volman 1984).

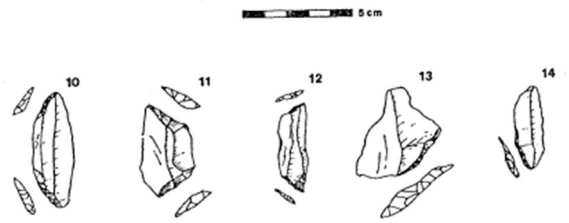

Figure 6: MSA artefacts from Howiesons Poort (Volman 1984).

Figure 7: LSA scrapers (Klein 1984).

3.2 The Iron Age & Historical Period

The Early Iron Age marks the movement of farming communities into South Africa in the first millennium AD, or around 2500 years ago (Mitchell 2002:259, 260). These groups were agro-pastoralist communities that settled in the vicinity of water in order to provide subsistence for their cattle and crops. Archaeological evidence from Early Iron Age sites is mostly artefacts in the form of ceramic assemblages. The origins and archaeological identities of this period are largely based upon ceramic typologies. Some scholars classify Early Iron Age ceramic traditions into different "streams" or "trends" in pot types and decoration, which emerged over time in southern Africa. These "streams" are identified as the Kwale Branch (east), the Nkope Branch (central) and the Kalundu Branch (west). Early Iron Age ceramics typically display features such as large and prominent inverted rims, large neck areas and fine elaborate decorations. This period continued until the end of the first millennium AD (Mitchell 2002; Huffman 2007). Some well-known Early Iron Age sites include the Lydenburg Heads in Mpumalanga, Happy Rest in the Limpopo Province and Mzonjani in Kwa-Zulu Natal.

The Middle Iron Age roughly stretches from AD 900 to 1300 and marks the origins of the Zimbabwe culture. During this period cattle herding appeared to play an increasingly important role in society. However, it was proved that cattle remained an important source of wealth throughout the Iron Age. An important shift in the Iron Age of southern Africa took place in the Shashe-Limpopo basin during this period, namely the development of

class distinction and sacred leadership. The Zimbabwe culture can be divided into three periods based on certain capitals. Mapungubwe, the first period, dates from AD 1220 to 1300, Great Zimbabwe from AD 1300 to 1450, and Khami from AD 1450 to 1820 (Huffman 2007: 361, 362).

The Late Iron Age roughly dates from AD 1300 to 1840. It is generally accepted that Great Zimbabwe replaced Mapungubwe. Some characteristics include a greater focus on economic growth and the increased importance of trade. Specialisation in terms of natural resources also started to play a role, as can be seen from the distribution of iron slag which tend to occur only in certain localities compared to a wide distribution during earlier times. It was also during the Late Iron Age that different areas of South Africa were populated, such as the interior of KwaZulu Natal, the Free State, the Gauteng Highveld and the Transkei. Another characteristic is the increased use of stone as building material. Some artefacts associated with this period are knife-blades, hoes, adzes, awls, other metal objects as well as bone tools and grinding stones.

The Historical period mainly deals with Europe's discovery, settlement and impact on southern Africa. Some topics covered by the Historical period include Dutch settlement in the Western Cape, early mission stations, Voortrekker routes and the Anglo Boer War. This time period also saw the compilation of early maps by missionaries, explorers, military personnel, etc.

3.3 Archaeo-History

Worth mentioning is the fact that Wonderwerk Cave, a provincial heritage site, is located in the Kuruman-Postmasburg district. The cave bears evidence of continued human activity from 10 000 years ago (Snyman 199: 13). Also, the remains of the extinct Cape horse and giant hartebeest were discovered (Mitchell 2002: 140). Wonderwerk Cave is also known for the abundant material culture and include unusual finds such as stone rings, chert pendants and engraved stones (Mitchell 2002: 184).

The Kuruman/Postmasburg area has a rich history spanning from the Early Stone Age to the Historical times. Below is a brief account of earlier events in the general area.

Hunter gatherer activities in the Kuruman area were present until the 1880's and even after that in the area west of the town. Several rock engravings in the Kuruman valley bear testimony to their presence in the area. Due to increased population hunter gatherer communities moved in a western and north-western direction in order to be able to continue exploiting game. Contact with early Batswana communities also resulted in the integration of the two groups. It was only during the last 500 years that the Batswana entered the northern regions of the Northern Cape. Possible factors affecting this might have been unfavourable environmental conditions such as heat, drought and poor soils in terms of agriculture. However, it appears that the Tlharo were the first Batswana group to arrive in the general area. Accordingly the Batswana under Notwane clashed with Kudumane's hunter gatherer community near the area where the town is today. After Notwane defeated Kudumane they explored in the

direction of present day Postmasburg, Danielskuil and Campbell, where he clashed with the Batlhaping (Snyman 1992: 15-16).

During the mid-18th Century the Batlhaping moved from the Taung area first in a southern direction and later in a western direction and settled at Nokaneng, south of Olifantshoek. Towards the end of the 18th Century the Batlhaping under Molehabangwe established a loose confederation. Around 1770 the Korana crossed the Orange River and made contact with the Batlhaping. Initial interaction was peaceful and both groups benefitted from trade activities. Accusations of cattle theft, however, ended peaceful relations. Due to additional conflict with Korana groups, the Batlhaping first moved to Kathu and from there to Ga-Mopedi near the Kuruman River. With the first colonial contact in 1801 the area was in a rather fragile state as Korana and Griqua groups exerted additional pressure on existing communities (Snyman 1992: 16).

A few European explorers ventured to these areas as well. Two expeditions worth mentioning are that of Lichtenstein in 1805 and that of Andrew Smith in 1835. After Lichtenstein reached the Kuruman River where they met Tswana speaking people, they turned in a southern direction towards the Orange River. It is noted that Lichtenstein's party made contact with Mulihawang's capital consisting of about 600 houses near the Kuruman River (PGS 2010).

Following the first colonial contact with the area, colonials in the Cape thrived to establish a cattle trade with the Batlhaping. The Batswana also caught the attention of missionaries such as Jan Matthys Kok and William Edwards who accompanied the expedition led by P.J. Truter and William Somerville to the Batlhaping. This first mission expedition was unsuccessful, but follow-up expeditions around 1817 succeeded. Robert Moffat succeeded James Read at the mission station in 1821 and moved the mission station to its present location in 1824 (Snyman 1992: 17-25).

During the mid-19th Century, Kuruman served as the gate to the interior of South Africa and was regarded as a hub for hunting expeditions, trade, missionary work and exploration. With the discovery of diamonds in 1867 near Hopetown and gold in 1868 in Matabeleland, however, political instability in the general area increased (Snyman 1992: 42-43).

Evidence regarding white settlement in the study area suggests brief occupation during the latter part of the 19th century. Permanent settlement, however, only followed around 1907 and 1908 when a period of drought in the then Cape Colony encouraged relocation (Smith 1966 cited in PGS 2010: 25).

3.3.1 Adams 328

According to Pelser (2012), the Farm Adams 328 was surveyed and beaconed by the Government Land Surveyor W.R. Lanham between 1913 and 1914 and a title deed was issued to L.L. Kruger in 1924. Accordingly, a more recent map indicates Portion L1 to be framed for a mining lease by the Land Surveyor C.P.M. Rautenbach in August 1958.

3.4 Previous Heritage Studies

Khumani Iron Ore Mine: Return Water Dam, Pipelines and Water Containment Facility

A Heritage Impact Assessment was done for the construction of a new Return Water Dam, Pipelines and Containment Facility for the Khumani Iron Ore Mine near Sishen in the Northern Cape Province. The Khumani Iron Ore HIA project area is located approximately 48 km south the proposed Trentra project area. The HIA noted that the study area is located within areas transformed by mining activities. A few undiagnostic stone flakes were observed, but according to the author the flakes occurred out of context and the possibility exists that it might have been pseudo tools created by heavy duty machinery (Van der Walt 2019).

AIA for the Photo-Voltaic Solar Power Generation Plant on the Farm Adams 328

A Heritage Impact Assessment was conducted by Archaetnos & Cultural for the construction of a photo-voltaic solar power generation plant on a portion of the remaining extent of the farm Adams 328 near Hotazel. The study, which partially overlaps with the proposed Trentra prospecting area, recorded one stone tool that possibly dates to the MSA, as well as building ruins dating to contemporary or possibly historical times. Both sites were assigned a low significance (Pelser 2012).

Lomoteng heritage study, Postmasburg

Peter Beaumont (2011) conducted a baseline archaeological study on the 6404 ha Lomoteng 669 farm 30 km north of Postmasburg. The purpose of the study was to evaluate the area to determine the level of impact 18 prospecting boreholes would have on heritage resources. During the survey, four Stone Age sites of heritage importance were recorded. These included: a core from which four flakes had been detached; a weathered andesite flake, an irregular red jasper flake, and blade distal portion of foreign jaspilite. A possible explanation offered for the low artefact densities suggests that the lack of surface water in the area played a determining role in site settlement selection. Other heritage material noted during the survey include a store room older than 60 years, as well as six cobble-covered graves.

Desktop Heritage survey of the Proposed Mamatwan Manganese Mine

A desktop heritage survey was done for the construction of a slimes handling and bulk water storage facility at the Mamatwan Mine. The area demarcated for the slimes handling and bulk water storage facility is located directly west of R380 secondary road that forms the western boundary of the Trentra project. According to the

desktop study, no national monuments, battlefields or historical cemeteries are known to exist in the immediate area. It is also mentioned that Stone Age scatters and historical buildings are associated with the general area, while Iron Age settlements tend to occur near riverbanks (Anderson 2016).

4. Evaluation

The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions. Historical structures are defined by Section 34 of the National Heritage Resources Act, 1999, while other historical and cultural significant sites, places and features, are generally determined by community preferences.

A fundamental aspect in the conservation of a heritage resource relates to whether the sustainable social and economic benefits of a proposed development outweigh the conservation issues at stake. There are many aspects that must be taken into consideration when determining significance, such as rarity, national significance, scientific importance, cultural and religious significance, and not least, community preferences. When, for whatever reason the protection of a heritage site is not deemed necessary or practical, its research potential must be assessed and if appropriate mitigated in order to gain data / information which would otherwise be lost. Such sites must be adequately recorded and sampled before being destroyed.

5. Statement of Significance & Recommendations

5.1 Statement of significance

The study area: Remaining Extent of the Farm Adams 328, Kuruman, Northern Cape

As can be seen from previous research done in the area, the general region is significant from a heritage perspective. Heritage sites are likely to include MSA/LSA material, cemeteries/graves, Iron Age and historical sites. Since heritage sites, such as burial sites, are not always clearly identifiable due to disturbed/removed surface features, care must be exercised when prospecting.

The **Appendix A** figures indicate the study area on 1972/1973, 2001 and 2010/2013 topographical maps and 1957, 1965 and 1972 aerial images. According to the 1972/1973 topographical map (**Appendix A: Figure 8**), three building are shown near the western border of the study area, as well two buildings at a settlement marked as 'Lizbeth' along the north-eastern boundary and three buildings at a settlement marked as 'Adams', also along the north-eastern boundary. By 2001 (**Appendix A: Figure 9**), only one building and the Eskom substation is shown along the western boundary, while one building remains at Lizbeth with two new buildings further to the northeast. Only one building is shown at Adams as well. The 2010/2013 topographical map (**Appendix A: Figure**

10) shows no buildings along the western boundary and again one building at Adams along the north-eastern border. Four buildings are shown at Lizbeth, one of which is in a new location.

When the 1957 aerial image is considered (**Appendix A: Figure 11**), structures are visible at the settlements labelled as Lizbeth and Adams along the north-eastern border of the study area, while some activity is indicated near the centre of the study area. It should be noted that the study done by Pelser (2012) makes no mention of the potential site near the centre of the study area. A strong possibility exists that this locality was used in connection with cattle farming as a windpump is shown on historical topographical maps. The 1965 aerial image (**Appendix A: Figure 12**) indicates the same areas associated with structures on the 1957 aerial image with the addition of the buildings along the western border of the study area as indicated on the 1972/1973 topographical map. The structures along the western border were therefore constructed between 1957 and 1965. According to Pelser (2012), these structures formed part of a mining hostel that was abandoned in the 1970's and subsequently demolished. The 1972 (**Appendix A: Figure 13**) aerial image shows the same structures and buildings visible on the 1965 aerial image.

Recent aerial imagery still shows the presence of past human activity at the locations marked as sensitive on **Figure 4**, although the level of preservation is unknown. Based on the historical aerial images, the structures and remains associated with the demarcated sensitive areas as indicated on **Figure 4** are likely to exceed 60 years of age and would therefore be protected under the NHRA 25 of 1999. It should also be noted that not all infrastructure might be visible on historical topographical maps and aerial imagery. Additionally, previous studies done in the general vicinity identify key areas as drainage lines, pans, hills/rocky outcrops and homesteads. These areas, therefore, were marked as sensitive on **Figure 4.**

5.2 Recommendations

The following recommendations are made in order to avoid the destruction of heritage remains on the areas demarcated for prospecting:

- It is recommended that the areas demarcated as 'Sensitive Areas' on **Figure 4** be excluded from potential prospecting sites due to the possible presence of surface/subsurface culturally significant material.

- It is advised that a qualified archaeologist be contacted whenever uncertainty regarding potential heritage remains are encountered.

- Should the prospecting outcome result in further development or construction, a full Phase 1 Archaeological Impact Assessment must be conducted on the affected area if triggered. Also, a full Phase 1 AIA must be done should the cumulative impact of the proposed prospecting exceed 0.5 ha.

- Because archaeological artefacts generally occur below surface, the possibility exists that culturally significant material may be exposed during the prospecting phase, in which case all activities must be suspended pending further archaeological investigations by a qualified archaeologist. Also, should skeletal remains be exposed, all activities must be suspended and the relevant heritage resources authority contacted (See National Heritage Resources Act, 25 of 1999 section 36 (6)).

6. Addendum: Terminology

Archaeology:

The study of the human past through its material remains.

Artefact:

Any portable object used, modified, or made by humans; e.g. pottery and metal objects.

Assemblage:

A group of artefacts occurring together at a particular time and place, and representing the sum of human activities.

Context:

An artefact's context usually consist of its immediate *matrix* (the material surrounding it e.g. gravel, clay or sand), its *provenience* (horizontal and vertical position within the matrix), and its *association* with other artefacts (occurrence together with other archaeological remains, usually in the same matrix).

Cultural Resource Management (CRM):

The safeguarding of the archaeological heritage through the protection of sites and through selvage archaeology (rescue archaeology), generally within the framework of legislation designed to safeguard the past.

Excavation:

The principal method of data acquisition in archaeology, involving the systematic uncovering of archaeological remains through the removal of the deposits of soil and other material covering and accompanying it.

Feature:

An irremovable artefact; e.g. hearths or architectural elements.

Ground Reconnaissance:

A collective name for a wide variety of methods for identifying individual archaeological sites, including consultation of documentary sources, place-name evidence, local folklore, and legend, but primarily actual fieldwork.

Matrix:

The physical material within which artefacts is embedded or supported, i.e. the material surrounding it e.g. gravel, clay or sand.

Phase 1 Assessments:

Scoping surveys to establish the presence of and to evaluate heritage resources in a given area.

Phase 2 Assessments:

In-depth culture resources management studies which could include major archaeological excavations, detailed site surveys and mapping / plans of sites, including historical / architectural structures and features. Alternatively, the sampling of sites by collecting material, small test pit excavations or auger sampling is required.

Sensitive:

Often refers to graves and burial sites although not necessarily a heritage place, as well as ideologically significant sites such as ritual / religious places. *Sensitive* may also refer to an entire landscape / area known for its significant heritage remains.

Site:

A distinct spatial clustering of artefacts, features, structures, and organic and environmental remains, as the residue of human activity.

Surface survey:

There are two kinds: (1) unsystematic and (2) systematic. The former involves field walking, i.e. scanning the ground along one's path and recording the location of artefacts and surface features. Systematic survey by comparison is less subjective and involves a grid system, such that the survey area is divided into sectors and these are walked ally, thus making the recording of finds more accurate.

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Human Tissue Act No. 65 of 1983, Government Gazette, Cape Town

National Heritage Resource Act No.25 of 1999, Government Gazette, Cape Town

Removal of Graves and Dead Bodies Ordinance No. 7 of 1925, Government Gazette, Cape Town

Appendix A: Historical Aerial Imagery & Topographical Maps

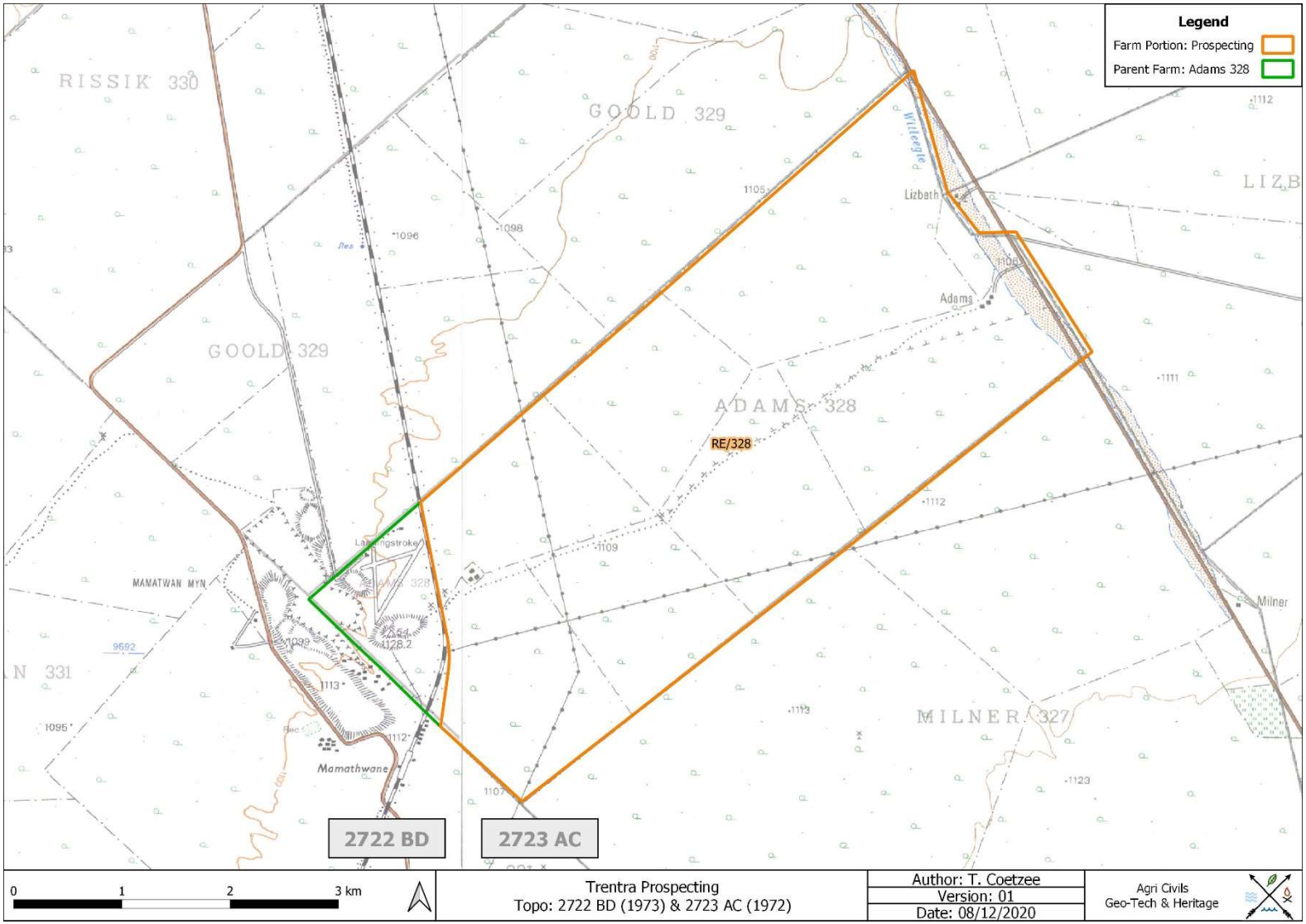

Figure 8: Segments of 1972 & 1973 SA 1: 50 000 2722 BD & 2723 AC indicating the study area.

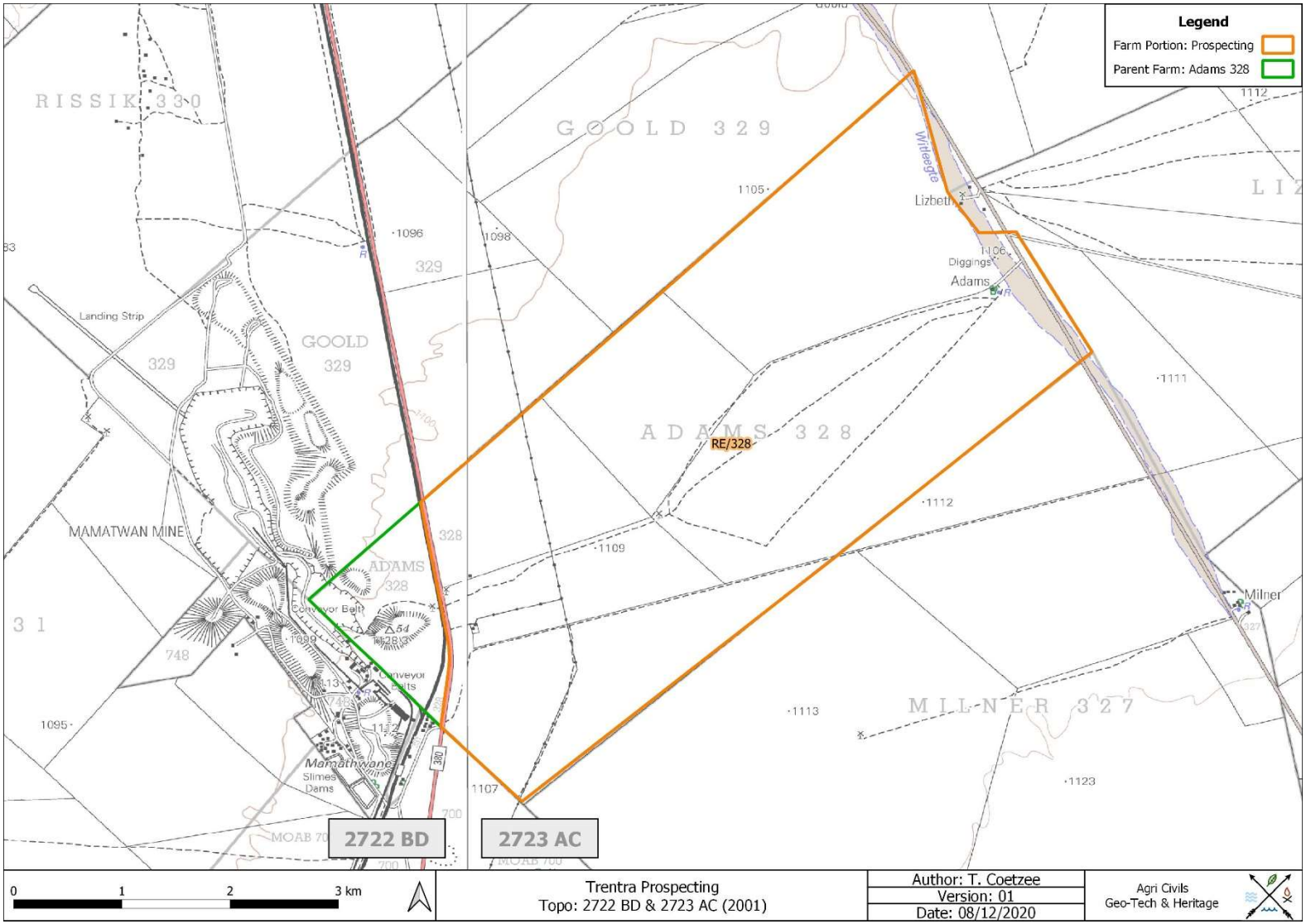

Figure 9: Segments of 2001 SA 1: 50 000 2722 BD & 2723 AC indicating the study area.

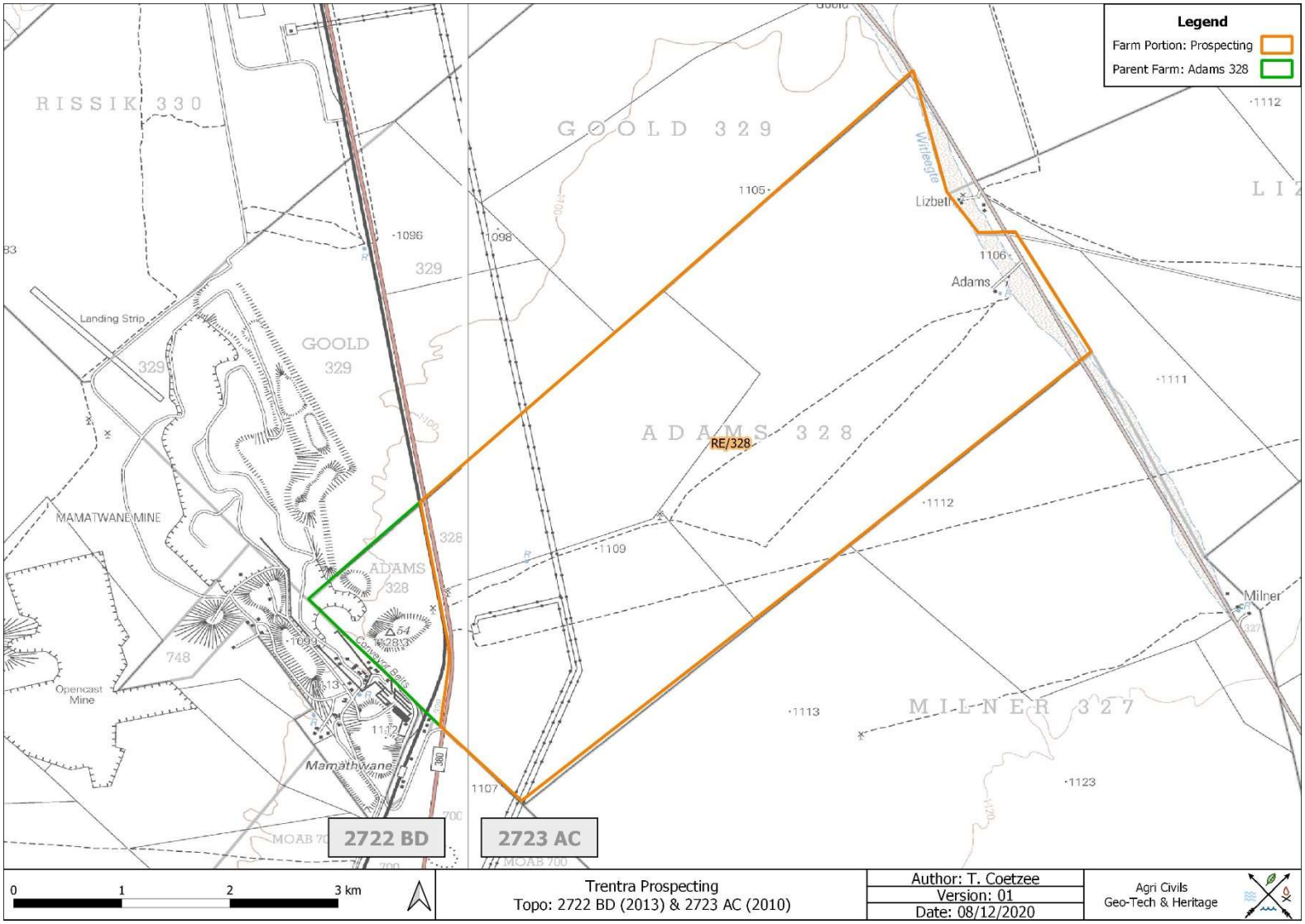

Figure 10: : Segments of 2010 & 2013 SA 1: 50 000 2722 BD & 2723 AC indicating the study area.

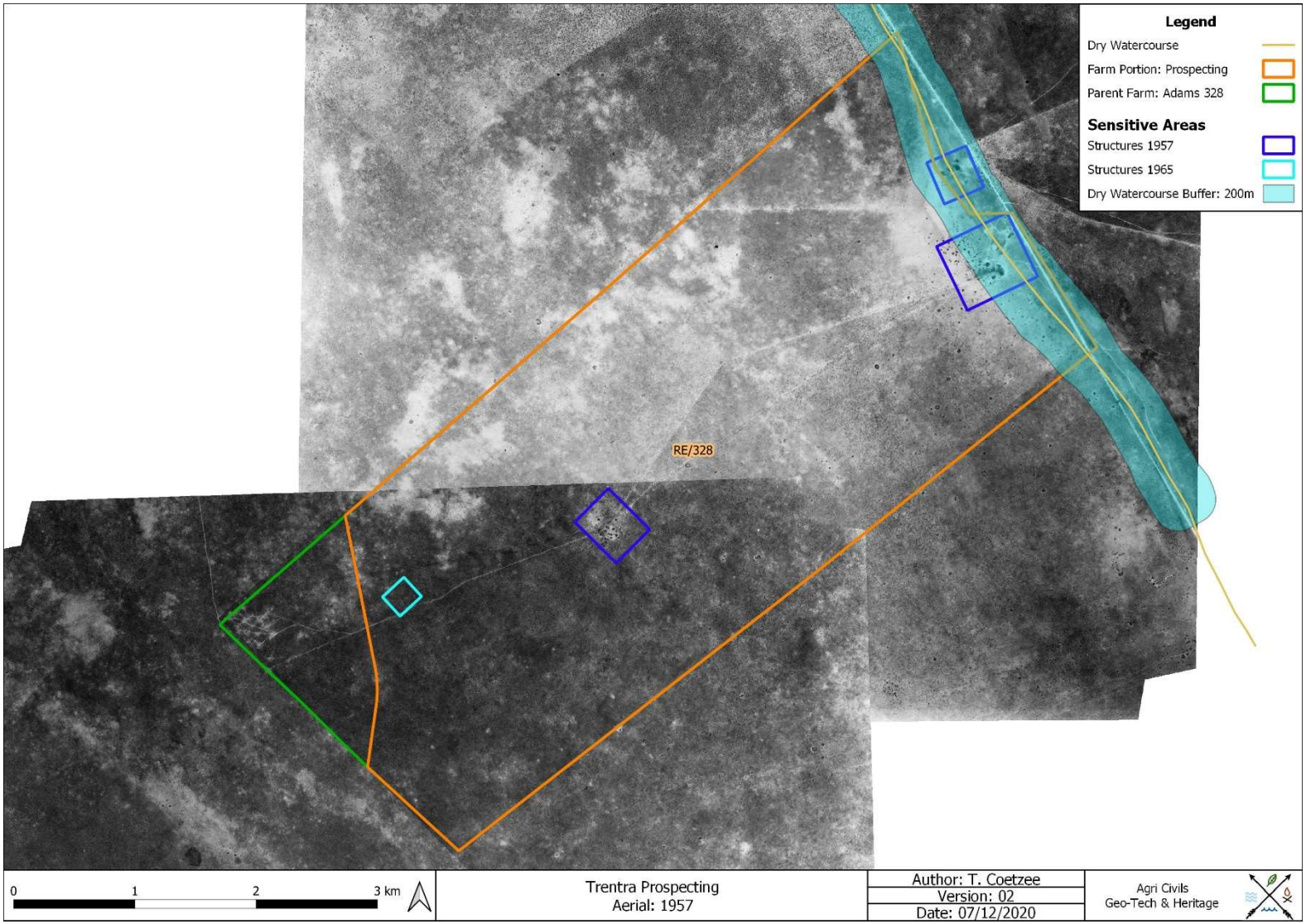

Figure 11: 1957 Aerial image of the study area.

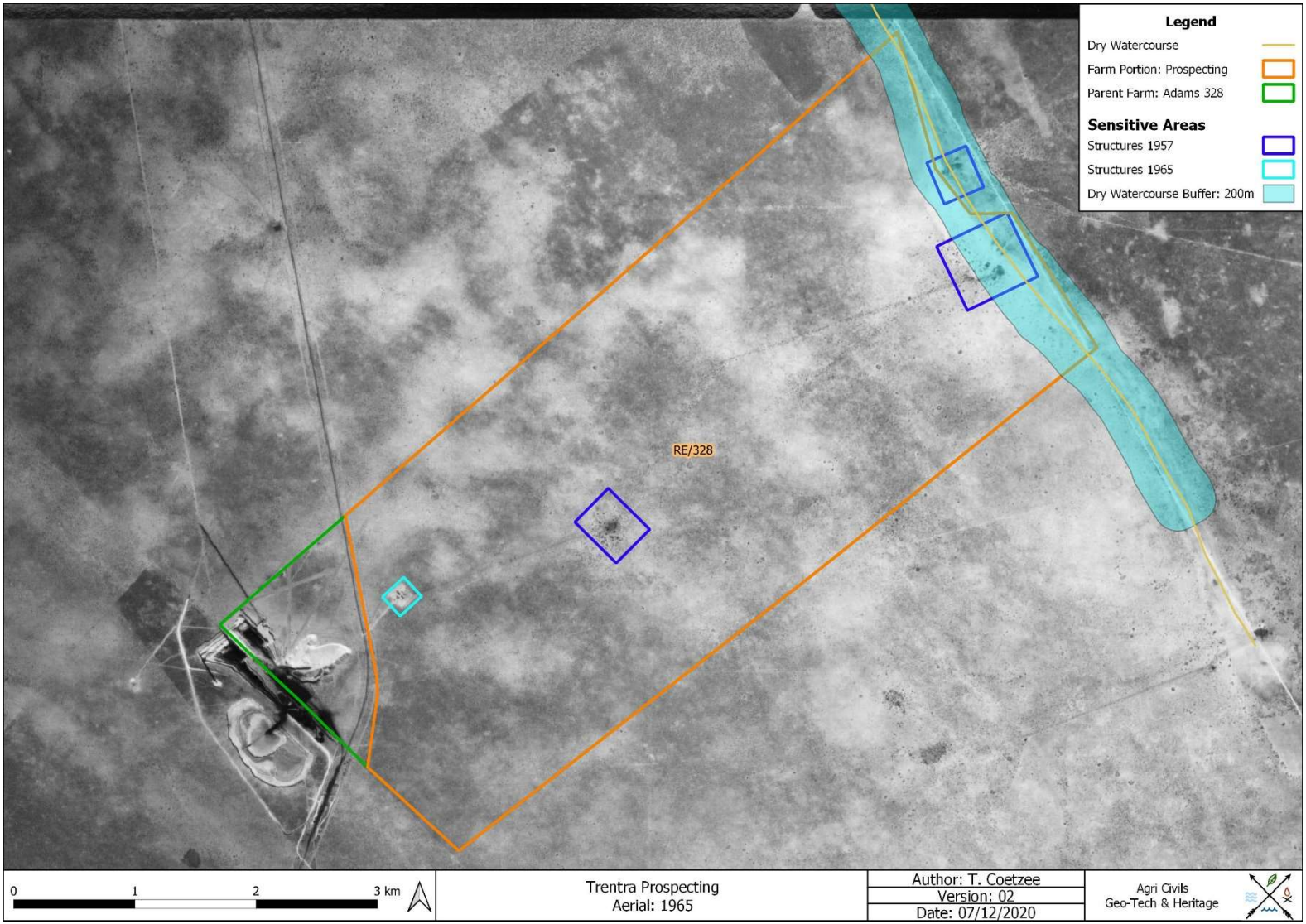

Figure 12: 1965 Aerial image of the study area.

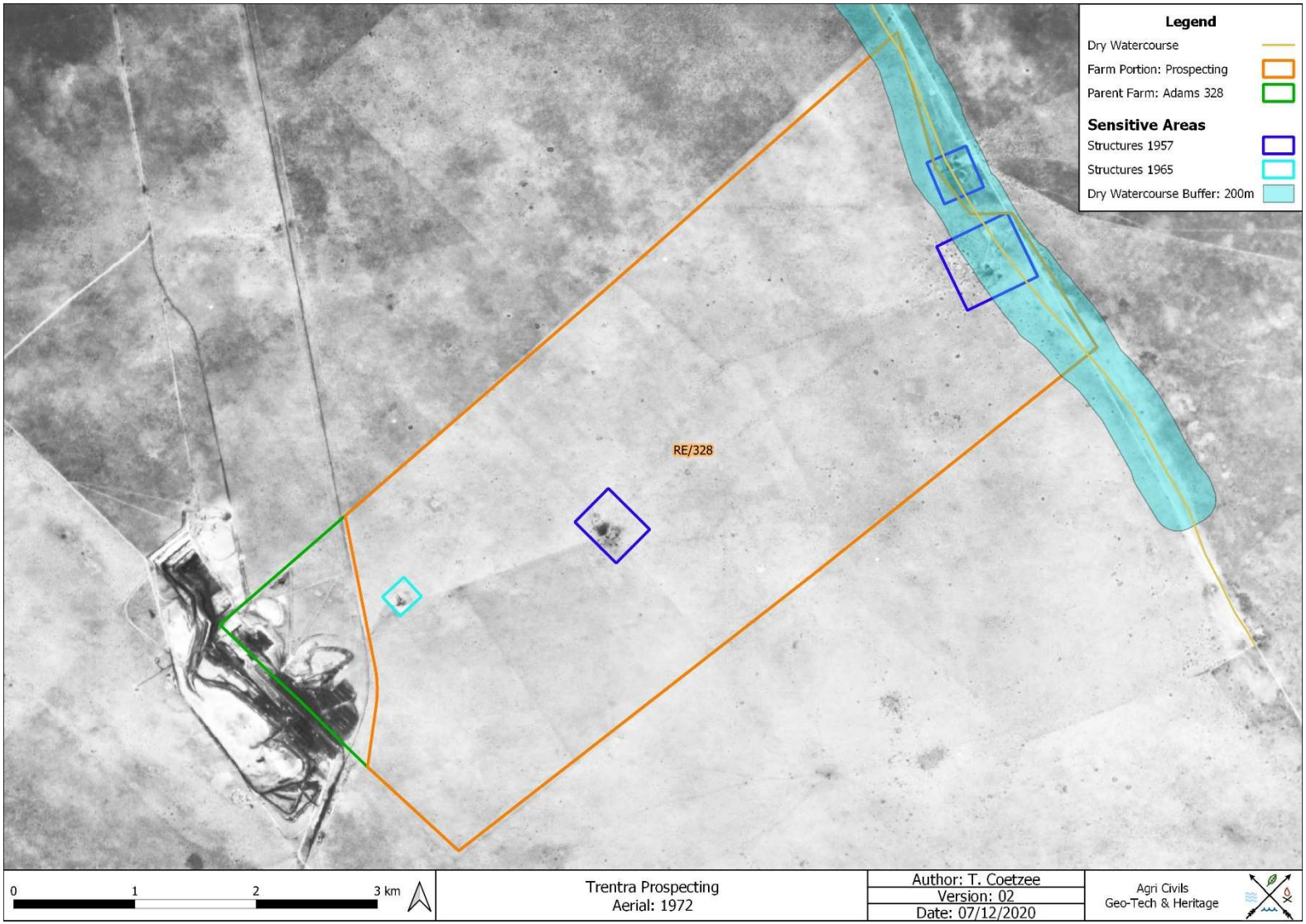

Figure 13: 1972 Aerial image of the study area.