PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT

For

The Proposed Uitkomst Colliery (Pty) Ltd: Klipspruit Project on a Portion of Portion 23 of the Farm Klipspruit 178, near Newcastle, KwaZulu-Natal

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March 2022

A Phase 1 Archaeological Impact Assessment for the Proposed Uitkomst Colliery (Pty) Ltd: Klipspruit Project on a Portion of Portion 23 of the Farm Klipspruit 178, near Newcastle, KwaZulu-Natal

For: Elemental Sustainability (Pty) Ltd

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Version: 1

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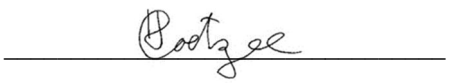
I, Tobias Coetzee, declare that –

- I act as the independent specialist;
- I am conducting any work and activity relating to the proposed Uitkomst Colliery (Pty) Ltd: Klipspruit 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.



Date: 29 March 2022

List of Abbreviations

AIA – Archaeological Impact Assessment

CRM – Cultural Resource Management

EIA – Environmental Impact Assessment

ECO – Environmental Control Officer

ESA – Early Stone Age

GPS – Global Positioning System

ha – Hectare

HIA – Heritage Impact Assessment

km – Kilometre

LSA – Later Stone Age

m – Metre

MASL – Metres Above Sea Level

MEC – Member of the Executive Council

MSA – Middle Stone Age

NHRA – National Heritage Resources Act

SAHRA – South African Heritage Resources Agency

WMA – Water Management Area

Executive Summary

The author was appointed by Enviridi Environmental Consultants (Pty) Ltd to undertake a Phase 1 Archaeological Impact Assessment for the proposed Uitkomst Colliery (Pty) Ltd: Klipspruit Project on a portion of Portion 23 of the Farm Klipspruit 178 near Newcastle in the KwaZulu-Natal Province. The proposed development is located approximately 27 km northeast of Newcastle and falls within the Emadlangeni Local Municipality. The aim of the study is to determine the scope of archaeological resources that could be impacted by the proposed construction of an adit and its associated stormwater infrastructure.

The entire demarcated study area is characterised by rehabilitated mine land that used to be cultivated prior to being mined. According to historical aerial imagery and topographical maps, no features or structures that might be sensitive from a heritage perspective existed on the demarcated section and no heritage sites or artefacts were noted during the pedestrian survey. Historical aerial images indicate that the study area used to be cultivated from as early as 1935 and continued to be cultivated until at least 1973. Between 1973 and 1991 the area was mined and by 2003, the mining activities appear to have ceased. The demarcated study area is therefore not considered to be sensitive from a heritage perspective.

Subject to adherence to the recommendations and approval by the South African Heritage Resources Agency (SAHRA), the proposed Uitkomst Colliery (Pty) Ltd: Klipspruit Project as per the indicated boundary may continue. Should skeletal remains be exposed during development and construction phases, 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 development, all activities must be suspended pending further investigation by a qualified archaeologist.

Table of Contents

List of Figures

List of Tables

1. Project Background

1.1 Introduction

Elemental Sustainability (Pty) Ltd appointed the author to undertake a Phase 1 Archaeological Impact Assessment for the proposed Uitkomst Colliery (Pty) Ltd: Klipspruit Project on a portion intersecting Portion 23 of the Farm Klipspruit 178 IS (**Table 1**) near Newcastle in the KwaZulu-Natal Province (**Figures 1 – 3**). The area demarcated for the construction of the adit falls within the Emadlangeni Local Municipality and is located approximately 27 km northeast of Newcastle. The purpose of this study is to examine the demarcated study area in order to determine if any archaeological resources of heritage value will be impacted by the proposed development, as well as to archaeologically contextualise the general study area. The aim of this report is to provide the developer with information regarding the potential location of heritage resources within the demarcated study area.

In the following report, the implication for the construction of the proposed adit on the demarcated portion with regard to heritage resources is discussed: A Portion intersecting Portion 23 of the Farm Klipspruit 178 IS. 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 development and construction phases within the demarcated study area.

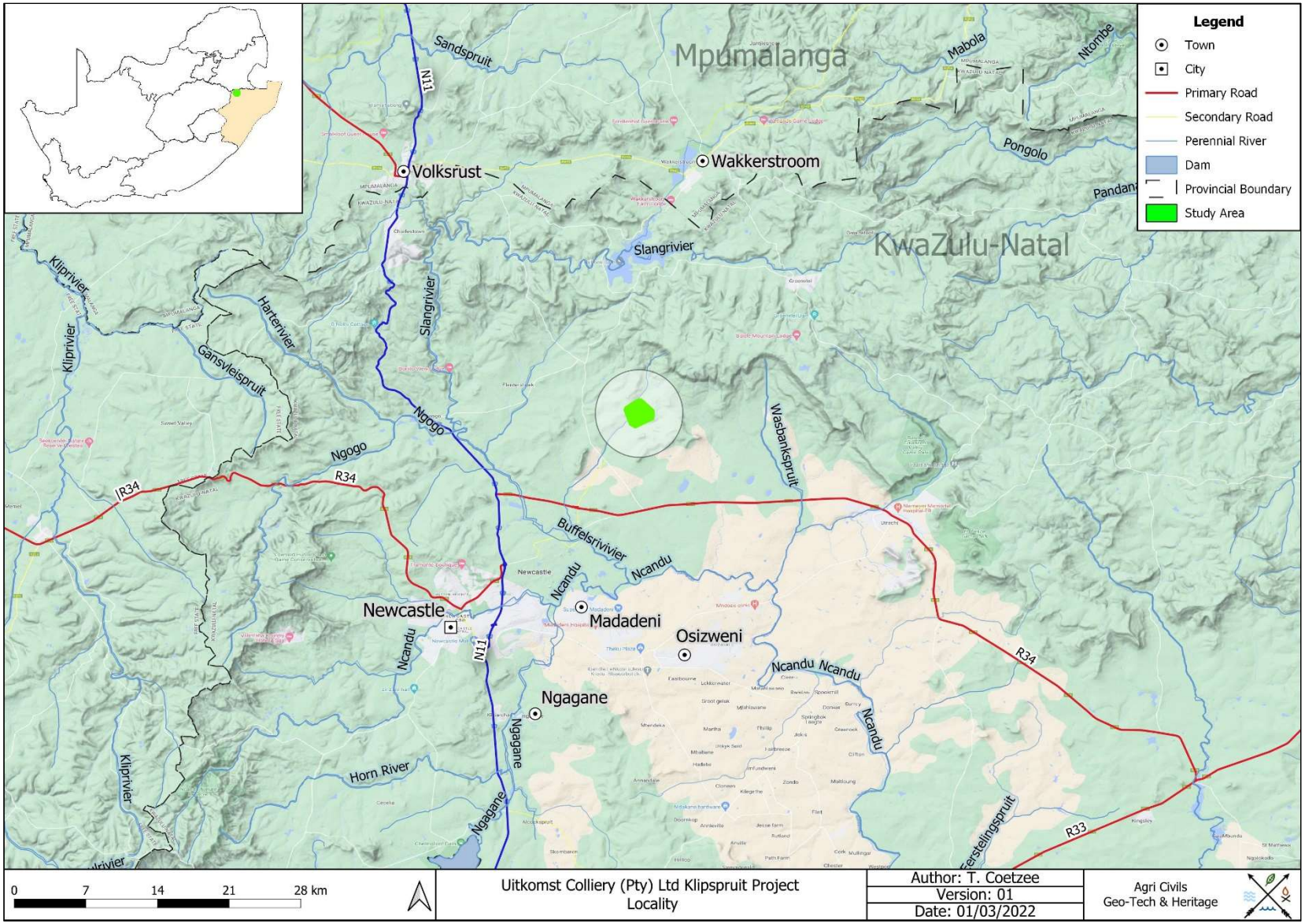


Figure 1: Regional and Provincial location of the study area.

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 (Archaeological Impact Assessment) 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 (Environmental Impact Assessment) 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 (Member of the Executive Council) as well as the relevant Local Authorities. Graves 60 years or older fall under the jurisdiction of the National Heritage Resources Act (NHRA) as well as the Human Tissues Act, 1983.

2. Study Area and Project Description

2.1 Location & Physical Environment

The proposed Uitkomst Colliery (Pty) Ltd: Klipspruit Project is situated to the northeast of Newcastle. The intersecting farm portion and proposed development are listed in **Table 1**:

Table 1: Development location.

Development	Farm Name	Portion	Map Reference (1:50 000)	Lat	Lon	Investigated area (ha)
Adit 2K & associated infrastructure	Klipspruit 178	23	2730 CA	-27.575265	30.088896	± 26.8

The study area is located 27 km northeast of Newcastle, while Madadeni is located roughly 20 km to the south-southwest and Volksrust 32 km to the northwest (**Figures 1 – 3**). The study area falls within the Amajuba District Municipality and the Emadlangeni Local Municipality in the KwaZulu-Natal Province. In terms of vegetation, the study area falls within the Grassland Biome and Sub-Escarpment Grassland Bioregion, which is typically associated with summer rainfall regions. This Biome covers approximately 28% of South Africa. According to the vegetation classification by Mucina & Rutherfords (2006) the study area falls within the KwaZulu-Natal Highland Thornveld vegetation unit.

KwaZulu-Natal Highland Thornveld's conservation status is considered to be least threatened with a conservation target of 23%. Only about 2% is statutorily conserved in the Spioenkop, Weenen, Ntinini, Wagendrift, Moor Park and Tugela Drift Nature Reserves. This vegetation unit consists of a series of several patches in the central-northern regions of KwaZulu-Natal, where it is associated with both dry valleys and moist upland. The most extensive area is found in the region from Ladysmith, Winterton, Estcourt and Colenso, between Mooi River and Greytown, between Pomeroy and Babanago, and further north in a triangle between Vryheid, Paulpietersburg and Louwsburg, as well as a large patch around Newcastle. More than 16% of this vegetation unit has been

transformed by cultivation, urban sprawl and the building of dams. Alien *Opuntia, Eucalyptus, Populus, Acacia and Melia* are becoming invasive in places, but the greatest threat is considered to be bush encroachment. In terms of erosion associated with this vegetation unit, 34% is considered to be low, 29% to be low, 2% to be moderate and 12% to be high (Mucina & Rutherfords 2006).

The average elevation for KwaZulu-Natal Highland Thornveld varies between 920 and 1440 MASL (metres above sea level). The average elevation of the project area is 1313 MASL and slopes from the slightly more elevated eastern section to the lower western area.

The study area falls within the summer rainfall region and the average annual rainfall is roughly 895 mm. The average annual temperature is 16 ºC. The average summer temperature is 19.9 ºC, while the winter temperature averages 10.1 ºC (Climate-data.org accessed 29/03/2022).

The study area falls within the V31D Quaternary Catchment that forms part of the Pongola-Mtamvuna Water Management Area (WMA). The closest perennial river to the study area is Doringspruit that flows 300 m to the west, while two non-perennial rivers intersect the study area. Several dams, non-perennial pans and marshes are also located in the general vicinity of the study area.

When the surrounding environment is considered, the region is associated with crop cultivation, grazing veldt for cattle and limited mining activity. Access to the study area is via a tertiary road extending from a secondary road to the south of the study area (**Figures 2 & 3**). On a local scale, the entire demarcated study area is characterised by rehabilitated mining land.

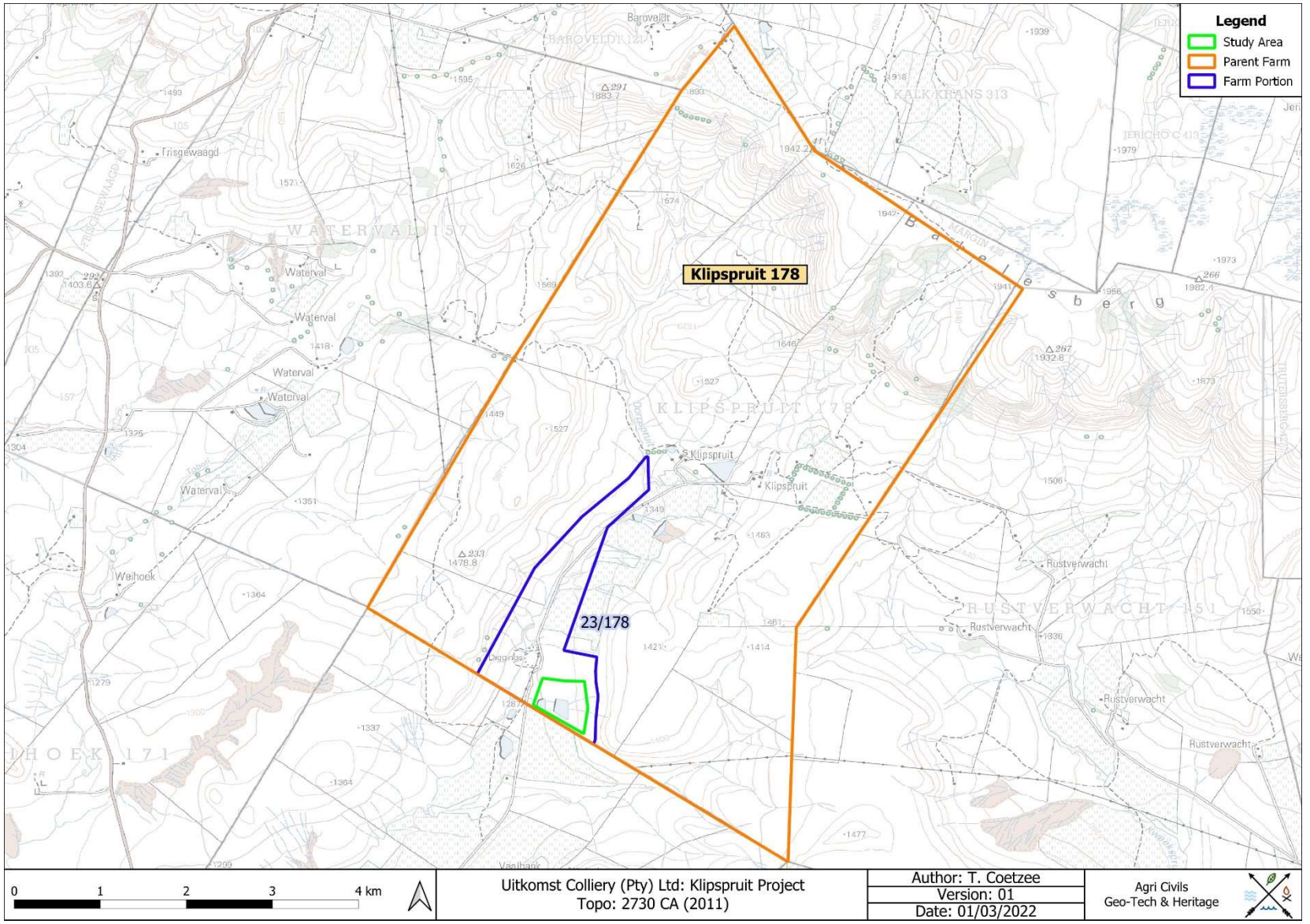


Figure 2: Segment of SA 1: 50 000 2730 CA indicating the study area.

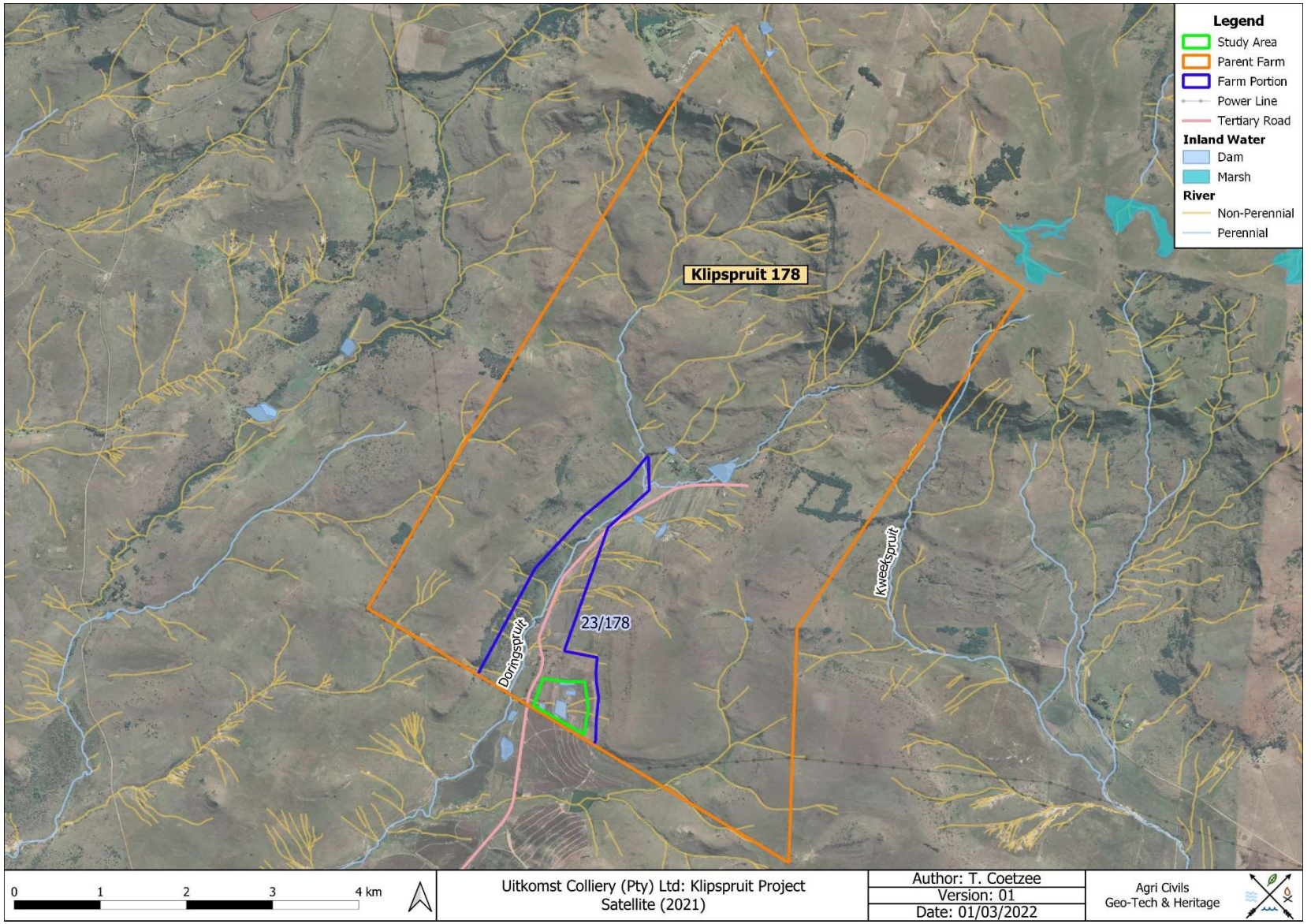


Figure 3: Study area portrayed on a 2021 satellite image.

2.2 Project description

The proposed development consists of the construction of an adit and its associated stormwater infrastructure on a portion intersecting Portion 23 of the Farm Klipspruit 178 IS. However, the exact location of where the structure will be constructed within the demarcated study area is not yet known, but one location was proposed at the time of assessment (**Figure 4**).

3. Methodology

Archaeological reconnaissance of the study area was conducted during February 2022 through a systematic pedestrian survey (**Figure 4**). The transects were spaced roughly 50 m apart and oriented in a north-south direction. General site conditions were recorded via photographic record (**Figures 5 – 12**). Also, the project area was inspected beforehand on Google Earth, historical topographical maps and aerial imagery in order to identify potential heritage remains (**Appendix A**). Not potential sites, however, were observed within the demarcated boundary and no sites were observed during the pedestrian survey. The historical topographical datasets dating to 1953, 1980, 1996 and 2011, as well as the historical aerial images dating to 1935, 1965, 1970, 1973, 1991 and 2003, proved useful in terms of providing an indication of potential heritage sites and past land uses associated with the study area. The location of the proposed adit was provided by the client. However, since the proposed location of the adit might be changed, the larger area surrounding the proposed location was surveyed. The total area inspected was 26.8 ha. Although heritage resources are often associated with perennial and non-perennial rivers, the rivers and streams located within close proximity of the study area were not buffered due to the study area being completely disturbed by previous mining activity.

The reconnaissance of the area under investigation served a twofold purpose:

- To obtain an indication of heritage material found in the general area as well as to identify or locate archaeological sites on the area demarcated for development. This was done in order to establish a heritage context and to supplement background information that would benefit developers through identifying areas that are sensitive from a heritage perspective.

- All archaeological and historical events have spatial definitions in addition to their cultural and chronological context. Where applicable, spatial recording of these definitions were done by means of a handheld GPS (Global Positioning System) during the site visit, as well as by plotting the boundaries from aerial imagery and topographical maps.

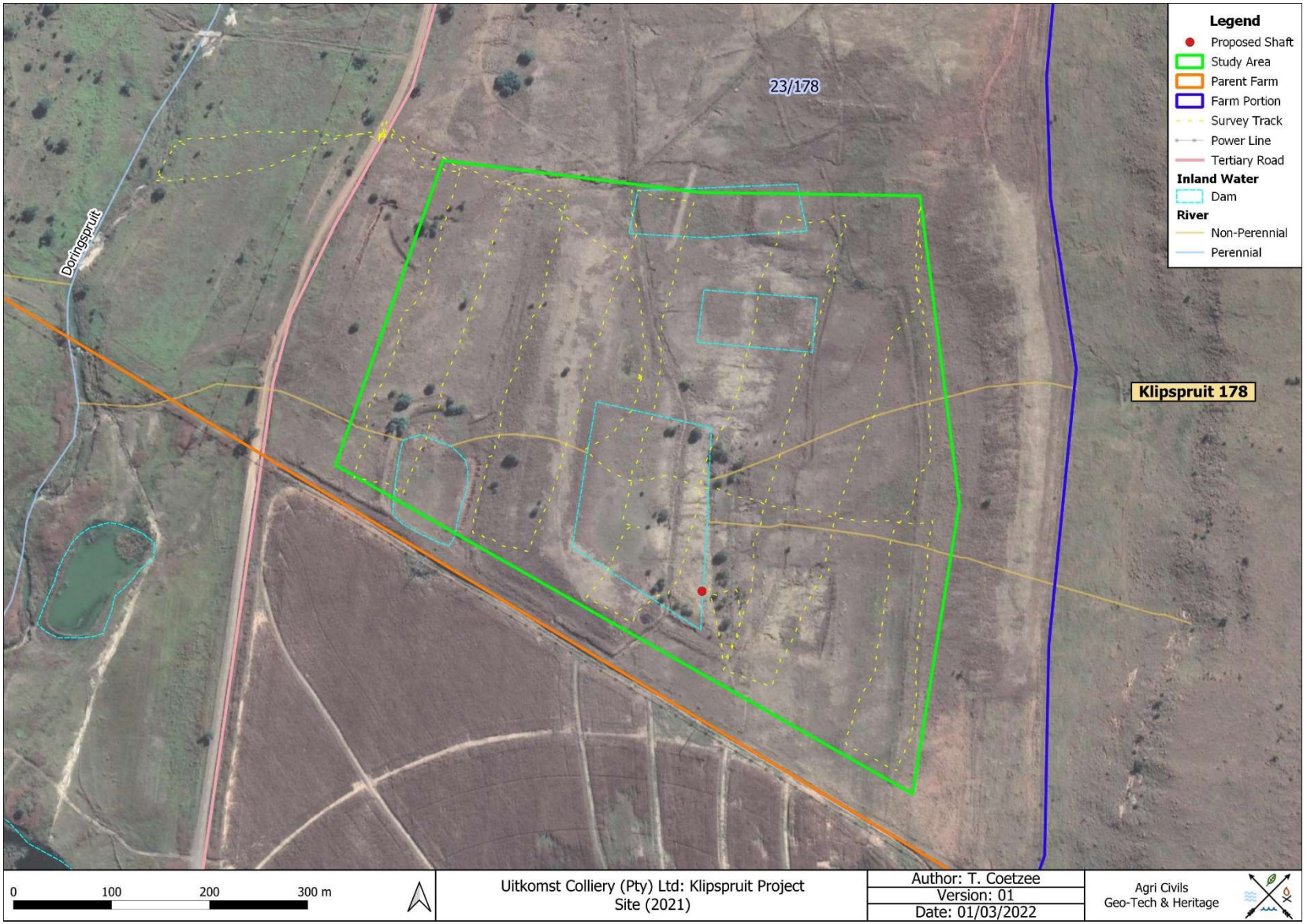


Figure 4: Study area and survey track portrayed on a 2021 satellite image.

Figure 5: Study area viewed from the northwest.

Figure 6: Study area viewed from the southwest.

Figure 7: Study area viewed from the southeast.

Figure 8: Study area viewed from the northeast.

Figure 9: Northern view of the proposed location of the adit

Figure 10: Western view of the proposed location of the adit

Figure 11: Southern view of the proposed location of the adit

Figure 12: Eastern view of the proposed location of the adit

3.1 Sources of information

At all times during the survey, standard archaeological procedures for the observation of heritage resources were followed. As most archaeological material occur in single or multiple stratified layers beneath the soil surface, special attention was paid to disturbances; both man-made such as roads and clearings, and those made by natural agents such as burrowing animals and erosion. Locations associated with archaeological material remains were recorded by means of a Garmin Oregon 750 GPS and were photographed with a Samsung S7 mobile phone. A literature study, which incorporated previous work done in the region, was conducted in order to place the study area into context from a heritage perspective.

3.1.1 Previous Heritage Studies

Newcastle cemetery

A Heritage Impact Assessment was conducted by eThembeni Cultural Heritage (2011) on seven potential areas earmarked for a cemetery in Newcastle. Except for the Madadeni community cemetery / burial ground located within the boundaries of one of the earmarked sites, no other sites of heritage significance were recorded. The Newcastle cemetery study area is located approximately 18 km south of the proposed Uitkomst Colliery (Pty) Ltd: Klipspruit Project.

Gravel quarries between Memel and Vrede

A Phase 1 Archaeological Impact Assessment was conducted by Rossouw (2008) for the development of eight gravel quarries along the R34 between Memel and Vrede in the Free State Province. The quarry sites are located roughly 53 km west-southwest of the proposed Uitkomst Colliery (Pty) Ltd: Klipspruit Project. It was noted that all the quarries that were investigated were located within igneous bedrock and that seven out of the eight quarries indicated no potential archaeological impact and were of low archaeological significance. One of the quarries, however, was characterised by an informally laid-out cluster of approximately 10 grave mounds. A grave relocation process was recommended due to the unstable nature of the exposed and easily erodible gravel mounds.

Utrecht Low-Cost Housing Project

Murimbika (2013) conducted a Phase 1 Archaeological and Heritage Impact Assessment for the Utrecht low-cost housing project on Erven 1177 - 1625, Utrecht. The Utrecht low-cost housing project is located in the Township of Goedehoop on the outskirts of Utrecht and about 25 km southeast of the proposed Uitkomst Colliery (Pty) Ltd: Klipspruit Project. The project area measured approximately 27.6 ha, while the development footprint measured roughly 16.9 ha. Although the desktop analysis of the study area predicted the likely presence of archaeological sites (Stone Age and Historic Archaeological), cultural heritage sites, burial grounds and isolated artefacts, no such indications were observed during the field survey.

Waaihoek Wind Energy Facility

Anderson & Anderson (2014) conducted a Heritage survey for the proposed Waaihoek Wind Energy Facility near Utrecht in the KwaZulu-Natal Province. The Waaihoek wind energy facility study area is located about 33 km southeast of the proposed Uitkomst Colliery (Pty) Ltd: Klipspruit Project. At the time of the study, the proposed Waaihoek facility would host up to 90 wind turbines, although the number and location of the turbines were not available at that time. The inspected project area, which included several farms, recorded a high number of archaeological and historical sites that include the entire Stone Age sequence, the Late Iron Age and Historical Period. It was also noted that the general area is associated with the Voortrekkers, as well as the Anglo-Zulu and Anglo-Boer War.

3.1.2 Historical topographical maps & aerial images

The historical aerial images dating to 1935, 1965, 1970 and 1973 (**Appendix A: Figures 22, 24 – 26**) appear to indicate that the demarcated study area was cultivated and that no structures existed within the demarcated boundary. The access road directly to the west of the study area is also evident on these images. The historical aerial images dating to 1991 and 2003 (**Appendix A: Figures 28 & 30**), however, show the entire demarcated study area to be associated with mining activities that include several dams. The access road also appears to have been altered between 1991 and 2003.

When the historical topographical maps are inspected, the 1953 topographical map (**Appendix A: Figure 23**) indicates the presence of a dam and cultivation on the demarcated study area, while the initial access road is also shown. The 1980 topographical map (**Appendix A: Figure 27**) indicates the same detail as the 1953 topographical map, except for the dam. The 1996 topographical map, however, shows the absence of cultivation and the presence of several new dams and therefore the presence of mining activity. The altered access road is also indicated (**Appendix A: Figure 29**). By 2011 (**Appendix A: Figure 31),** some of the dams are no longer shown, while the rest of the detail remains the same. Based on the historical aerial images and topographical maps, mining activity commenced between 1973 and 1991, and appear to have ceased between 1991 and 2003.

3.2 Limitations

The pedestrian survey (February 2022) confirmed that the study area consists of a rehabilitated mining area. Movement was not restricted, but high grass cover in some areas hampered visibility (**Figure 13**). No other access constraints were encountered.

Figure 13: Patches of dense vegetation.

4. 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 and focuses on more site-specific elements where relevant.

4.1 The Stone Ages

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 (Early Stone Age) 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 (MSA) 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 (LSA) 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.

4.2 The Iron Age & Later History

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.

4.2.1 The Anglo-Zulu War and the 1st and 2nd Anglo-Boer Wars

The battles that took place in the Newcastle region generally involved that passage of troops between the British colony of Natal and the neighbouring Boer republics of the Orange Free State and the Transvaal. The battlefield located closest to the proposed Uitkomst Colliery (Pty) Ltd: Klipspruit Project is the Battle of Ingogo, also known as the Battle of Schuinshoogte, that took place approximately 20 km to the west-southwest. Other battels that took place in the great area include the Battle of Botha's Pass, the Battle of Laing's Nek, the Battle of Majuba Hill and the Battle of Alleman Nek (Von der Heyde 2013: 182-184).

The Battle of Ingogo took place on 8 February 1881. Following the British defeat at Laing's Nek on 28 January 1881, General Sir George Pomeroy Colley and the Natal Field Force waited at Mount Prospect for reinforcements to continue their advance to the Transvaal, where the Boers had besieged all British garrison towns. British convoys travelling between Newcastle and the camp at Mount Prospect were continuously attacked by Boers under Commandant J. D. Weilbach. On 8 February 1881, Colley accompanied a convoy leaving Mount Prospect for Newcastle with the goal of accompanying additional reinforcements back to Mount Prospect. However, his force was attacked at Schuinshoogte while enroute to Newcastle (Von der Heyde 2013: 182-184).

Colley left Mount Prospect around 08:30 on 8 February 1881 and expected to be back at the camp by 16:00. The convoy consisted of about 270 men, four artillery guns and a small detachment of mounted infantry. Upon reaching the Ingogo River, two half-companies of infantry and two seven-pounder guns were left on high ground north of the double drift. An infantry company was order to relieve the men left at the drift, in order for them to join the main force, which then continued up the hill to the Schuinshoogte plateau (Von der Heyde 2013: 182-184).

As soon as the British reached the highest point, the Boers on their right flank, who consisted of approximately 200 fighters, opened fire. Aided by reinforcements throughout the day, the Boers were able to surround the British position and successfully countered the British manoeuvres. Late during the afternoon a severe thunderstorm broke that provided relief to the British, who ventured into battle without a water cart. As darkness fell, the Boers withdrew to a nearby farm and planned to resume battle the following morning. With enough horses harnessed to draw the guns and ammunition wagon, Colley gave to order to withdraw under cover of darkness. With the river in spate due to the heavy rain, seven men drowned, but the rest crossed the river undetected by the Boer patrols and arrived back at the camp the following morning (Von der Heyde 2013: 182-184).

The British suffered an estimated 142 casualties with roughly the same amount wounded, while the Boers had 10 dead and four wounded. Eight of the dead Boers were buried on the Farm Geelhoutboom, 5 km west of the battle site, while the deceased British officers were reburied at Fort Amiel. The remaining men were buried on the battlefield. Nineteen days later, Colley would again clash with the Boers at Majuba (Von der Heyde 2013: 182-184).

4.2.2 Newcastle General Background

According to Von der Heyde (2013), the Ngwane settled in the general region during the early 19th Century, but appear to have moved in 1818, after being attacked by the Ndwandwe. After 1830, Voortrekkers settled in the valleys and following the Battle of Blood River in 1838, proclaimed the independent Republic of Natalia. However, in 1845 Great Britain annexed Natal. Following the annexation, an increasing number of British immigrants settled in the region. The town of Newcastle was surveyed in 1864 and was named for the Duke of Newcastle, the British colonial secretary at the time. Coal was discovered in the region in 1881 and is still being mined today.

5. Archaeological and Historical Remains

5.1 Stone Age Remains

No Stone Age archaeological remains were located within the demarcated study area.

Although no Stone Age archaeological remains were located, such artefacts may occur in the area. These artefacts are often associated with rocky outcrops or water sources. **Figures 14 – 16** below are examples of stone tools often associated with the Early, Middle and Later Stone Age of southern Africa.

The archaeological study conducted by Anderson & Anderson (2014) noted the presence of artefacts that include the entire Stone Age sequence, while the remaining heritage studies did not locate any such remains (eThembeni Cultural Heritage 2011, Rossouw 2008 and Murimbika 2013).

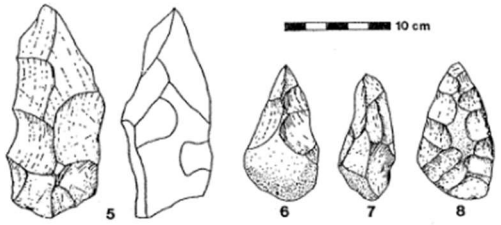


Figure 14: ESA artefacts from Sterkfontein (Volman 1984).

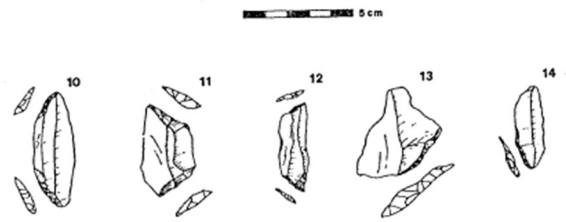


Figure 15: MSA artefacts from Howiesons Poort (Volman 1984).

Figure 16: LSA scrapers (Klein 1984).

5.2 Iron Age Farmer Remains

No Iron Age Farmer remains were located within the demarcated study area.

The heritage study conducted by Anderson & Anderson (2014) for the Waaihoek Wind Energy Facility located several sites dating to the Iron Age. The remaining heritage studies conducted in the general vicinity did not locate such remains (eThembeni Cultural Heritage 2011, Rossouw 2008 and Murimbika 2013).

5.3 Historical

No Historical remains were located within the demarcated study area.

The heritage study conducted by Anderson & Anderson (2014) for the Waaihoek Wind Energy Facility located several sites dating to the Historical period. It was also noted that the general area is associated with Voortrekker, as well as the Anglo-Zulu and Anglo-Boer War sites. The remaining heritage studies conducted in the general vicinity did not locate such remains (eThembeni Cultural Heritage 2011, Rossouw 2008 and Murimbika 2013).

5.4 Contemporary Remains

Some contemporary mining remains were noted within the demarcated study area. These sites include building remains, iron poles, pits/tunnels and dams (**Figures 17 – 20**).

Heritage studies conducted in the surrounding areas did not mention any significant contemporary remains. See eThembeni Cultural Heritage (2011), Rossouw (2008), Murimbika (2013) and Anderson & Anderson (2014).

Figure 17: Contemporary infrastructure remains near the south-eastern corner.

Figure 18: Iron poles associated with contemporary mining remains.

Figure 19: Mining infrastructure remains.

Figure 20: One of the dams belonging to recent mining activities.

5.5 Graves

No burial sites or graves were observed during the pedestrian survey.

The heritage studies conducted by eThembeni Cultural Heritage (2011), Rossouw (2008), and Anderson & Anderson (2014) recorded several graves and cemeteries.

6. 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.

6.1 Field Ratings

All sites should include a field rating in order to comply with section 38 of the National Heritage Resources Act (Act No. 25 of 1999). The field rating and classification in this report are prescribed by SAHRA.

Table 2: Prescribed Field Ratings

Rating	Field Rating/Grade	Significance	Recommendation
National	Grade 1		National site
Provincial	Grade 2		Provincial site
Local	Grade 3 A	High	Mitigation not advised
Local	Grade 3 B	High	Part of site should be retained
General protection A	4 A	High/Medium	Mitigate site
General Protection B	4 B	Medium	Record site
General Protection C	4 C	Low	No recording necessary

*No sites of heritage significance were observed.

7. Statement of Significance & Recommendations

7.1 Statement of significance

The study area: The Proposed Adit 2K for the Uitkomst Colliery (Pty) Ltd: Klipspruit Project The entire demarcated study area is located on rehabilitated mine land that used to be cultivated prior to being mined. No sites of heritage significance were observed on historical aerial images or on topographical maps, while the mining remains identified during the pedestrian survey do not exceed 60 years of age and are not considered to be significant from a heritage perspective. Although the study area is located within 500 m of a river, an area generally associated with a higher heritage site probability, the demarcated study area has significantly been disturbed and is therefore not considered to be sensitive from a heritage perspective (**Figure 21**).

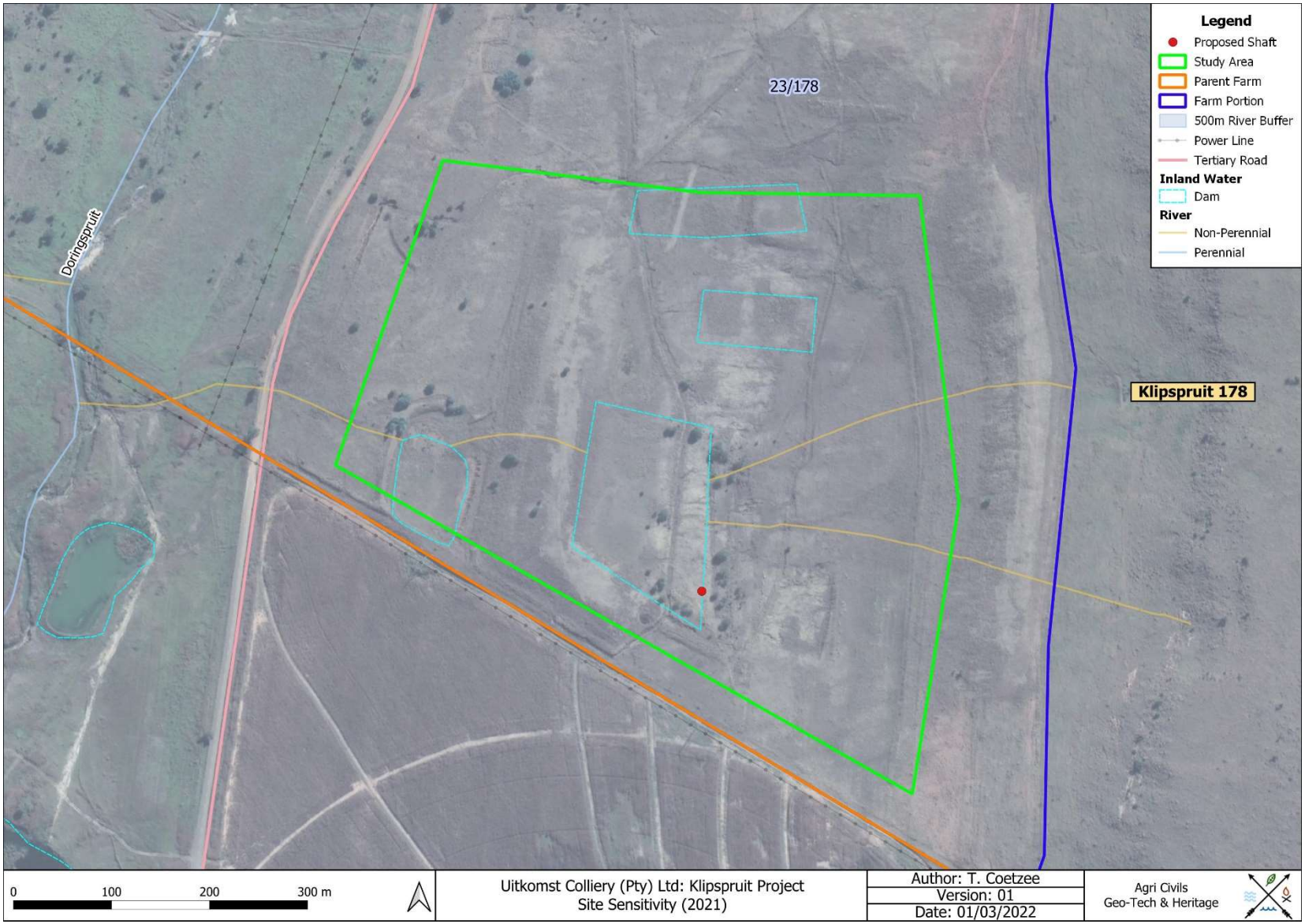


Figure 21: Site Sensitivity.

7.2 Recommendations

The following recommendations are made in terms with the National Heritage Resources Act (25 of 1999) in order to avoid the destruction of heritage remains associated with the area demarcated for development:

- No sites of heritage significance were noted within the demarcated study area. The infrastructure remains associated with the study area belong to contemporary mining activities and are not considered to be significant from a heritage perspective. Also, the entire study area is located on rehabilitated mine land that used to be cultivated. The demarcated study area is therefore considered to be disturbed and not sensitive from a heritage perspective.

- The above recommendation is based on the specific project activities and extents as indicated in the figures of this report. Should the proposed surface impact areas be changed, a qualified archaeologist must conduct a pedestrian survey on the new area and amend the report accordingly.

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

- From a heritage point of view, development may proceed on the demarcated area, subject to the abovementioned conditions, recommendations and approval by the South African Heritage Resources Agency.

8. Conclusion

The proposed Uitkomst Colliery (Pty) Ltd: Klipspruit Project consists of an adit and stormwater infrastructure . However, since the location of the proposed adit might change, the larger area surrounding the proposed location was surveyed. No sites of heritage significance were observed and it was determined that the study area has been disturbed by past cultivation and mining activities and is not sensitive from a heritage perspective.

Should the recommendations made in this study be adhered to and with the approval of the South African Heritage Resources Agency, the proposed Uitkomst Colliery (Pty) Ltd: Klipspruit Project may proceed.

9. 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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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 Topographical Maps & Aerial Images

Figure 22: Study area superimposed on a 1935 aerial image.

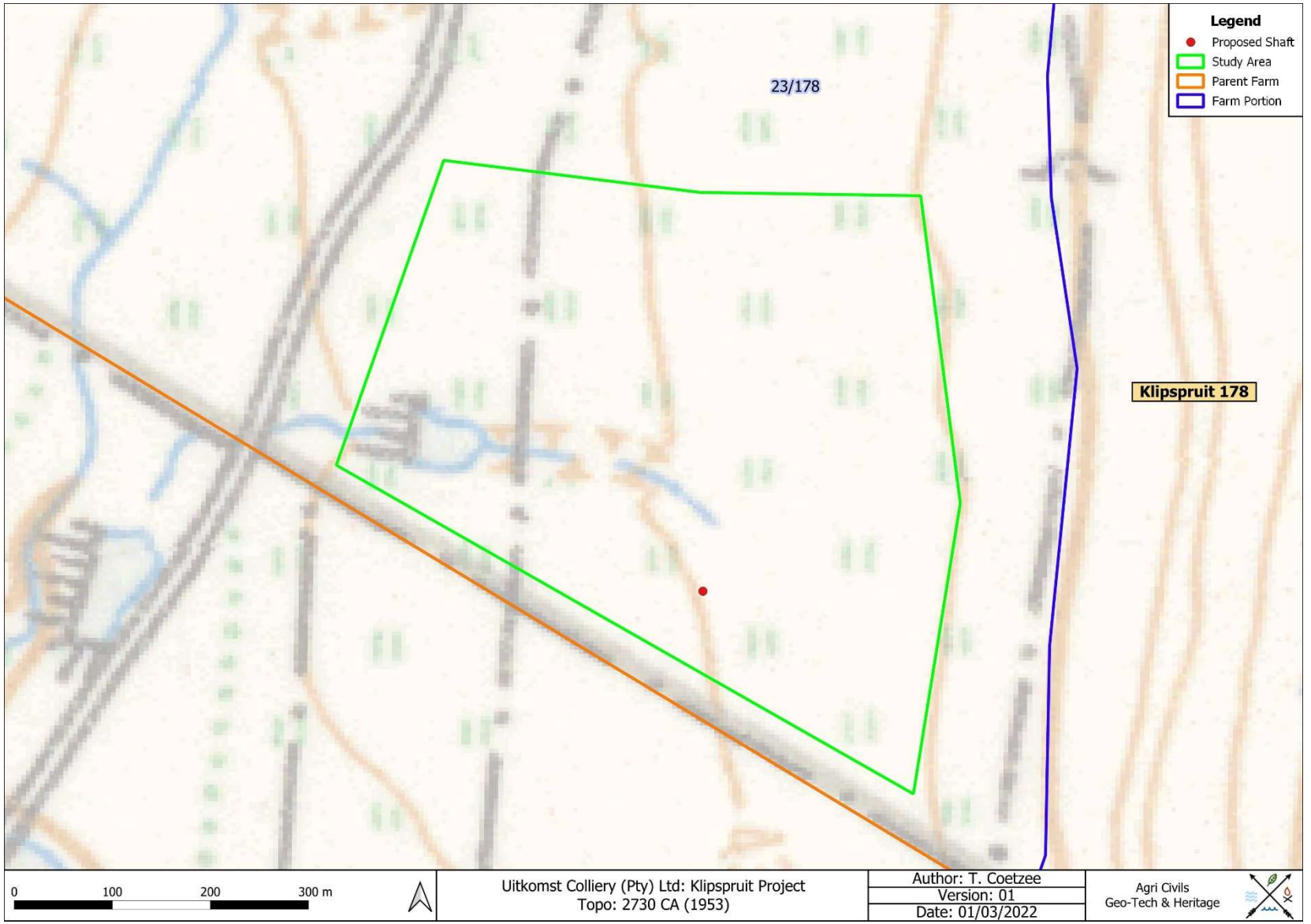

Figure 23: Study area superimposed on a 1953 topographical map.

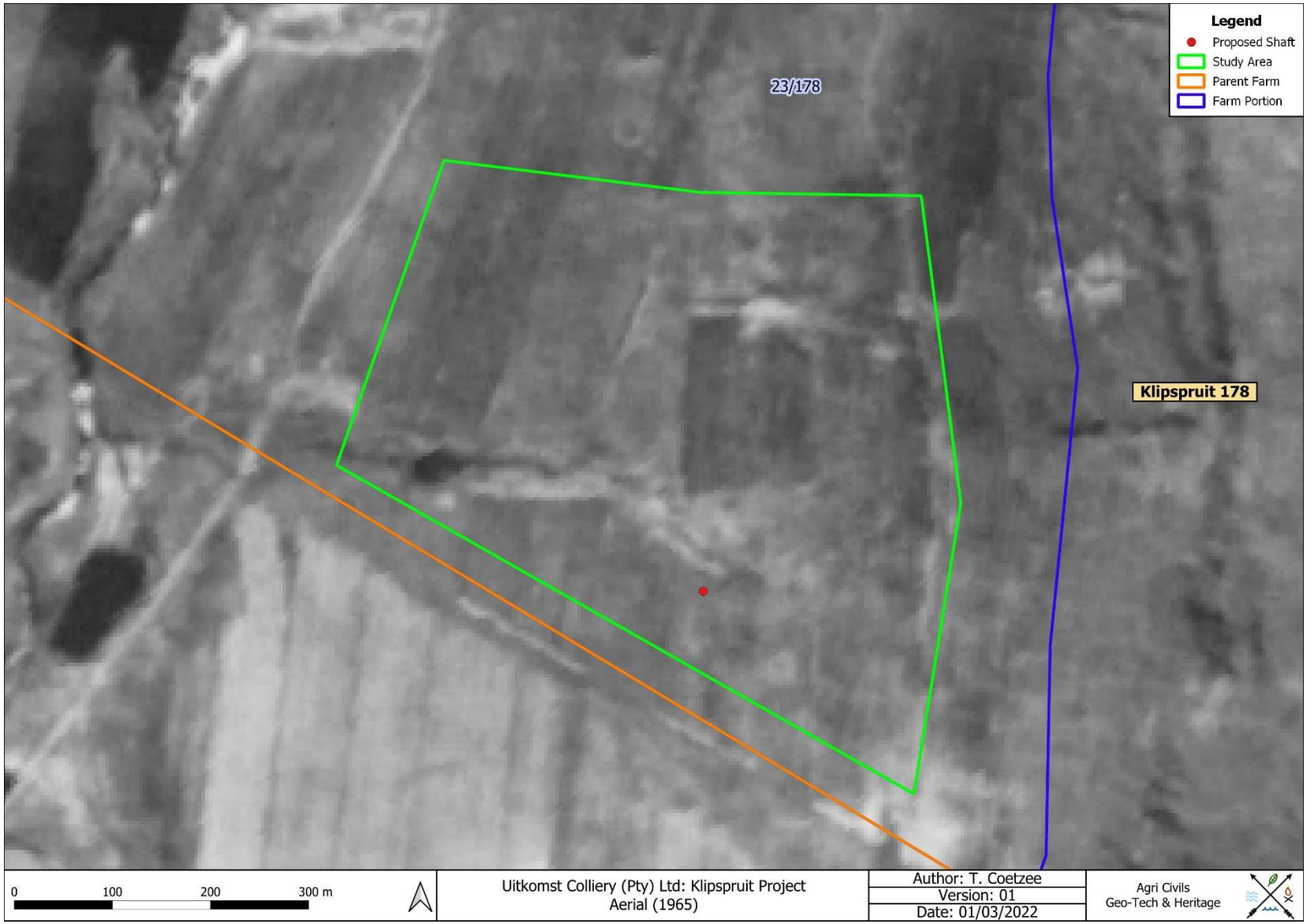

Figure 24: Study area superimposed on a 1965 aerial image.

Figure 25: Study area superimposed on a 1970 aerial image.

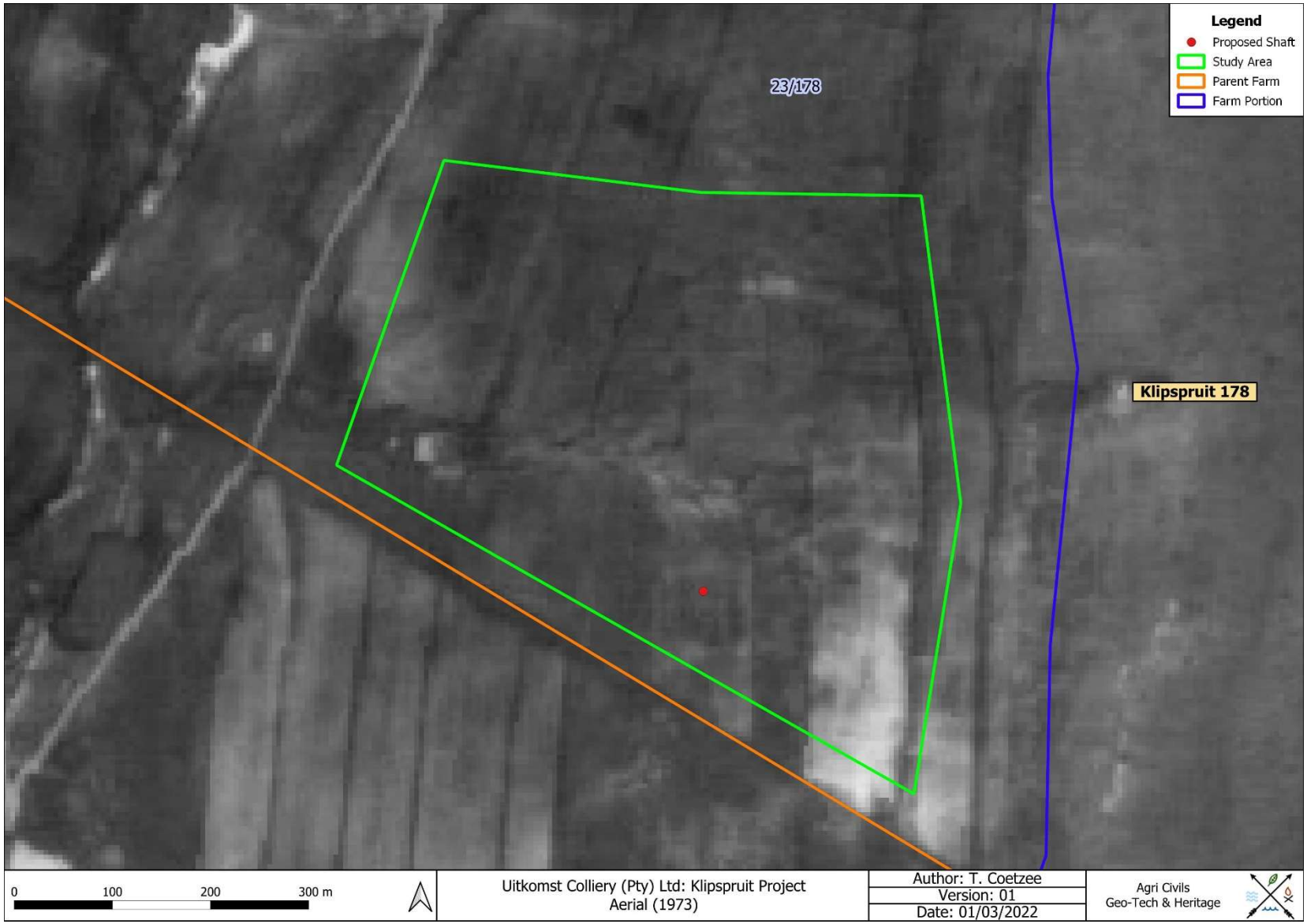

Figure 26: Study area superimposed on a 1973 aerial image.

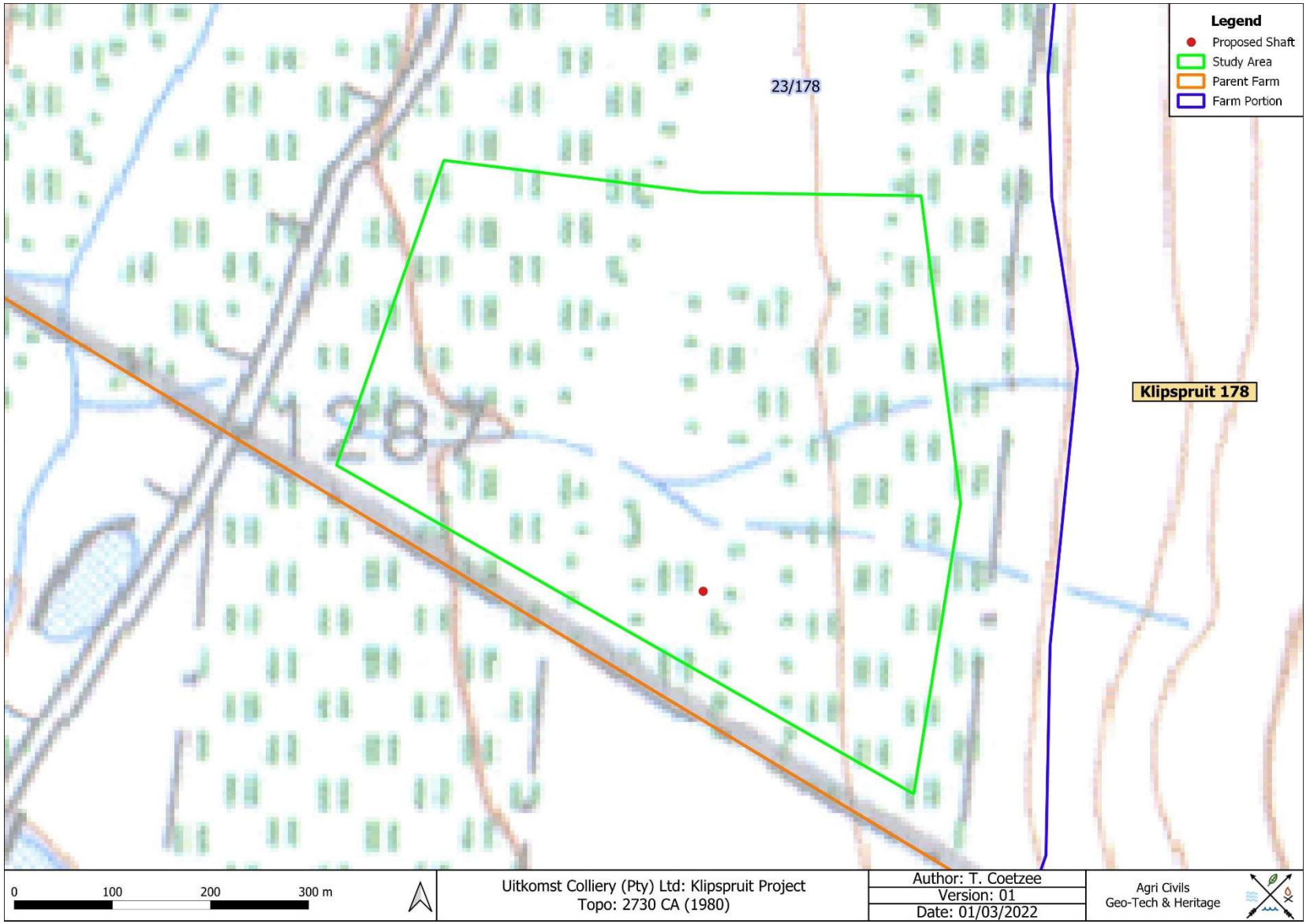

Figure 27: Study area superimposed on a 1980 topographical map.

Figure 28: Study area superimposed on a 1991 aerial image.

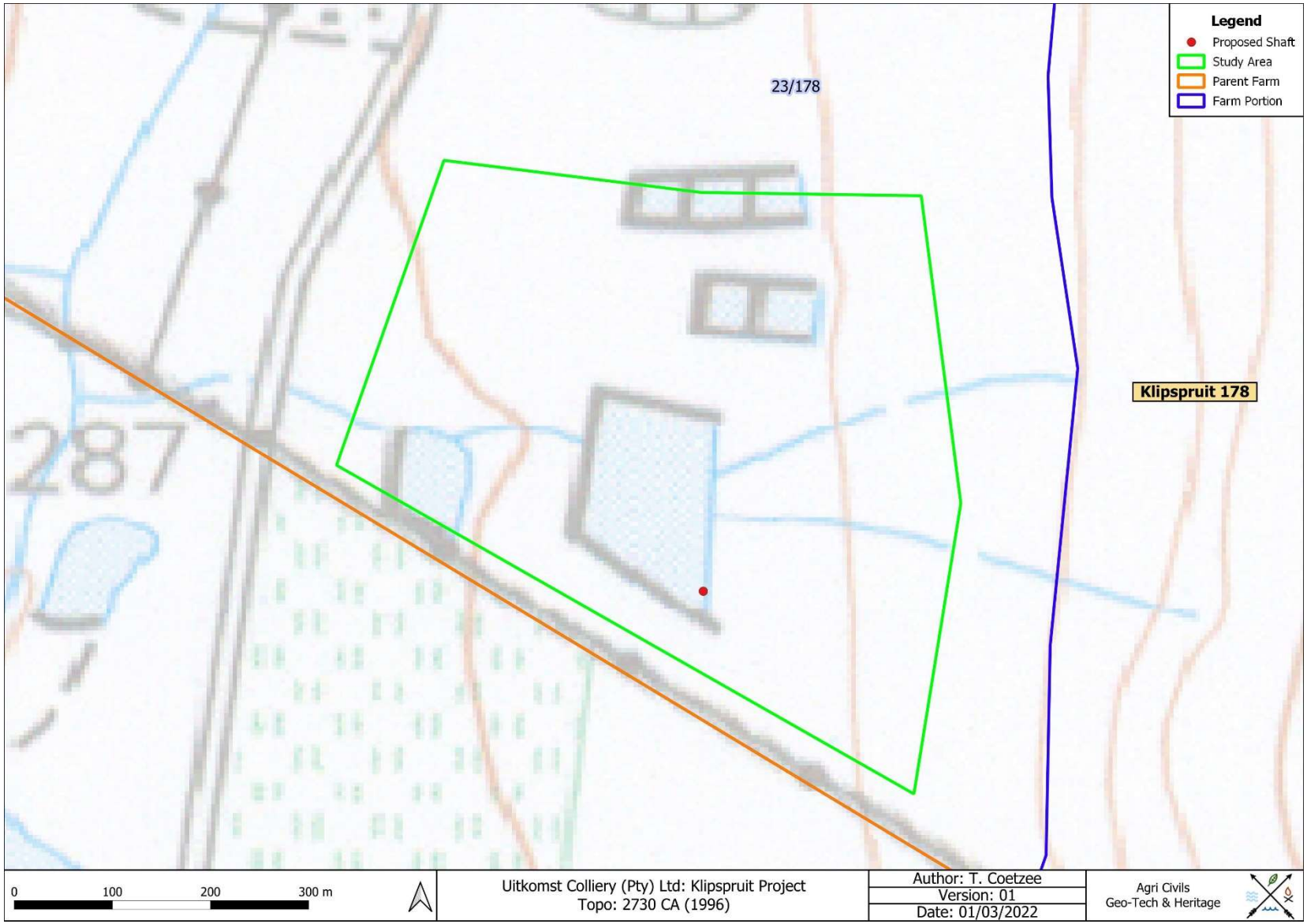

Figure 29: Study area superimposed on a 1996 topographical map.

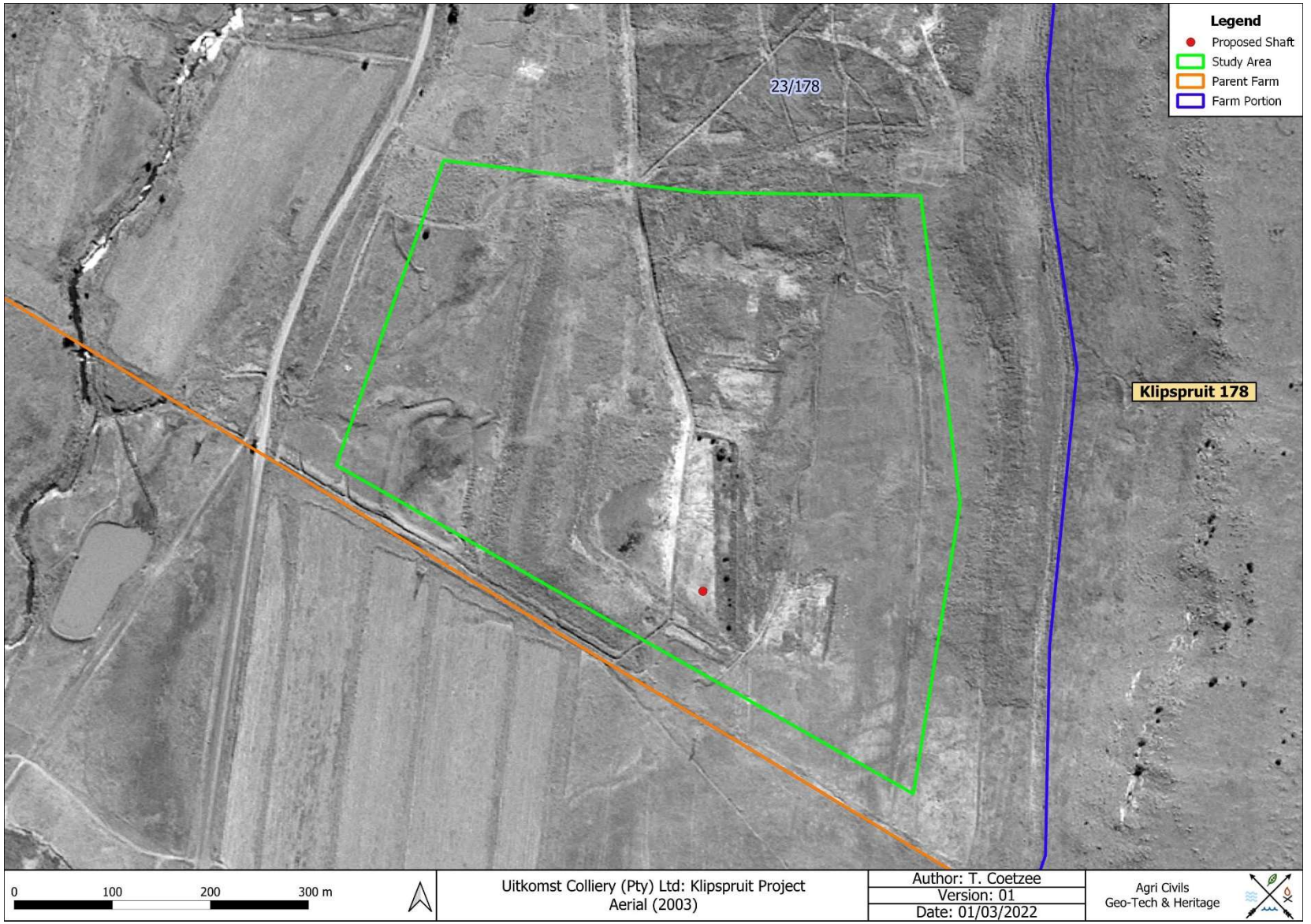

Figure 30: Study area superimposed on a 2003 aerial image.

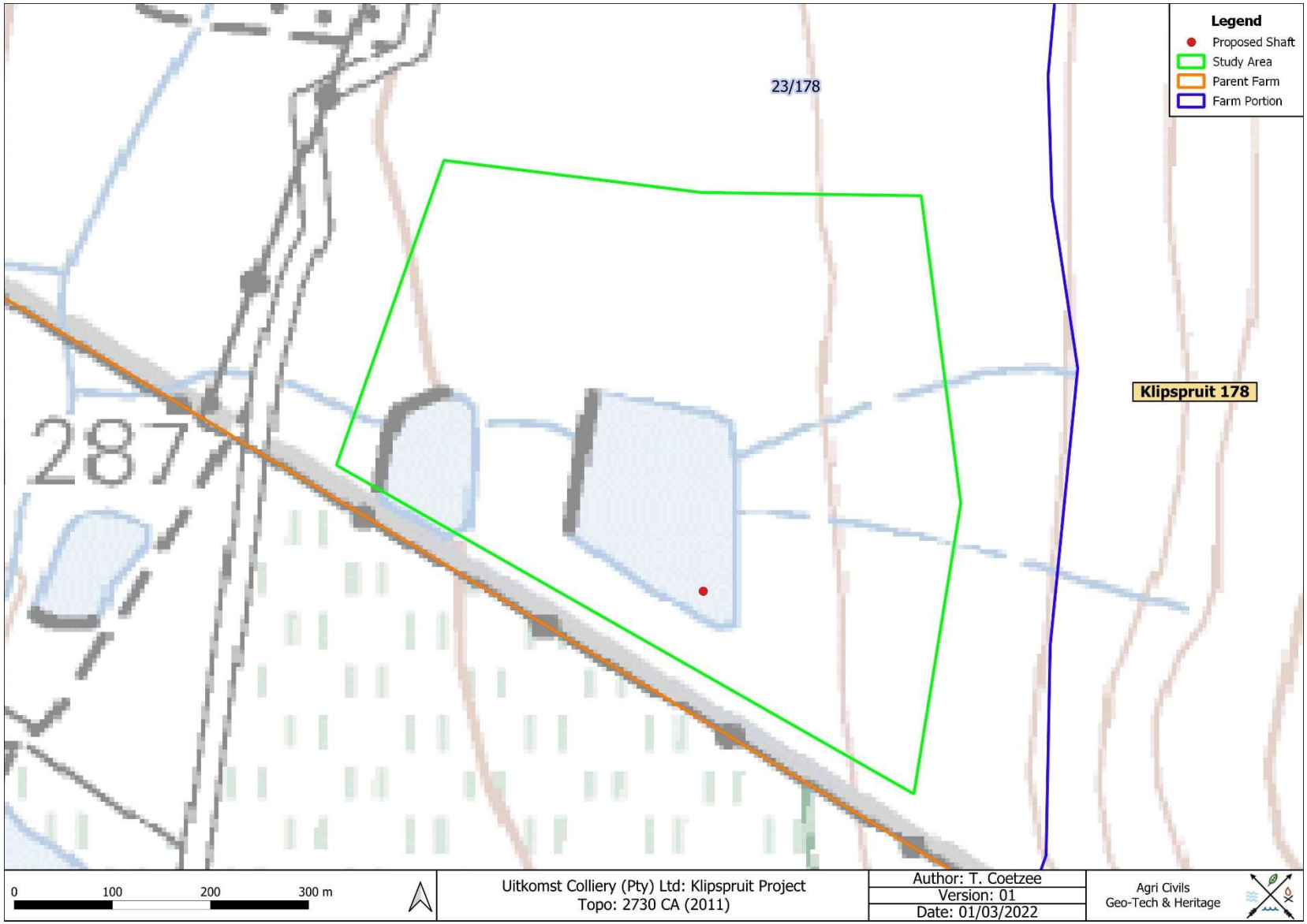

Figure 31: Study area superimposed on a 2011 topographical map.