HERITAGE SURVEY OF THE NYANZA 80KTPA TiO2 PLANT, RICHARDS BAY,KZN

FOR SRK CONSULTING

DATE: 24 JANUARY 2022

REVISED 14 OCTOBER 2022

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TABLE OF CONTENT

LIST OF TABLES & FIGURES

Abbreviations

EIA	Early Iron Age
ESA	Early Stone Age
HIA	Heritage Impact Assessment
HP	Historical Period
IIA	Indeterminate Iron Age
ISA	Indeterminate Stone Age
KZNARI	KwaZulu-Natal Amafa & Research Institute
LIA	Late Iron Age
LSA	Late Stone Age
MSA	Middle Stone Age
PIA	Palaeontological Impact Assessment
SAHRA	South African Heritage Resources Agency

EXECUTIVE SUMMARY

Nyanza Light Metals 80ktpa TiO_2 Pigment Plant intend to expand its current area for additional work areas. This will be called the Nyanza Light Metals 80ktpa TiO_2 Pigment Plant. It is located in the Phase 1F RBIDZ.

The original HIA was undertaken in 2015, but failed to note the Stone Age deposits nor 20th century settlements. Umlando suggested that this area be resurveyed to accommodate for potential human remains.

The survey was undertaken in January 2022. The vegetation was very dense in many places. However the more open spaces yielded Stone Age tools that are part of the general lag deposit. This pattern occurs continuously in Richards Bay.

The occurrence of human settlements in the 1930s and 1960s raises the issue of human graves. The people would still have practiced traditional burials, and thus human graves are located near the house/cattle byre. Unfortunately the ground vegetation was too dense to make an adequate assessment. I suggested a 50m buffer is placed around each site and that it is monitored at various stages for potential human remains. I do not expect to find human remains due to natural degradation; however a management plan is required. The issue of human graves will need to form part of the PPP, especially with the local TA.

INTRODUCTION

"Nyanza Light Metals (Pty) Ltd (Nyanza) is proposing to construct and operate a plant that will produce 80 000 tonnes per annum (tpa) of Titanium Dioxide (TiO_2) pigment. The project will be located within Zone 1F of the Richard's Bay Industrial Development Zone (RBIDZ) in Alton, Richards Bay.

Feedstock will be ilmenite (design is based on typical Tellnes ilmenite) and/or conventional sulfate (Richards Bay Minerals (RBM)) slag and a waste slag from the erstwhile Highveld Steel plant – referred to as Highveld Steel Slag (HSS). Design provision is made for a blend of any proportion of these feedstocks (TCSG, 2022). The expected life of the proposed plant is 60 years.

The total area of the Nyanza site is about 69 ha and includes sections:

- 15825 – a wetland area and not to be developed
- 16786 – largely wetland off-set area not to be developed
- 16787
- 16788
- 16789 – which has a stormwater servitude of 30m on the eastern side; and

16817 – east of the stormwater servitude and is to be developed as a 'green industry' area" (SRK 2022

Umlando was requested to undertake a heritage survey of the area, since the previous studies had been undertaken in 2015. Umlando also noted that the previous study did not include human settlements that occurred in the study area in the 1930s and 1960s, nor mention the Stone Age lag deposits, and as such suggested that the HIA be redone.

Figures 1 – 4 show the location of the site.

SCOPE OF WORK

Desktop Study

Conduct a brief desktop study where information on the area is collected to provide a background history of the area.

Physical Survey

Conduct a field study to:

- systematically survey the Project site to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest;
- record Global Positioning System (GPS) points identified as significant areas;
- determine the levels of significance of the various types of heritage resources recorded in the study area.

Reporting

Should any sites be identified during the field visit a study method for the way forward will be proposed, including submission of information to the South African Heritage Resources Agency (SAHRIS) and Amafa sites.

The HIA will include:

- The determination of the levels of heritage significance of recorded heritage resources.
- The identification of anticipated and cumulative impacts the Project activity may have on the identified heritage resources for all three phases of the Project;
- construction, operation and decommissioning.
- Consider alternatives, should any significant sites be impacted adversely by the proposed Project. Ensure that all studies and results comply with heritage legislation and the code of ethics and guidelines of Association of South African Professional Archaeologists (ASAPA).

- Include a Chance Find Procedure to manage any discovered heritage resources, identified during the construction, in a responsible manner, and to protect, preserve, and develop such within the framework provided by the NHRA.

ASSUMPTIONS AND LIMITATIONS

The aerial imagery indicated that there would be several areas that are relatively open and that there was an access road to the outer perimeter. The imagery also indicated that some areas had been disturbed. These would be ideal to view areas for artefacts, especially those that occur 1m+ below the surface. Previous servitude excavations would also cut into lag deposits and expose any artefacts.

The limitation to the project is that the survey was undertaken in January and after two months of good rain. Ground vegetation was thus dense in many places. Ground visibility was thus poor in certain areas that were noted as being sensitive. Ground visibility was good in the open and disturbed areas.

The limitations did impact the survey; however they were integrated into the management plan.

FIGURE 1 GENERAL LOCATION OF THE STUDY AREA

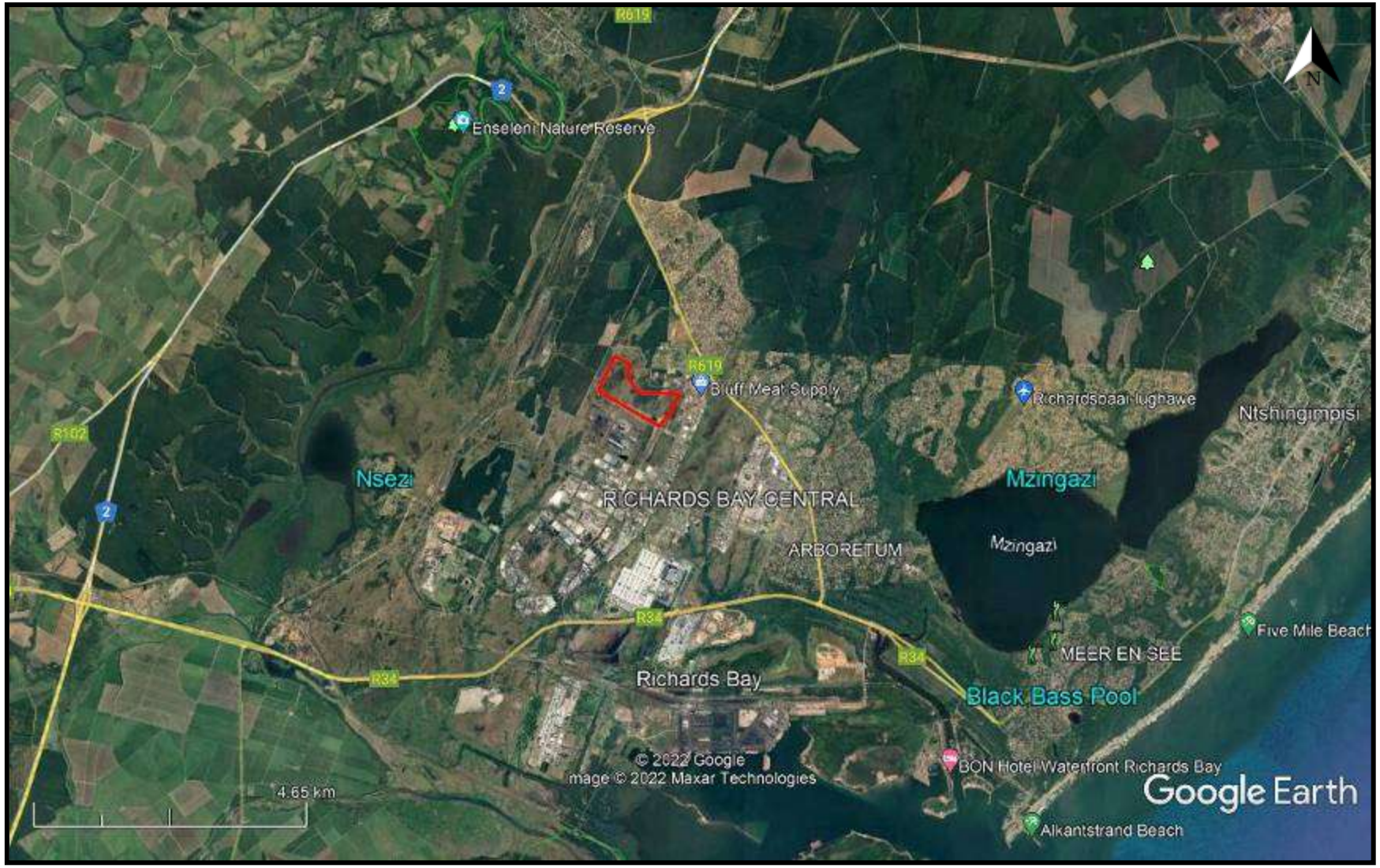
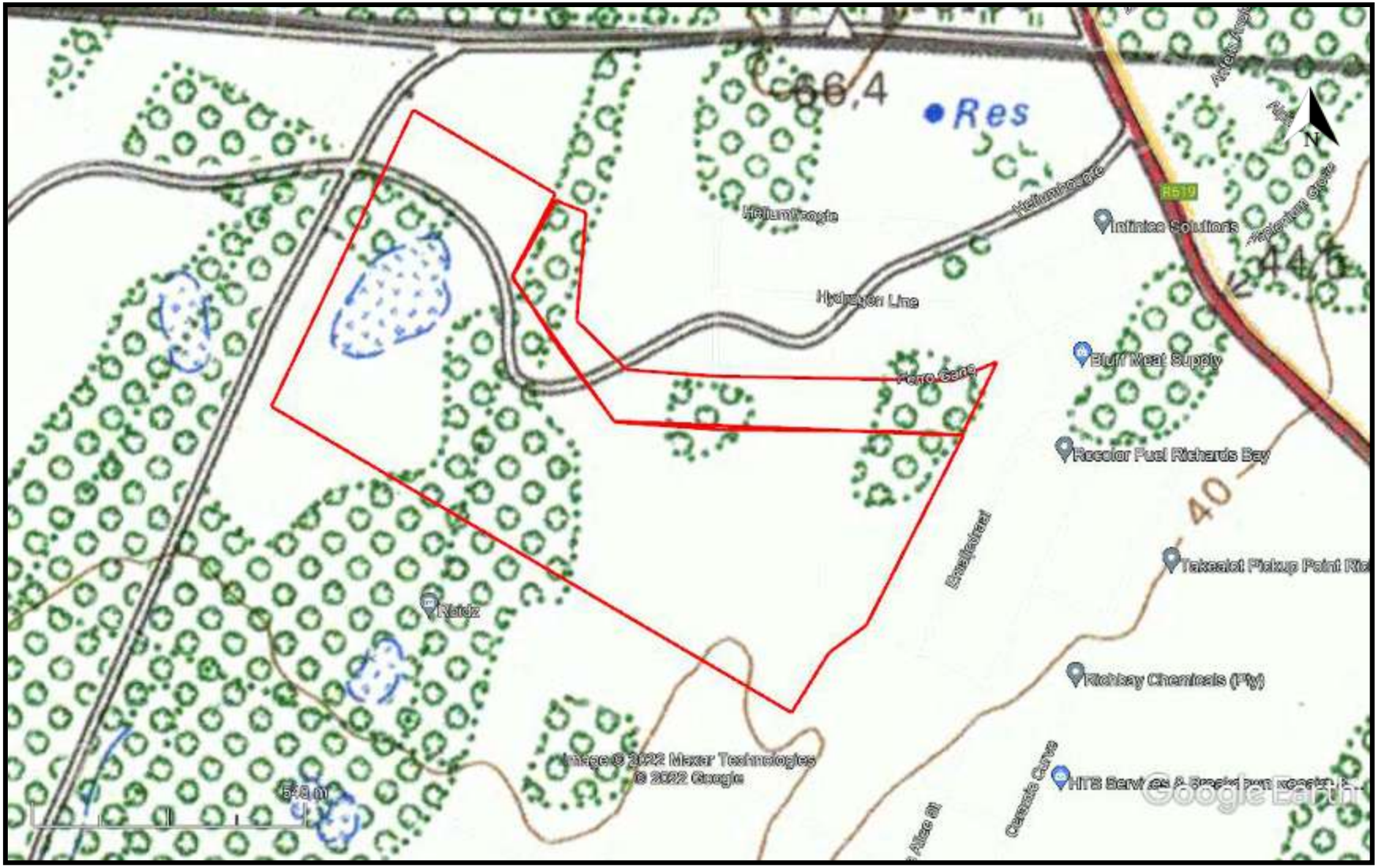


FIGURE 2: AERIAL OVERVIEW OF THE STUDY AREA

FIGURE 3: TOPOGRAPHICAL VIEW OF THE STUDY AREA (1982)[1]



[1] 2832CA_1982 Kwambonambi

FIGURE 4: SCENIC VIEWS OF THE STUDY AREA

KWAZULU NATAL AMAFA AND RESEARCH INSTITUTE, ACT 05, 2018,

The Kwazulu Natal Amafa And Research Institute, Act 05, 2018, Chapter 8 (pp 29 – 32) defines heritage resources.

"General protection: Structures.

37.(1)(a)No structure which is, or which may reasonably be expected to be older than 60 years, may be demolished, altered or added to without the prior written approval of the Institute having been obtained on written application to the Council.

(b)Where the Institute does not grant approval, the Institute must consider special protection in terms of sections 38, 39, 40, 41 and 43 of Chapter 9.

The Institute may, by notice in the *Gazette*, exempt—

(a) A defined geographical area; or

(b) defined categories of sites within a defined geographical area, from the provisions of subsection where the Institute is satisfied that heritage resources falling in the defined geographical area or category have been identified and are adequately protected in terms of sections 38, 39, 40, 41 and 43 of Chapter 9.

(3) A notice referred to in subsection (2) may, by notice in the *Gazette*, be amended or withdrawn by the Council.

General protection: Graves of victims of conflict.

38. No person may damage, alter, exhume, or remove from its original position

(a) the grave of a victim of conflict;

(b) a cemetery made up of such graves; or

(c) any part of a cemetery containing such graves, without the prior written approval of the Institute having been obtained on written application to the Council.

General protection: Informal and private burial grounds

39.(1) or burial ground older than 60 years, or deemed to be of heritage significance by a heritage authority -

(a) not otherwise protected by this Act; and

(b) not located in a formal cemetery managed or administered by a local authority, may be damaged, altered, exhumed, removed from its original position, or otherwise disturbed without the prior written approval of the Institute having been obtained on written application to the Council.

The Institute may only issue written approval once the Institute is satisfied that—

(a) the applicant has made a concerted effort to consult with communities and individuals who by tradition may have an interest in the grave; and

(b) the applicant and the relevant communities or individuals have reached agreement regarding the grave.

General protection: Battlefield sites, archaeological sites, rock art sites, palaeontological sites, historic fortifications, meteorite or meteorite impact sites.—

40 (1) No person may destroy, damage, excavate, alter, write or draw upon, or otherwise disturb any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Institute having been obtained on written application to the Council.

(2) Upon discovery of archaeological or palaeontological material or a meteorite by any person, all activity or operations in the general vicinity of such material or meteorite must cease forthwith and a person who made the discovery must submit a written report to the Institute without delay.

(3) The Institute may, after consultation with an owner or controlling authority, by way of written notice served on the owner or controlling authority, prohibit

any activity considered by the Institute to be inappropriate within 50 metres of a rock art site.

(4) No person may exhume, remove from its original position or otherwise disturb, damage, destroy, own or collect any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Institute having been obtained on written application to the Council.

(5) No person may bring any equipment which assists in the detection of metals and archaeological and palaeontological objects and material, or excavation equipment onto any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, or meteorite impact site, or use similar detection or excavation equipment for the recovery of meteorites, without the prior written approval of the Institute having been obtained on written application to the Council.

(6)(a) The ownership of any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site, on discovery, vests in the Provinclat Government and the Institute is regarded as the custodian on behalf of the Provincial Government.

(b) The Institute may establish and maintain a provincial repository or repositories for the

safekeeping or display of —

(i) archaeological objects;

(ii} palaeontological material;

(iii) ecofacts;

(iv) objects related to battlefield sites;

(v) material cultural artefacts; or

(vi) meteorites,

(7) The Institute may, subject to such conditions as the Institute may determine, loan any object or material referred to in subsection (6) to a national or provincial museurn or institution.

(8) No person may, without the prior written approval of the Institule having been obtained on writen application to the Institute, trade in, export or attempt to export from the Province ~

(a} any category of archaeological object;

{b) any palaeontological material;

(c) any ecofact;

{d) any cbject which may reasonably be regarded as having been recovered from a battlefield site;

(e) any material cultural artefact; or

{f) any meteorite.

(9){a) A person or institution in possession of an object or material, referred to in paragraphs (a) ~(f) of subsection (8), must submit full particulars of such object or material, including such information as may be prescribed, to the Institute.

(b} An object or material referred to in paragraph (a) must, subject to paragraph (c) and the directives of the Institute, remain under the control of the person or institution submitting the particulars thereof.

(c) The ownership of any object or material referred to in paragraph (a) vests in the Provincial Government and the Institute is regarded as the custodian on behalf of the Provincial Government."

METHOD

The method for the Heritage Assessment consists of several steps.

The first step forms part of the desktop assessment. Here we would consult the database that has been collated by Umlando. These database contain archaeological site locations and basic information from several provinces (information from Umlando surveys and some colleagues), most of the national and provincial monuments and battlefields in Southern Africa (http://www.vuvuzela.com/googleearth/monuments.html) and cemeteries in southern Africa (information supplied by the Genealogical Society of Southern Africa). We use 1st and 2nd edition 1:50 000 topographical and 1937 aerial photographs where available, to assist in general location and dating of buildings and/or graves. The database is in Google Earth format and thus used as a quick reference when undertaking desktop studies. Where required we would consult with a local data recording centre, however these tend to be fragmented between different institutions and areas and thus difficult to access at times. We also consult with an historical architect, palaeontologist, and an historian where necessary.

The survey results will define the significance of each recorded site, as well as a management plan.

All sites are grouped according to low, medium, and high significance for the purpose of this report. Sites of low significance have no diagnostic artefacts or features. Sites of medium significance have diagnostic artefacts or features and these sites tend to be sampled. Sampling includes the collection of artefacts for future analysis. All diagnostic pottery, such as rims, lips, and decorated sherds are sampled, while bone, stone, and shell are mostly noted. Sampling usually occurs on most sites. Sites of high significance are excavated and/or extensively sampled. Those sites that are extensively sampled have high research potential, yet poor preservation of features.

Defining significance

Heritage sites vary according to significance and several different criteria relate to each type of site. However, there are several criteria that allow for a general significance rating of archaeological sites.

These criteria are:

1. State of preservation of:

1.1. Organic remains:

1.1.1. Faunal

1.1.2. Botanical

1.2. Rock art

1.3. Walling

1.4. Presence of a cultural deposit

1.5. Features:

1.5.1. Ash Features

1.5.2. Graves

1.5.3. Middens

1.5.4. Cattle byres

1.5.5. Bedding and ash complexes

2. Spatial arrangements:

2.1. Internal housing arrangements

2.2. Intra-site settlement patterns

2.3. Inter-site settlement patterns

3. Features of the site:

3.1. Are there any unusual, unique or rare artefacts or images at the site?

3.2. Is it a type site?

3.3. Does the site have a very good example of a specific time period, feature, or artefact?

4. Research:

4.1. Providing information on current research projects

4.2. Salvaging information for potential future research projects

5. Inter- and intra-site variability

5.1. Can this particular site yield information regarding intra-site variability, i.e. spatial relationships between various features and artefacts?

5.2. Can this particular site yield information about a community's social relationships within itself, or between other communities?

6. Archaeological Experience:

6.1. The personal experience and expertise of the CRM practitioner should not be ignored. Experience can indicate sites that have potentially significant aspects, but need to be tested prior to any conclusions.

7. Educational:

7.1. Does the site have the potential to be used as an educational instrument?

7.2. Does the site have the potential to become a tourist attraction?

7.3. The educational value of a site can only be fully determined after initial test-pit excavations and/or full excavations.

8. Other Heritage Significance:

8.1. Palaeontological sites

8.2. Historical buildings

8.3. Battlefields and general Anglo-Zulu and Anglo-Boer sites

8.4. Graves and/or community cemeteries

8.5. Living Heritage Sites

8.6. Cultural Landscapes, that includes old trees, hills, mountains, rivers, etc related to cultural or historical experiences.

The more a site can fulfill the above criteria, the more significant it becomes. Test-pit excavations are used to test the full potential of an archaeological deposit. This occurs in Phase 2. These test-pit excavations may require further excavations if the site is of significance (Phase 3). Sites may also be mapped and/or have artefacts sampled as a form of mitigation. Sampling normally occurs when the artefacts may be good examples of their type, but are not in a primary

archaeological context. Mapping records the spatial relationship between features and artefacts.

The above significance ratings allow one to grade the site according to SAHRA's grading scale. This is summarised in Table 1.

TABLE 1: SAHRA GRADINGS FOR HERITAGE SITES

SITE SIGNIFICANCE	FIELD RATING	GRADE	RECOMMENDED MITIGATION
High Significance	National Significance	Grade 1	Site conservation / Site development
High Significance	Provincial Significance	Grade 2	Site conservation / Site development
High Significance	Local Significance	Grade 3A / 3B	
High / Medium Significance	Generally Protected A		Site conservation or mitigation prior to development / destruction
Medium Significance	Generally Protected B		Site conservation or mitigation / test excavation / systematic sampling / monitoring prior to or during development / destruction
Low Significance	Generally Protected C		On-site sampling monitoring or no archaeological mitigation required prior to or during development / destruction

DESKTOP STUDY

The desktop study consisted of analysing various maps for evidence of prior habitation in the study area, as well as for previous archaeological surveys. Anderson and Anderson (2009, 2010a-b, 2015, 2004 – 2018, 2005 - 2014) have undertaken several surveys in the general area where a variety of sites have been recorded, sampled and/or excavated (Figure 5). These cover the Early,

Middle and Late Stone Ages, Early and Late Iron Ages, Historical Period. Prins (2015) undertook a survey of this, and the adjacent, property. He noted that there was a possibility of archaeological material, but did not find any artefacts.

The land was first surveyed in 1909 as part of Reserve No. 6 surrounded by Crown Land (Figure 6). It appears that some of the land was subdivided for lease purposes and may be linked to the Native Delimination Act of 1904 and then the Land Act of 1913. The leased area is subsequently removed as it is this is not shown on later maps. The study area is party in this 1909 map between Lot 12 and 29. By 1964, the area is still Reserve No. 6, with some title deeds to the north.

The 1937 aerial photograph indicates that the area was mainly grassland, with wetland and bare dunes (Figure 7). None of the current forested areas existed. There are five features on the aerial photographs that indicate human occupations. This in turn means wattle and daub houses, agricultural fields, cattle byres and human graves.

The 1942 topographical map indicates that there are no settlements in the study area (Figure 8). However, I believe this is a cartographical error as the map is based on the aerials, and several settlements are not shown to the northeast, when comparing the two maps.

The 1964 topographical map indicates that there is one settlement within the study area and two just outside of it (Figure 9). These are human settlements just before the forced removals of the Mandlazini people in the late 1960s and early 1970s in the general area (Griffiths 1996; Ntuli 2019).

The location of these settlements is shown in table 2.

TABLE 2: LOCATION OF SETTLEMENTS

NAME	LATITUDE	LONGITUDE	DESCRIPTION
a1	28.732234252	32.025485194	1937 Settlement
a2	28.737850325	32.024525341	1937 Possible settlement
a3	28.736390	32.024438	1937 Possible settlement
a4	28.735179276	32.024496513	1937 Possible settlement
a5	28.734418934	32.026622814	1937 Settlement
h1	28.738721437	32.026804912	1964 settlement
h2	28.739182276	32.025441814	1964 settlement
h3	28.741117740	32.027517692	1964 settlement
h4	28.730859202	32.023558383	1964 settlement

FIGURE 5: LOCATION OF RECORDED SITES IN THE GENERAL AREA

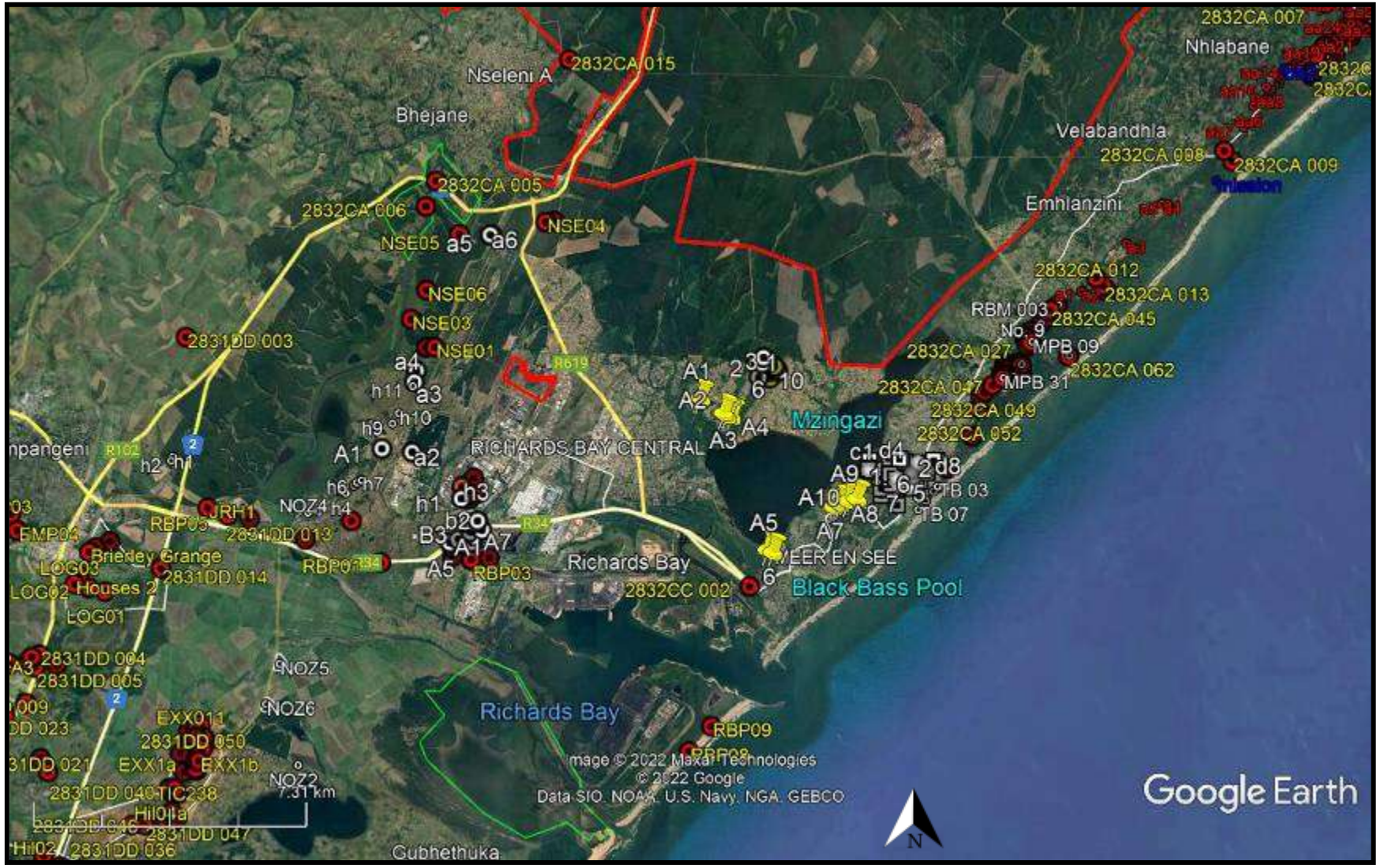


FIGURE 6: SURVEYOR GENERAL MAP (1909)

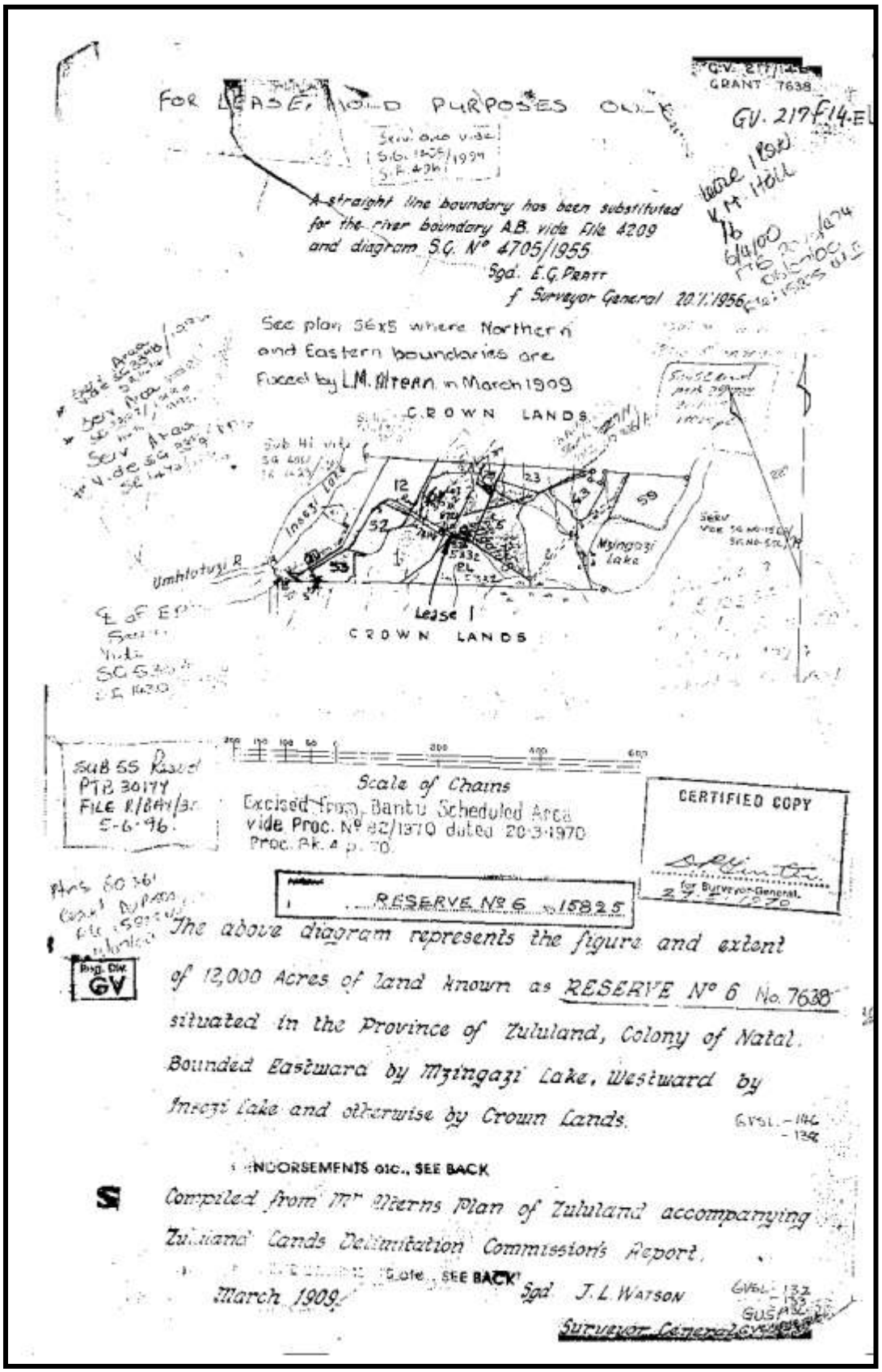


FIGURE 7: LOCATION OF STUDY AREA IN 1937

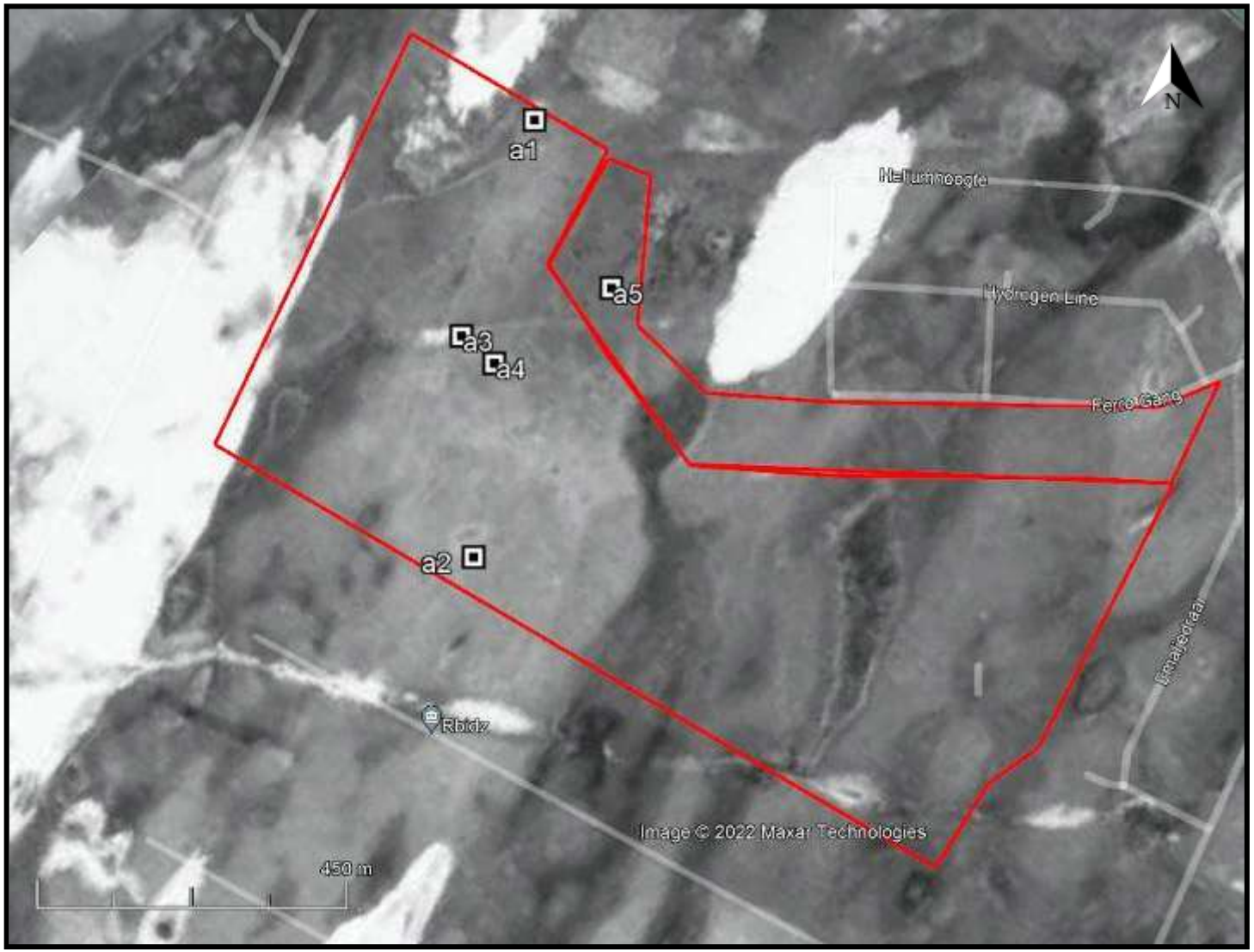
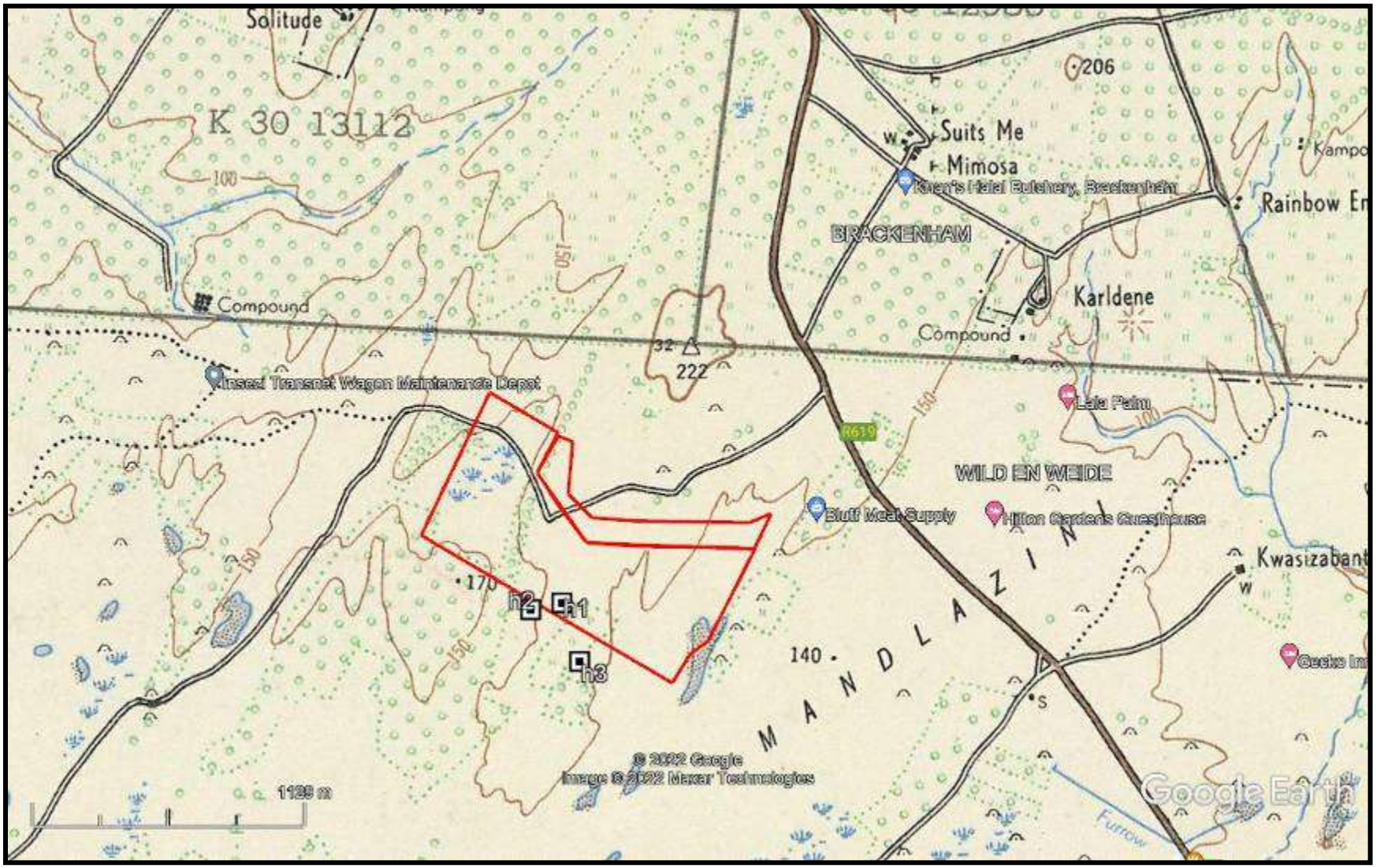


FIGURE 8: LOCATION OF STUDY AREA IN 1942

FIGURE 9: LOCATION OF STUDY AREA IN 1964



FIELD SURVEY

The field survey was undertaken on 13 January 2022. Ground visibility was poor in most areas; however, there were several open areas that allowed for an adequate assessment. The dense forested area could not be surveyed as there was no ground visibility. Some of the grassed areas, especially near the desktop settlements had basic visibility. Areas near the wetlands were omitted as they will not be affected and already have a buffer. Richards Bay had heavy rains in December to January and the wetlands gave an indication of their levels. This is important in assessing sites, as people will not live on the edge of a wetland.

Previous surveys in the general Richards Bay area noted that there is an extensive scatter of stone tools below the surface. These are lag deposits. That is, the stone tools filter down through the soft sand, and rest on the harder layers, resulting, the last 2 million years of stone tools all resting on the same layer. This means that they have low significance and are just noted for their occurrences. These layers occur throughout Richards Bay and I do not consider them as a site per se, rather a continuous lag deposit of artefacts. Figure 10 (yellow polygon) shows the general location where the stone tools were observed

FIGURE 10: LOCATION OF OBSERVED STONE TOOLS

FIGURE 11: EXAMPLES OF STONE TOOLS IN THE STUDY AREA

The stone tools included the following (Figure 11):

- LSA:
    - Quartz flakes
    - Quartz irregular core
    - Cryptocrystalline silicate utilised flakes
    - Dolerite MSA flake reworked in the LSA
- MSA
    - Hornfels/dolerite flake
    - Quartzite flake
- ISA
    - Upper grinding stone/hammer stone

Other surveys that have been undertaken also include, ESA tools, MSA spear points, and an array of cores.

The stone tools are of low significance and no further mitigation is required.

1960s settlements

The site of H2 was surveyed; however, no evidence of human occupation could be found (Figure 12). There are modern post-1950 artefacts in the area, but they were not dateable, e.g. tea cup fragment, glass bottle top with screw on lid. This is partially due to the dense ground vegetation. The management plan for this, and similar areas, is discussed below. H1 and H3 are outside of the boundary; however, I surveyed the general area to see if there was evidence of human occupation and the types of artefacts. No artefacts were found. It appears as if there was a very sparse human occupation.

Sites A1 and H4, will not be affected by the development. Site A5 could not be surveyed as it was considered a security high risk area on the day of the survey. It was also highly vegetated and would not have yielded any direct information. Site A4 and A3 (Figure 13) were too densely vegetated to make an assessment.

Site A2 was equally hidden by ground vegetation. However, there is an *Erythrena spp.* growing in the vicinity of the site (Figure 14). These trees are traditionally associated with human graves. While this tree is small, it could be regrowth from and older broken tree. Its occurrence near a site from the 1937 aerial photograph suggests that it could be associated with a grave. It is also the only visible *Erythrina spp* in the grassland part of the study area. It should be considered as a grave until further notice.

FIGURE 12: AREA OF SITE H2

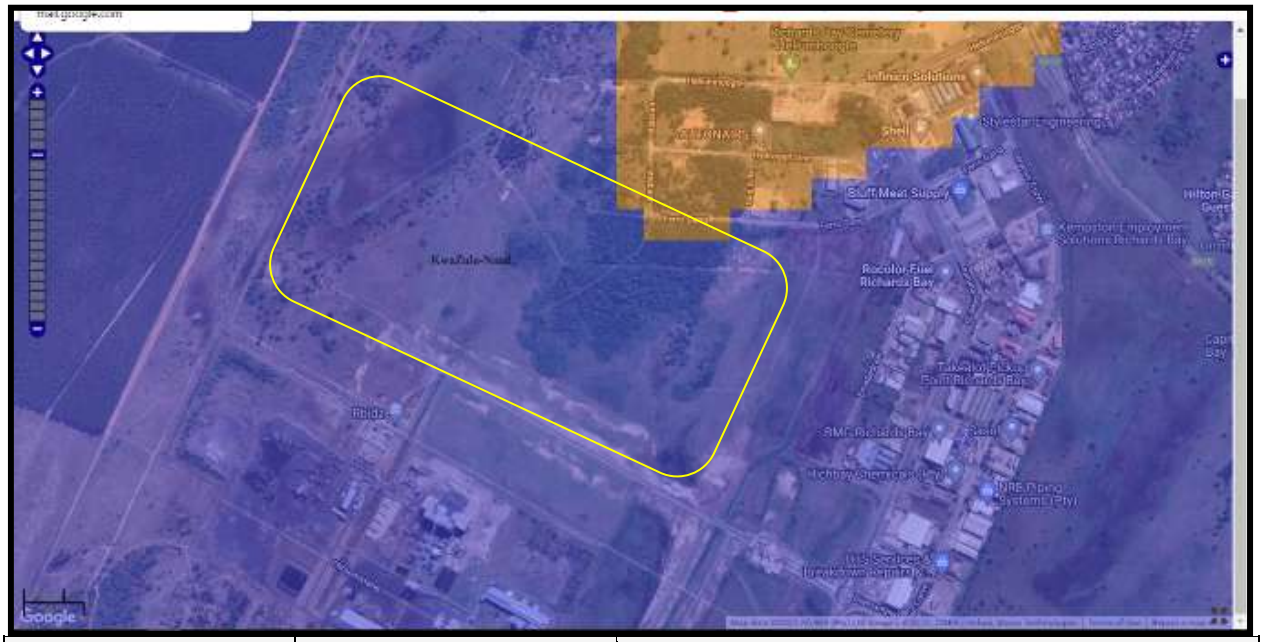
FIGURE 13: GENERAL AREA OF A3

FIGURE 14: ERYTHRINA SPP AT SITE A2

PALAEONTOLOGICAL SENSITIVITY

The area is of low palaeontological sensitivity (Figure 15). PIA work undertaken in the Richards Bay Harbour suggests that the Cretaceous layers are ~10m below the current surface (van Jaarsveld 2006). These will not be affected by the development. The small orange segment within the study area on the map is incorrect as this is a raised sand dune. A Chance Find Protocol will need to be established in case fossils are unearthed and identified. This will entail informing KZNARI and/or a qualified palaeontologist of the find via digital media for an assessment.

FIGURE 15: PALAEONTOLOGICAL SENSITIVITY



COLOUR	SENSITIVITY	REQUIRED ACTION
RED	VERY HIGH	field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	desktop study is required
BLUE	LOW	no palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	no palaeontological studies are required
WHITE/CLEAR	UNKNOWN	these areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

SIGNIFICANCE OF IMPACT

Table 3 summarises the significance of impact. The impact on the stone tools will be very low regardless of mitigation. The impact on human remains will be of medium significance according to the rating scale used in the significance of impact. This medium significance is for both with and without mitigation.

TABLE 3:SIGNIFICANCE OF IMPACT

Impact: Stone Tools

	Extent	***Intensity***	***Duration***	***Consequence***	***Probability***	***Significance***	***Status***	***Confidence***
Without mitigation	Local 1	Low 1	Long-term 3	**Low** **5**	Definite	**LOW**	– ve	High
Essential mitigation measures: **None required**								
With mitigation	Local 1	Low 1	Long-term 3	**Low** **5**	Definite	**LOW**	– ve	High

Impact: Human graves

	Extent	***Intensity***	***Duration***	***Consequence***	***Probability***	***Significance***	***Status***	***Confidence***
Without mitigation	Local 1	High 3	Long-term 3	**High** **7**	Possible	**MEDIUM**	– ve	Low
Essential mitigation measures: **Monitor earthmoving activity** **If human remains are found then the necessary steps to commence grave removal must be initiated** • **All excavations within a 20m boundary must stop** • **The area needs to be clearly demarcated and is out of bounds to everyone.** • **KZNARI and the SAPS need to be informed immediately** • **Human remains may not be removed until approval from KZNARI has been obtained** • **Developer can apply for an emergency permit to remove the remains for temporary storage. Alternatively a PPP pertaining to human remains must be initiated** • **An archaeologist with expertise in human remains removal needs to be appointed.**							
With mitigation	Local 1	High 3	Long-term 3	**High** **7**	Possible	**MEDIUM**	+ve	Low

MANAGEMENT PLAN

All sites noted from the historical maps need to be monitored by a qualified archaeologist during any earthmoving activity and/or construction phase. If human graves are found, a 20m buffer will need to be cordoned off until the remains are removed. Permits for the removal of the graves will be required, as well as a Public Participation Process, specifically with the relevant Traditional Authority. This can take up to 6 months to complete; however, an emergency permit might be issued by KZNARI. The initial PPP should also address possible graves with the relevant TA. I would suggest that the possibility of human remains is mentioned in the initial PPP where the management plan is stated.

I suggest that these desktop sites are compared to the final layout plans as soon as possible. If they will be affected, then that area should be cleared and mitigation should begin as early possible so as not to delay construction. Mitigation can be phased in the following stages:

1. A 50m sensitivity radius is placed around the centre point of each site. This becomes the area for monitoring if any construction work occurs.
2. Ground vegetation is cleared and the area is inspected and assessed. If post 1950s artefacts are noted, then one can assume the site occurs in the area.
3. Upper 30cm – 50cm of topsoil is removed by a bulldozer under supervision and the site is assessed.
4. If no human graves occur, then the area can be provisionally released; however, further earthmoving activity would require monitoring up to 1m in depth.
5. If human remains are found, then a grave relocation specialist will be required to take over the rest of the project. If no human remains are found then the area can be finally released.

This was the management plan we used for a development in the IDZ in 2019 (Anderson 2019). My experience with areas like this is that human remains are seldom found. The water table is very high resulting in increased deterioration of

organic material. The soils are also acidic thus accelerating the deterioration. It is only when shell middens occur nearby that the organic remains last longer due to the alkalinity of the shell.

No further mitigation is required for the stone tool lag deposit.

A Chance Find Protocol is required. If any palaeontological, archaeological and/.or historical material is found during construction, then KZNARI, and/or a designated archaeologist, needs to be informed immediately.

CONCLUSION

A HIA was undertaken for the proposed Nyanza Light Metals 80ktpa TiO_2 Pigment Plant. The original HIA was undertaken in 2015, but failed to note neither the Stone Age deposits nor 20th century settlements. Open areas allowed for a general assessment of the stone tools suggesting they were part of a lag deposit.

The occurrence of human settlements in the 1930s and 1960s raises the issue of human graves. The people would still have practiced traditional burials, and thus human graves are located near the house/cattle byre. Unfortunately, the ground vegetation was too dense to make an adequate assessment. I suggest a 50m buffer is placed around each site and that it is monitored at various stages for potential human remains. I do not expect to find human remains due to natural degradation; however, a management plan is required.

REFERENCES

Anderson, G. and Anderson, L. 2009. Heritage Survey Of The Proposed Expansion To The Transnet National Ports Authority, Richards Bay. For MSA Environmental, Legal & Mining Services

Anderson, G. and Anderson, L. 2010a. Heritage Survey Of The Proposed Richards Bay Central Industrial Area. For Coastal & Environmental Services

Anderson, G. and Anderson, L. 2010b. Heritage Survey Of The Nozelela Minerals Sands (Pty) Ltd 33kv Transmission Line. For SRK Consulting

Anderson, G. and Anderson, L. 2015. Alton South Transnet Railway, Richards Bay, KwaZulu-Natal For Exigent Environmental

Anderson, G. and Anderson, L. 2004 – 2018. Annual Report For Archaeological Surveys Of The Zulti North Mining Lease. Report For RBM

Anderson, G. and Anderson, L. 2004 – 2015. Annual reports for Hillendale Mine. Tronox KZN Sands.

Anderson, G. 2019. Heritage Survey Of The Proposed 3140mw Combined Cycle Power Plant (CCPP) Power Project At Erf 1854 Alton, .Richards Bay, Kwazulu-Natal. For Exigent Engineering

Anderson, G. 2020. Heritage Survey Of The Proposed 3140mw Combined Cycle Power Plant (Ccpp) Power Project At Erf 1854 Alton, .Richards Bay, KwaZulu-Natal. For Exigent Engineering

Griffiths, S, 1996. Competition For Land Between Conservation And Low Income Settlement Users: The Classical Case Of Reserve 6 In Richards Bay., Masters Thesis: Universtiy Of Natal

Ntuli, H.S. 2019. Memories Of Victims: The Historical Trajectory Of The Removal Of People From Mandlanzini, South Africa. *Southern Journal For Contemporary History* **44(2)**:74-95

Prins, F. 2015. Cultural Heritage Impact Assessment Of Phase If Of The Richards Bay Industrial Development Zone (IDZ). For Nemai Consulting

Titania CS Global (Pty) Ltd. 2022. Project Basis Of Design. Nyanza Light Metals (Pty) Ltd

Van Jaarsveld, A. 2006. The Construction of Berth 306 at the Port of Richards Bay: Removal of Ammonites from the Upper Maastrichtian (Cretaceous) Layer

Maps:

2832CA KwaMbonambi 1942, 1969, 1984

117C_058_66250

117C_059_66289

Database

KZN Museum

SAHRA

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EXPERIENCE OF THE HERITAGE CONSULTANT

Gavin Anderson has a M. Phil (in archaeology and social psychology) degree from the University of Cape Town. Gavin has been working as a professional archaeologist and heritage impact assessor since 1995. He joined the Association of Professional Archaeologists of Southern Africa in 1998 when it was formed. Gavin is rated as a Principle Investigator with expertise status in Rock Art, Stone Age and Iron Age studies. In addition to this, he was worked on both West and East Coast shell middens, Anglo-Boer War sites, and Historical Period sites.

DECLARATION OF INDEPENDENCE

I, Gavin Anderson, declare that I am an independent specialist consultant and have no financial, personal or other interest in the proposed development, nor the developers or any of their subsidiaries, apart from fair remuneration for work performed in the delivery of heritage assessment services. There are no circumstances that compromise the objectivity of my performing such work.

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Archaeologist/Heritage Impact Assessor