Heritage Statement

in support of Heritage Western Cape Notification of Intent to Develop (HWC NID – Section 38)
(HWC Case No.: HWC? and DEA&DP Ref. No. DEA&DP Ref No. ?)

Proposed Grootbrak WWTW PV Solar Energy Facility & Battery Energy Storage System on Portion 23 of the Farm Wolwedans 129, Grootbrak Rivier, Mossel Bay Local Municipality, Garden Route, Western Cape Province.

for

Mossel Bay Municipality, Mr. S Naidoo, 101 Marsh Street, Mossel Bay, Private Bag X29 Mossel Bay 6500, Telephone: 044 606 5085, E-mail: dnaidoo@mosselbay.gov.za and **Sharples Environmental Services cc**, Jessica Gossman, PO Box 443, Milnerton, 7435, Telephone: (021) 5545195, E-mail: jessica@sescc.net

by

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26 April 2024 revised with inputs 14 February 2025

Summary - Conclusions & Recommendations

The following conclusions and recommendations are arrived at after reviewing information obtained through:

- previous archaeological and heritage related studies in the surrounding area,
- SAHRIS PalaeoSensitivity map and inputs from palaeontologist Prof John Pether,
- SG Diagrams,
- historic and Google Earth aerial photographs, and
- a site inspection (archaeological walk-through).

The SAHRIS PalaeoSensitivity map shows that the study area is shaded red, meaning that palaeontological sensitivity is VERY HIGH and that "field assessment and protocol for finds is required". Consequently, palaeontologist, Prof John Pether was commissioned for inputs.

Prof Pether concludes as follows "The Kirkwood Fm. beneath the site is covered by colluvium and previously-ploughed windblown sands. The construction of the SEF and associated infrastructure will mainly affect these surficial deposits which are of LOW fossil potential. A lateritic soil is developed in the underlying Kirkwood Fm. which is unfavourable for the preservation of unpetrified fossil material. A significant impact on the palaeontological resources of the Kirkwood Formation and surficial coversands, due to construction of the (Solar PV Energy Facility (SEF) and Battery Energy Storage System (BESS), is not anticipated and additional palaeontological investigation is not required" (Pether 2024, Pg. 4).

"Just in case petrified fossil wood is unearthed in the shallow trenches made for the SEF cabling, an alert for the uncovering of fossil wood must be included in the Environmental Management Plan (EMP). A collection must be made of the finds of fossil wood, for later deposition at a museum, together with information of the find location. The fossil wood must be handed into the custody of the Environmental Control Officer (ECO) and/or the site manager, who must ensure its interim safe storage. On the completion of Construction Phase earthmoving activities, the fossil wood collection must be conveyed to a curatorial institution. The Albany Museum in Grahamstown (www.am.org.za) is an appropriate repository where palaeobotanist Dr Rosemary Prevec studies and curates the fossil plant collections, including Cretaceous plant fossils. A Collections Agreement exists with the Palaeosciences Centre, University of the Witwatersrand (Dr Marion Bamford), for petrified fossil wood specimens collected from the Maandagskop Quarry on Portion 12 of Farm Hartenbosch 217. As collaborating palaeobotanists Drs Bamford and Prevec must be consulted about the preferred repository for fossil wood specimens from the SEF site" (Pether 2024, Pg. 4).

The larger site and development footprint are significantly transformed through agricultural activities during colonial and recent times, construction of an earth dam in the northern part of the property, as well as earthmoving activities in the southern extent of the site. No colonial or pre-colonial heritage resources of significance were identified in the study area. A few Stone Age implements identified near the earth dam are Not Conservation Worthy. If present in buried sediments, then Stone Age implements are expected to be of low significance and Not Conservation Worthy. No caves or rock shelters occur on site or in the immediate surroundings. No heritage resources in the surroundings will be impacted by the proposed activity.

Because there are no significant heritage resources associated with the development footprint, it does not meaningfully contribute to the already altered cultural landscape of the area. For

the same reason there will be negligible to no cumulative impact on the heritage value of the area.

Being a field of solar panels, the proposed PV solar plant will have a relatively low vertical aspect and will be partially screened by topography, existing vegetation, and developments. Nevertheless, on heritage grounds, due to the transformed nature of the site and the absence of heritage resources or themes in and around Portion 23 of Wolwedans 129, the proposed solar facility and battery energy storage system will have a negligible to zero impact on the visual or aesthetic heritage value of the area. The former rural landscape is already transformed by roads, the Grootbrak WWTW, and bulk services infrastructure. Consequently, the proposed solar plant will have negligible visual impact on the aesthetic value of the area.

The positive socio-economic impact, including short-, medium- and long-term jobs as well as the urgent need for increasing the supply of electricity outweigh the negligible to zero negative impacts this project may have on heritage resources.

Because of the above, and because there is no reason to believe that significant heritage resources will be impacted by the proposed activity, it is recommended that the proposed activity be approved in full, and that a Heritage Impact Assessment is not warranted for the project.

Nevertheless, it is recommended that Heritage Western Cape consider and/or require that the following be included in the Environmental Authorisation / Environmental Management Program, if the project is approved:

- although not requiring further Palaeontological investigation, an alert for the uncovering of fossil wood must be included in the Environmental Authorisation and/or the Environmental Management Program (EMP) for the construction phase of project,
- due to the disturbed and transformed nature of the site, as well as the findings of this and previous archaeological studies, archaeological monitoring is NOT recommended, but,
- if any human remains or significant archaeological materials are exposed during construction activities, then the find should be protected from further disturbance and work in the immediate area should be halted and Heritage Western Cape must be notified immediately. These heritage resources are protected by Section 36(3)(a) and Section 35(4) of the NHRA (Act 25 of 1999) respectively and may not be damaged or disturbed in any way without a permit from the heritage authorities. Any work in mitigation, if deemed appropriate, should be commissioned, and completed before construction continues in the affected area and will be at the expense of the developer.

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1. Name, Bio-sketch and Declaration of Specialist

I, Peter Nilssen (PhD in archaeology, University of Cape Town, 2000), herewith confirm that I am a Professional member - in good standing - of the Association of Southern African Professional Archaeologists (ASAPA), including the Cultural Resource Management section of the same association since 1989 (ASAPA professional member # 097). I am an accredited Principal Investigator for archaeozoology (specialist analysis), coastal, shell midden and Stone Age archaeology; Field Director for Colonial Period archaeology; and Field Supervisor for Iron Age archaeology and Rock Art. I have worked as a professional archaeologist in Cultural Resource Management since 1989 and have completed more than 280 heritage-related impact assessments and mitigation projects as Principal Investigator.

As the appointed independent specialist (archaeologist) for this project hereby declare that I:

- act as an independent specialist in this application,
- regard the information contained in this report as it relates to my specialist input/study to be true and correct,
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act,
- have and will not have no vested interest in the proposed activity proceeding,
- have disclosed, to the applicant, EAP and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act,
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2014 (specifically in terms of regulation 13 of GN No. R. 982) and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification, and
- am aware that a false declaration is an offence in terms of regulation 48 of GN No. R. 982.

Peter Nilssen

Signature of the specialist:

Date: **26 April 2024**

2. Introduction & Background

To assist with the supply of electricity, the Mossel Bay Municipality is proposing the development of a Photovoltaic (PV) Solar Plant adjacent to the Grootbrak Wastewater Treatment Works (WWTW), Mossel Bay. The environmental application, currently a Pre-Application phase, is being facilitated by Jessica Gossman of Sharples Environmental Services cc (hereafter SES) who compiled a Screening Tool Report for the project (Gossman 2024). Because the proposed development footprint exceeds 5000 m^2 in extent, Section 38(1)(c)(i) of the National Heritage Resources Act (Act 25 of 1999, NHRA) is triggered, resulting in the requirement for a Notification of Intent to Develop (NID) application to Heritage Western Cape (HWC). Through SES, the applicant appointed this author to assist with the heritage process and NID application to HWC.

This document is not a Heritage Impact Assessment, but rather, is a scoping report that provides additional information in support of the NID application and motivates the recommendations made therein.

This Heritage Statement and the accompanying NID application form serve to inform HWC about the proposed development activity and to make recommendations regarding the potential impact on heritage resources and the requirement for any further specialist investigations. This report, the NID application form, and accompanying documentation should be read together as information is not always repeated.

The purpose of this Heritage Statement is to report the results of a site inspection and basic review of background information and previous heritage-related studies with the aim to:

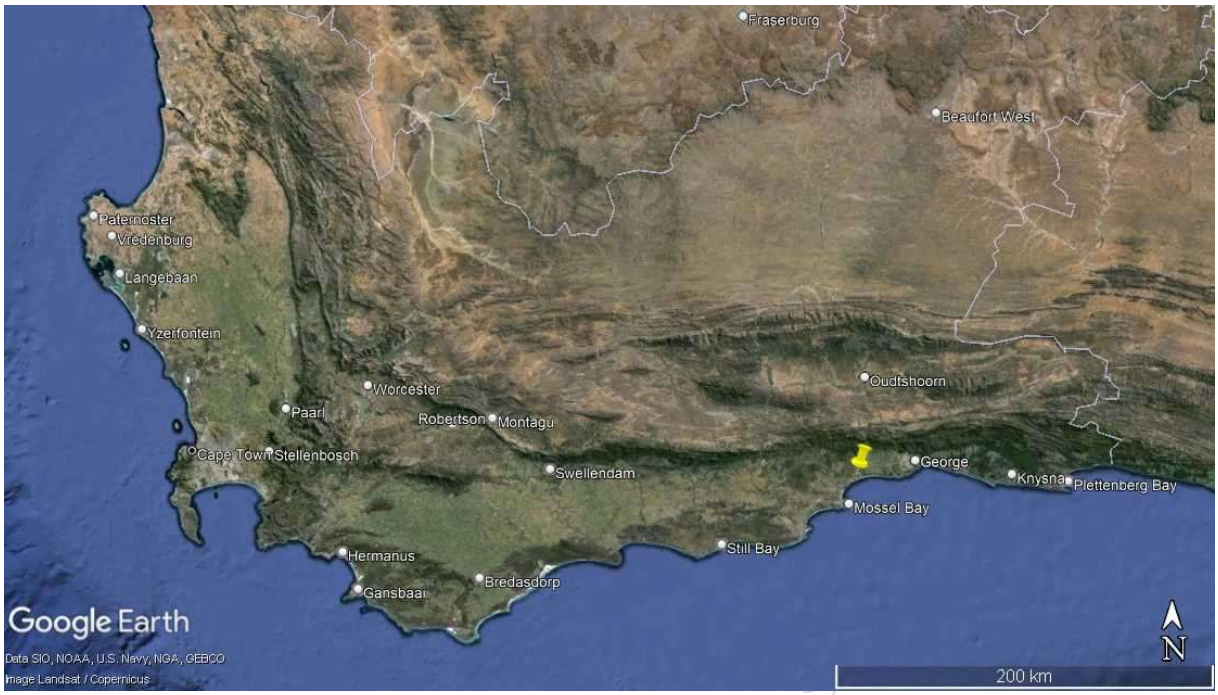
1) assist HWC in their decision-making process to ensure that potentially significant heritage resources are investigated and not overlooked, and that unnecessary heritage studies are not undertaken, and
2) to assist the applicant with the heritage application process, to avoid expenses on unnecessary specialist studies, and to avoid or minimize later delays and costs resulting from the chance discovery of previously undetected and significant heritage resources.

For the above reasons, HWC recommends that NID applications should be prepared with the assistance of suitably qualified and accredited heritage professionals.

Based on information submitted here as well as its own sources and expertise, HWC will decide and advise on the way forward regarding the protection and management of heritage resources in accordance with the NHRA.

3. Site Location and Development Proposal

The proposed development footprint is a portion of Portion 23 of the Farm Wolwedans 129 (hereafter 23/129) and is situated immediately north of Sandhoogte Road and the existing Grootbrak WWTW. 23/129 is bounded in the north by a road leading to Municipal infrastructure/reservoir, and farm Rheeboksfontein 142, in the east by 161/129, 1/139 and RE/139 (farm Zandhoogte 139), in the south by 40/129, and in the west by 1/330 or 347 (Rheeboksfontein). The site is some 14.5 km NNW of central Mossel Bay in the Western Cape Province with the centre of the development footprint at 34° 03'27.13"S 22° 11'12.03"E (WGS 84, see Locality Map and Figures 1 through 4).



Locality Map. General location of the study area (yellow marker) NNW of Mossel Bay, Western Cape Province. Courtesy of Google Earth 2024.

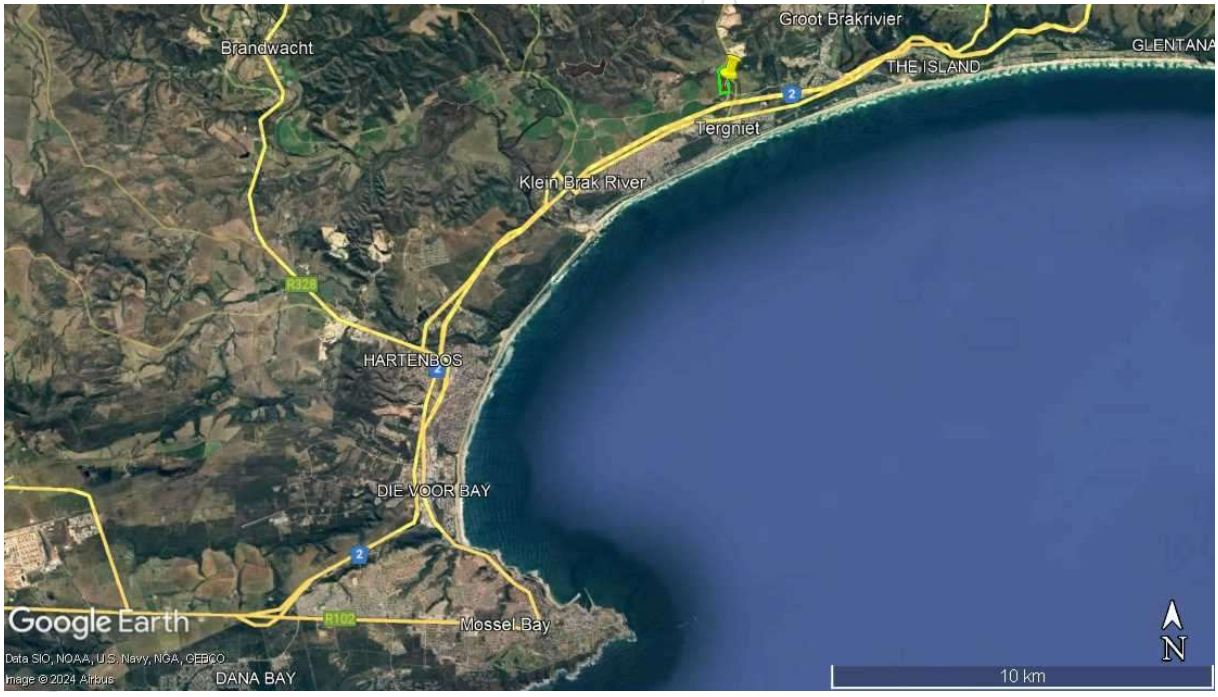


Figure 1. Enlarged from Locality Map showing 23/129 (yellow marker and green polygon) relative to and Mossel Bay, Tergniet and Grootbrakrivier, Western Cape. Courtesy of Google Earth 2024. (A4 version below)

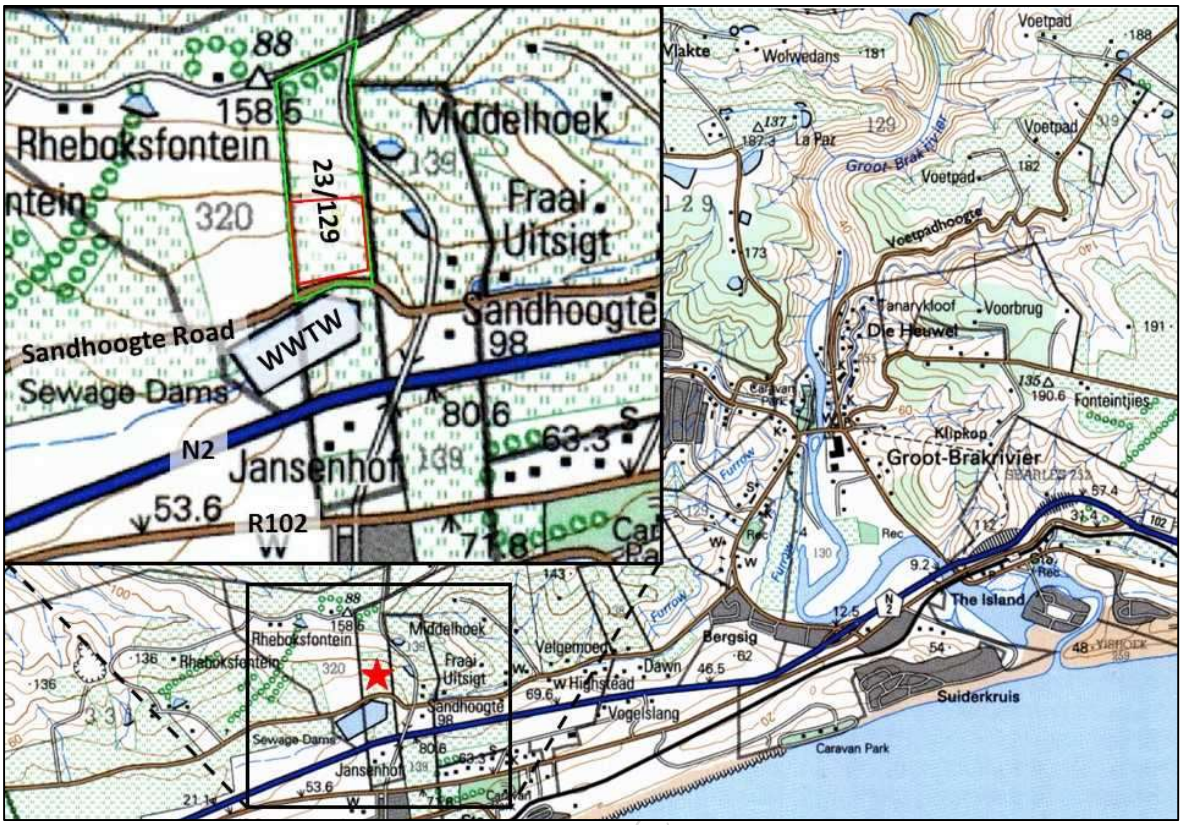


Figure 2. Enlarged portion of 1:50 000 topographic map 3422 AA 1998 Mossel Bay showing 23/129 (red star and green/red polygons in inset) relative to Grootbrak WWTW and Sandhoogte Road. Red polygon represents the proposed development footprint. No structures are indicated in the study area. Courtesy of the Chief Directorate Surveys and Mapping, Mowbray and Google Earth 2024. (A4 version below)

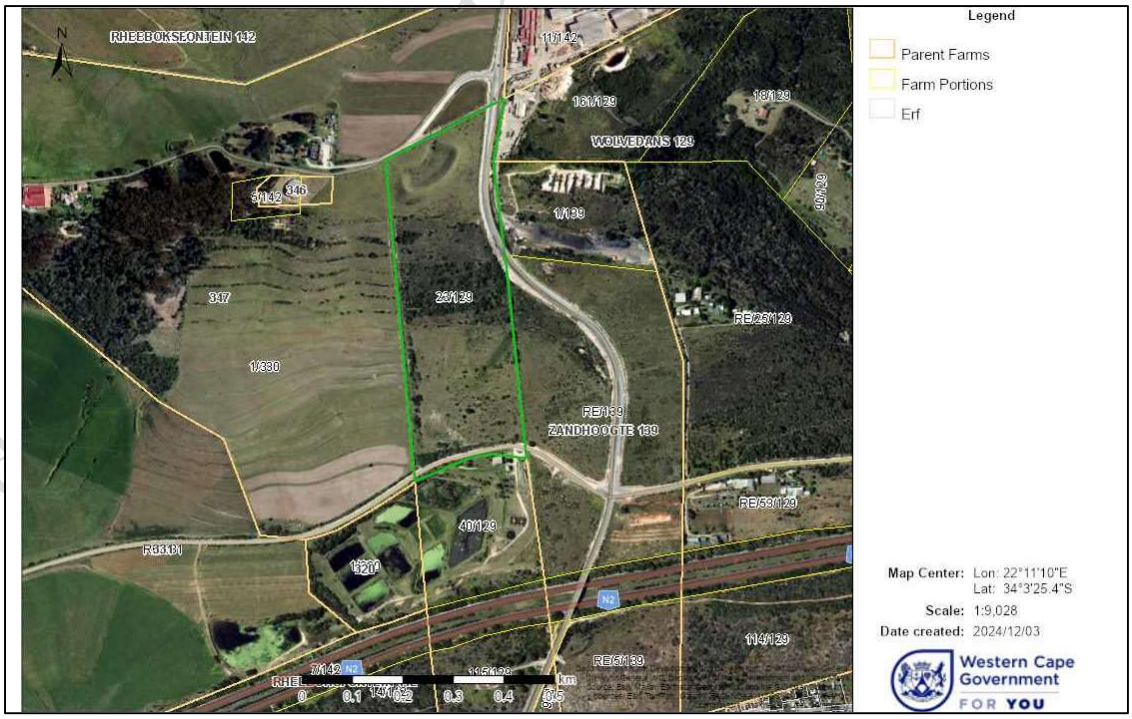


Figure 3. Enlarged from Figure 1 showing 23/129 (green polygon) with existing developments, surroundings properties, and roads. Courtesy of Cape Farm Mapper. (A4 version below)

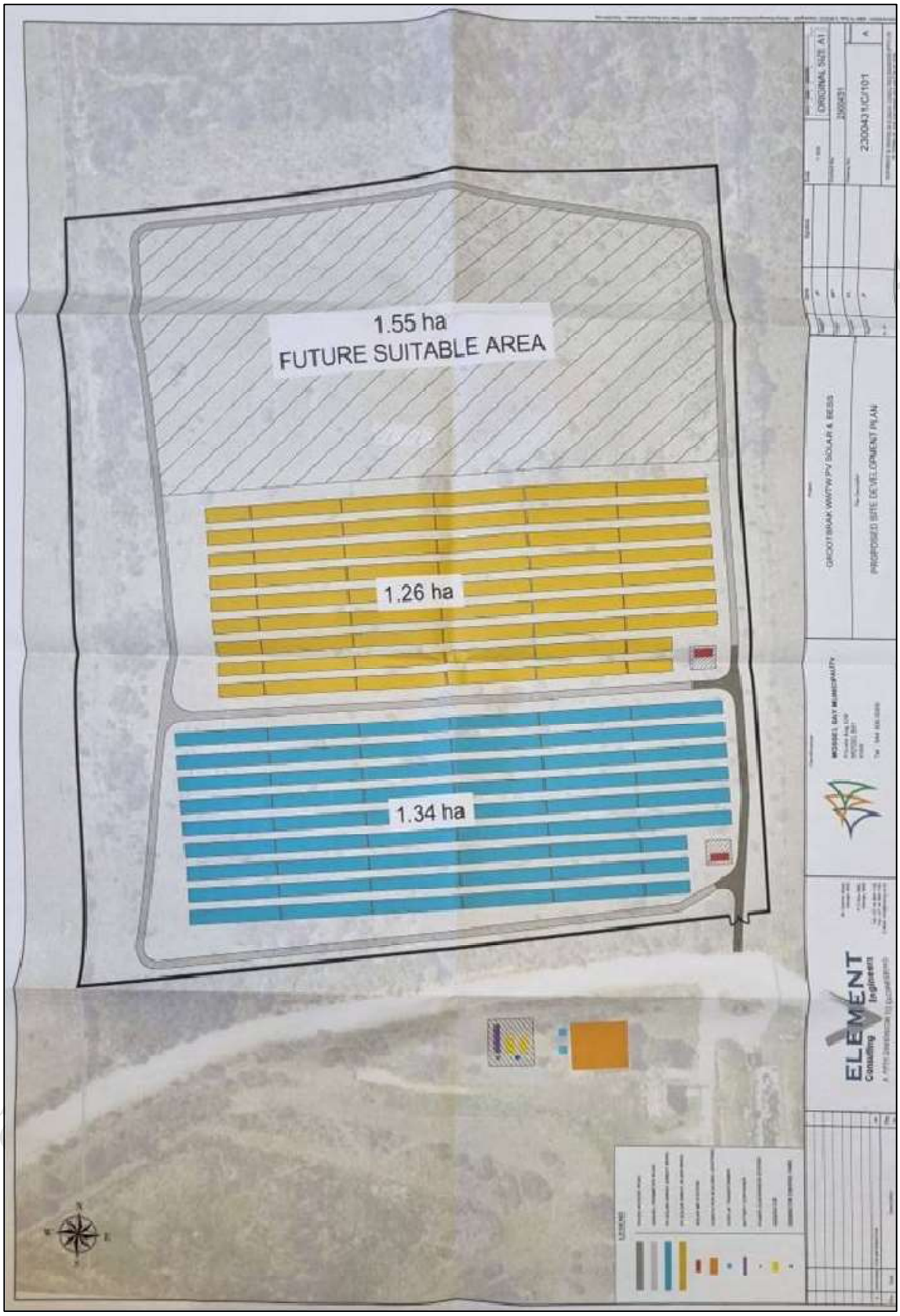


Figure 4. The proposed SDP for the Groot~~b~~ ~~B~~rak WWTW PV Solar Plant and BESS on part of Portion 23 of the Farm Wolwedans 129.

The proposed development involves the construction of a Photovoltaic (PV) Solar Plant with a Battery Energy Storage System. The preferred option is shown in Figure 4. Currently there is no alternative option.

The extent of the study area is approximately 14.5 ha while the proposed development footprint is roughly 4,8 ha in extent and is registered to and managed by the Mossel Bay Local Municipality represented by Mr S. Naidoo (SA ID 6210245252084, Title Deed T56806/1994, SG Diagrams - see accompanying documents).

A detailed description of the development proposal is given in Section D of the accompanying HWC NID application form and is not repeated here. Of relevance to archaeological and palaeontological heritage resources are earthmoving activities. Earthworks will consist of excavations and levelling (cut and fill) to create a level area for the solar panels, and excavations or drilling for foundations. Foundations for structures and the mounting system may consist of conventional trenches or piles / plinths. Although depth of excavations is currently unknown and will be determined through geotechnical test excavations, it is not anticipated that any excavations will exceed 3 meters in depth. The only deep excavations will be those for piles/poles to support the mounting system and these excavations will be core or drill holes of limited spatial extent. Consequently, their impact will be limited to small surface areas. Considering that surface sediments already disturbed by a variety of agricultural and earthmoving activities, excavations are not anticipated to intercept significant *in situ* archaeological or palaeontological resources. Nevertheless, see further details in Section 5 below.

4. Study Area

The proposed activity is on a portion of 23/129 that is already transformed by agricultural and earthmoving activities as well as roads and bulk services infrastructure. On-site earthmoving includes an earthen dam in the north, and an excavation in the south, which is now an artificial, likely intermittent wetland. Due to former agricultural activities, the vegetation is transformed and dominated by pioneer species, bush, shrub, grass, reeds, and exotic pine and rooikrans trees.

The proposed development footprint immediately north of Sandhoogte Road has a gentle slope while the northern half of the property slopes up moderately to steeply to the north. Surface sediments in the north are disturbed by the earth dam and include rounded gravels. Soft surface sands dominate the mid to lower parts of the property where erosion gullies have exposed their depth to at least 1 meter in places.

Views toward the study area and examples of the affected environment show that the site is distantly visible from the N2 when eastbound and that the surroundings and the proposed development footprint are transformed and moderately degraded (Figures 5 through 12). Directions of views are indicated on photographs with abbreviated compass bearing names such as NE = North-East, NNW = North-North-West, N = North, and so on.

Figure 5. View toward study area (white ellipse) from the N2 highway – eastbound (top) and westbound (middle and bottom). Note that photos taken while stationary from side of road and bottom images are at right angles to road. Hence, site is barely visible from N2 when westbound.

Figure 6. View toward study area from Sandhoogte Road (top) and from the SW corner of the development footprint.

Figure 7. View toward study area from Sandhoogte Road (top) and from the NW corner of the larger property (bottom). Note dense grass and earth dam wall in bottom image.

Figure 8. Empty earthen dam in northern part of site (top) and view overlooking larger property with development footprint (white ellipse) and existing Grootb Brak WWTW south of study area.

Figure 9. Exposed surfaces with rounded gravels (top) and artificial wetland in southern extent of study area (bottom).

Figure 10. Vegetation cover includes exotic pine and rooikrans (top). Exposed surfaces with soft surface sands in development footprint (bottom).

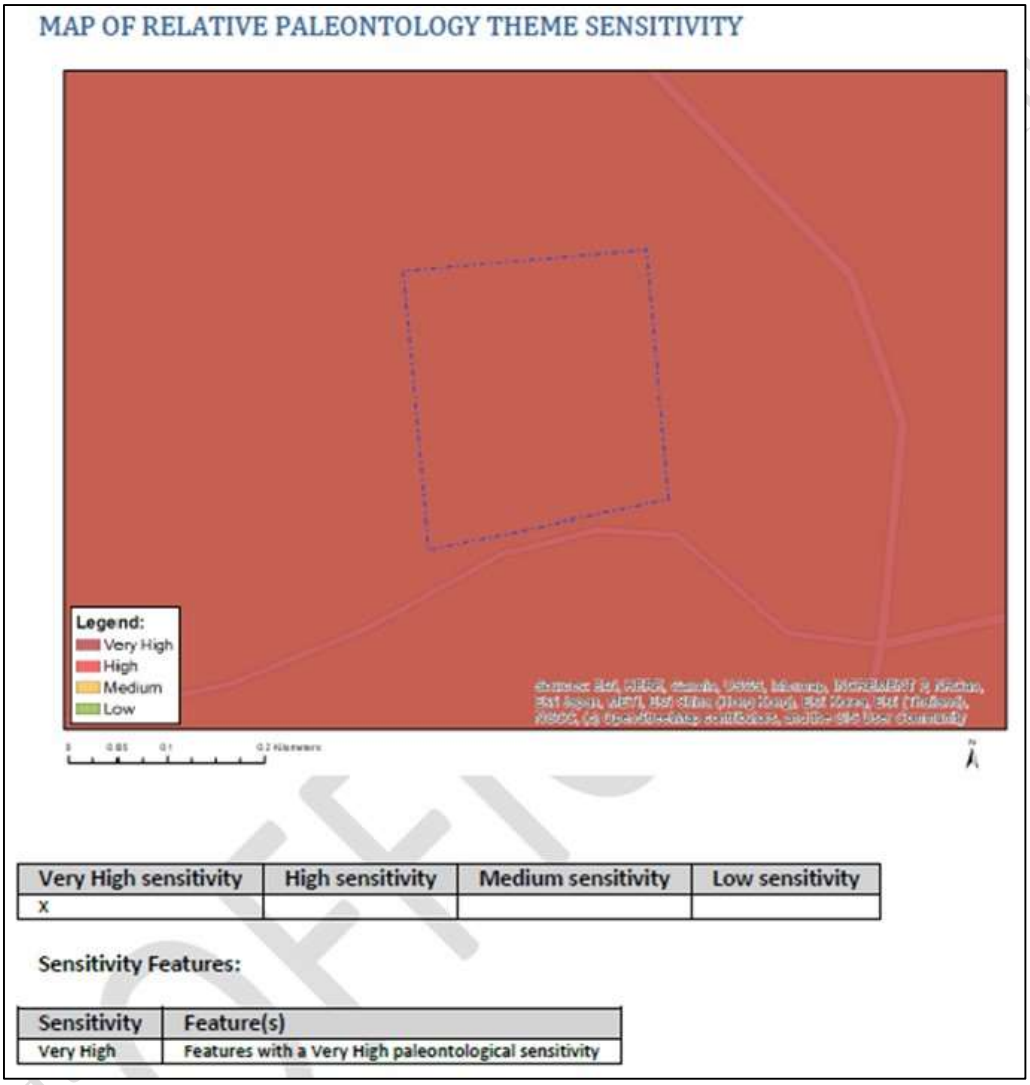
Figure 11. Dense and impenetrable vegetation cover (top) and exposed surface with rounded gravels (bottom).

Figure 12. Panoramic views over the study area from the NW (top) and SW (bottom) corners development footprint. Note vegetation cover and moderate to gentle slope in the southern half of the larger property.

5. Background Information, Previous Heritage Studies & Heritage Resources

Palaeontology

A DFFE screening tool report was obtained by SES as part of the initial stages of the environmental application process (Gossman 2024). The screening tool map shown in Figure 13 indicates that the study area is shaded red and thus attributed with a VERY HIGH palaeontological sensitivity in the tables.



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	Features with a Very High paleontological sensitivity

Figure 13. Map of relative palaeontology theme sensitivity from the DFFE screening tool report (Gossman 2024). The development footprint is represented by the dashed blue line.

The SAHRIS PalaeoSensitivity map shows that the study area is shaded red, meaning that palaeontological sensitivity is VERY HIGH and that "field assessment and protocol for finds is required" (Figure 14). Consequently, palaeontologist, Prof John Pether was consulted for professional inputs.

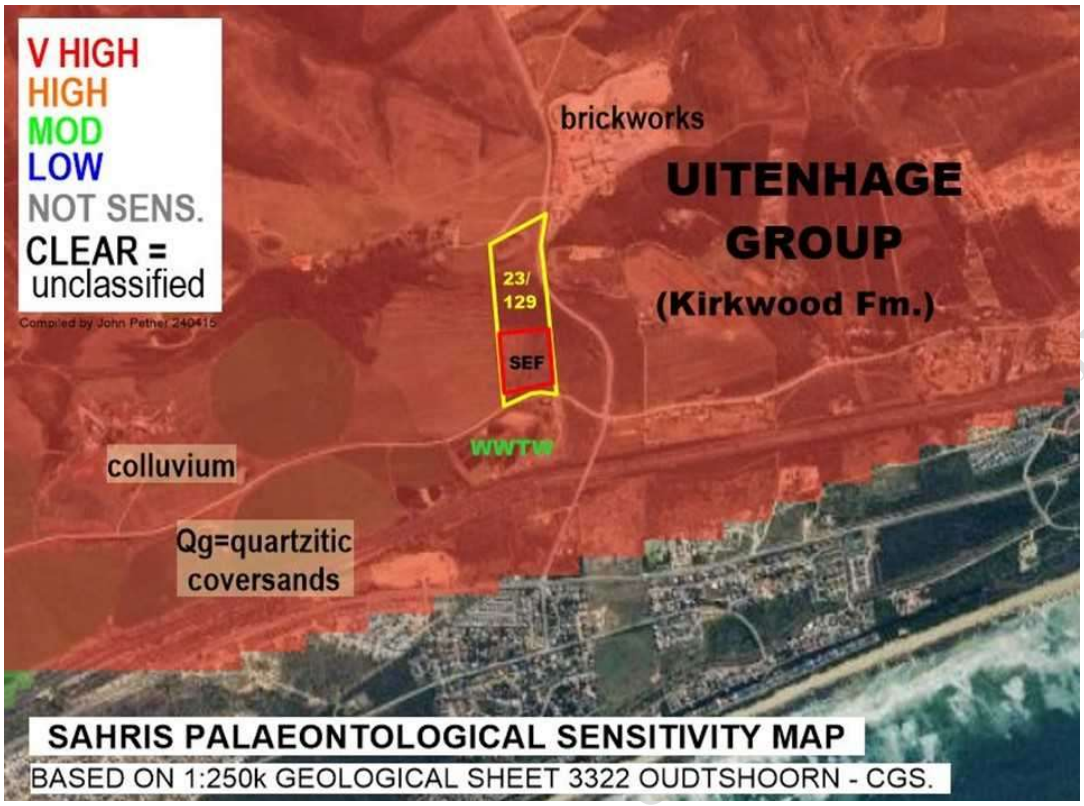


Figure 14. SAHRIS PalaeoSensitivity Map shows that the site is shaded red (after Pether 2024, http://www.sahra.org.za/).

The below section is copied verbatim from Prof Pether's report (Pether 2024), which is submitted in full with this NID application. Figure numbers are changed to follow the sequence in this report.

Geological Context

The site is situated on the Kirkwood Formation of the Uitenhage Group (Figure 15). Southern Africa was once embedded in the Gondwana supercontinent. Inexorable tectonic crustal forces led to the breakup of Gondwana from about 180-170 million years ago (Ma = million years ago, Mega-annum). The older bedrock formations of the southern Cape, such as the Cape Granites and the Cape Supergroup comprising the mountains of the Cape Fold Belt, were extensively disrupted by faulting during the breakup of Gondwana. Along the South Coast the pattern of crustal stretching and faulting was complex and several local fault-bounded basins were formed, e.g. the Mossel Bay Basin. A "fresh" suite of sediments, eroded from the mountainous hinterland, filled the new coastal basins so created. These Jurassic and early Cretaceous sediments, deposited between about 170 Ma and 130 Ma, are called the UITENHAGE GROUP, from this area where they are well exposed.

The Kirkwood Fm. is mainly comprised of multicoloured green, grey and pink mudstones with variously pale brown sandstone interbeds and minor, thin conglomerates considered to have been deposited by meandering rivers debouching into lake environments (Muir *et al*, 2017).

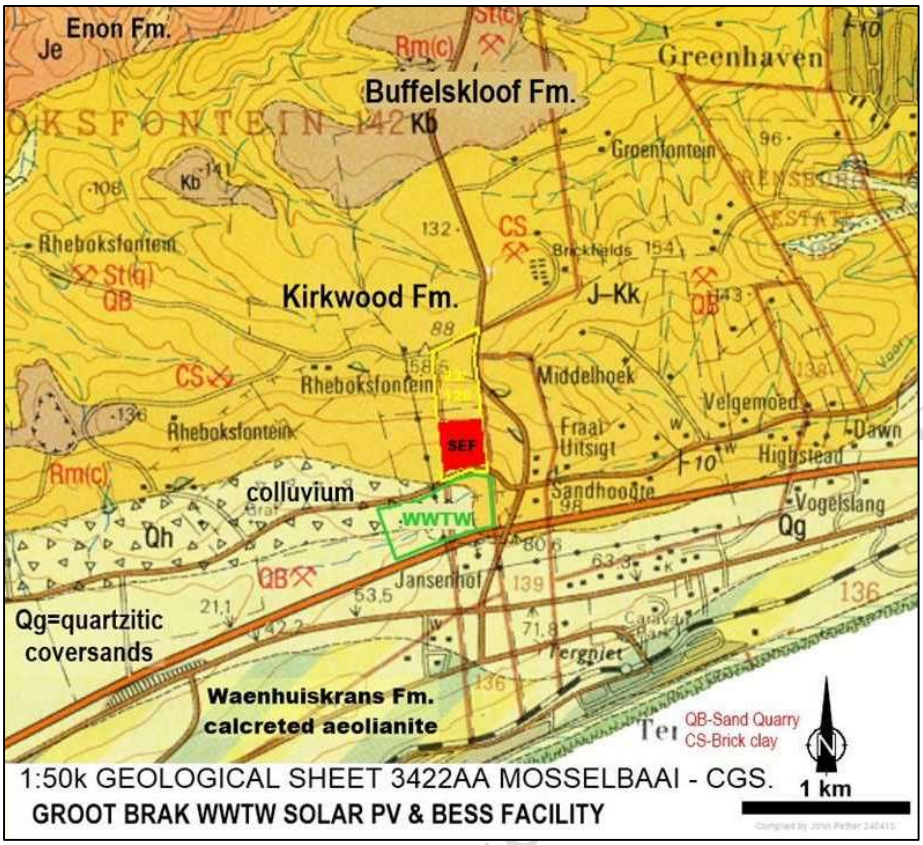


Figure 15. Location of the proposed SEF on the Kirkwood Formation of the Uitenhage Group (after Pether 2024, Figure 2).

Palaeontology

The Kirkwood Fm. includes important floras of petrified wood (the "Wood Beds"), impressions of leaves (ferns, cycads, conifers), freshwater invertebrates (bivalves, crustaceans) and the mainly fragmentary remains of a limited range of small to large dinosaurs (theropods, sauropods, ornithopods), other reptiles, and Mesozoic mammals (Almond *et al*, 2009.). The most noticeable fossil material are logs of petrified (silicified) wood which occur mainly in conglomeratic beds.

Anticipated Impacts

The intensity or magnitude of impact relates to the palaeontological sensitivities of the affected formations and the volume of disturbance by excavation. The Kirkwood Formation is depicted to be of VERY HIGH palaeontological sensitivity on the SAHRIS Palaeo-Map (Figure 14), due mainly to the occurrence of the fossil reptiles.

Most of these finds have come from the northern part of the Algoa Basin from exposures on eroding valley flanks and finds of fossil bones are evidently not recorded from the Mossel Bay Basin. In addition to petrified wood, fossil plant impressions are recorded at some localities in the Herbertsdale-Mossel Bay area. The preservation of fossils depends on processes involved in transforming unconsolidated sediments into rock and subsequent weathering when later exposed at the surface. Much of the Kirkwood Fm. in the Mossel Bay Basin is comprised of soft, easily-weathered muds (Figure 16) in which plant impressions on hard mudstone "tiles" do not occur, although charcoal and crumbly coalified plant material may be present. The palaeontological sensitivity of the Kirkwood Fm. in this area may consequently be revised to LOW, as also noted by Almond (2010).

Figure 16. The Kirkwood Fm. at the entrance to the Rheebok brickworks.

The installation of a Solar Energy Facility does not involve deep subsurface disturbance. Typically, the main excavations are the shallow trenches for connecting cabling, while the solar panel arrays are supported on posts or concrete sleepers and the transformers/inverters and a Battery Energy Storage System are located on shallowly embedded concrete slabs.

The Kirkwood Fm. beneath the site is covered by colluvium and previously-ploughed windblown sands (Figure 16) of at least a metre thick in places (Nilssen, pers. comm.). The construction of the SEF and associated infrastructure will mainly affect these surficial deposits which are of LOW fossil potential. A lateritic soil is developed in the underlying Kirkwood Fm. (Figure 16 which is unfavourable for the preservation of unpetrified fossil material.

Recommendation
A significant impact on the palaeontological resources of the Kirkwood Formation and surficial coversands, due to construction of the SEF and BESS, is not anticipated and additional palaeontological investigation is not required.

Just in case petrified fossil wood is unearthed in the shallow trenches made for the SEF cabling, an alert for the uncovering of fossil wood must be included in the Environmental Management Plan (EMP). A collection must be made of the finds of fossil wood, for later deposition at a museum, together with information of the find location. The fossil wood must be handed into the custody of the Environmental Control Officer (ECO) and/or the site manager, who must ensure its interim safe storage. On the completion of Construction Phase earthmoving activities, the fossil wood collection must be conveyed to a curatorial institution. The Albany Museum in Grahamstown (www.am.org.za) is an appropriate repository where palaeobotanist Dr Rosemary Prevec studies and curates the fossil plant collections, including Cretaceous plant fossils. A Collections Agreement exists with the Palaeosciences Centre, University of the Witwatersrand (Dr Marion Bamford), for petrified fossil wood specimens collected from the Maandagskop Quarry on Portion 12 of Farm Hartenbosch 217. As collaborating palaeobotanists Drs Bamford and Prevec must be consulted about the preferred repository for fossil wood specimens from the SEF site.

Archaeology

The DFFE screening tool map and table for the archaeological and cultural heritage theme sensitivity shown in Figure 17 indicates that the proposed development footprint falls within an area of LOW sensitivity (Swanepoel 2022). A Heritage Impact Assessment conducted for a property a few kilometres to the south-west and with a very similar spatial and contextual elements (Nilssen 2023a) confirmed that the general area is not archaeologically sensitive and given the transformed state of the current study area, the proposed activity will have no to negligible impact on the archaeological or heritage value of the area. Consequently, this author agrees with the DFFE screening tool report assignment of LOW sensitivity concerning the archaeological and cultural heritage theme.

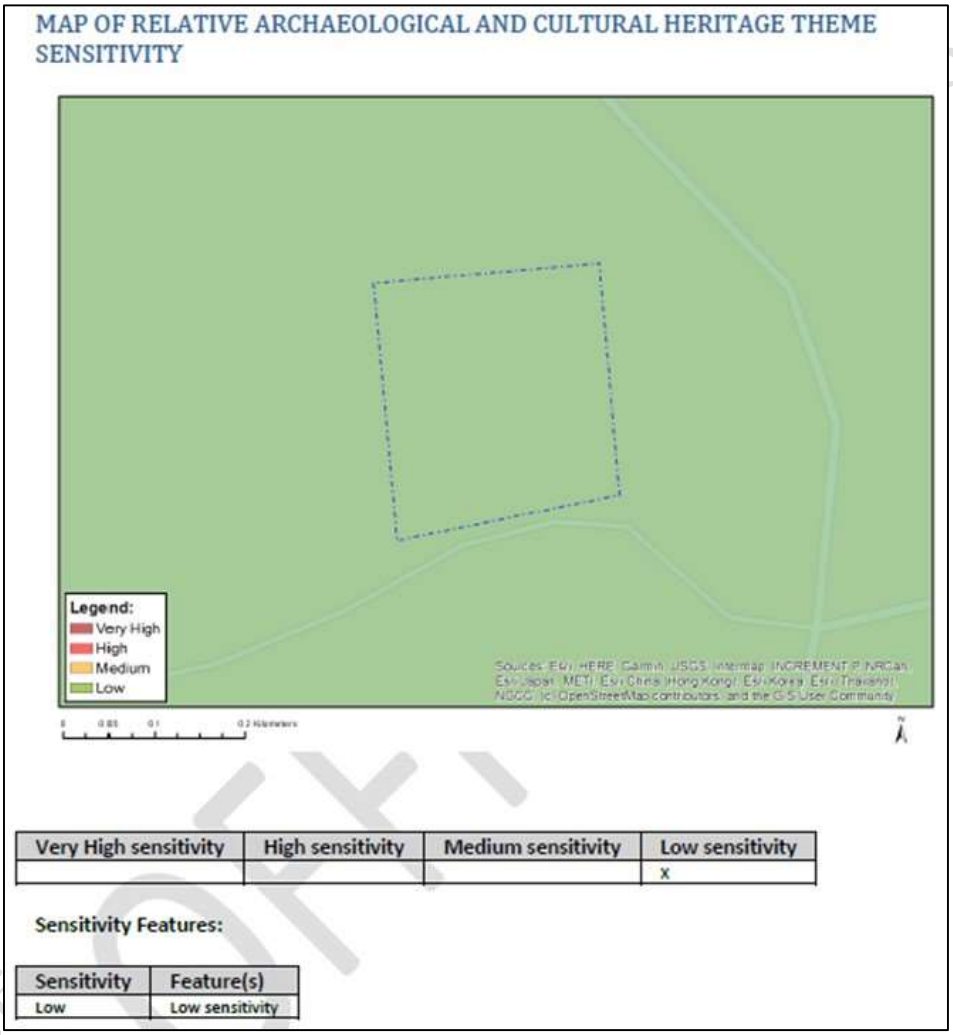


Figure 17. Map of relative archaeological and cultural heritage theme sensitivity from the DFFE screening tool report (Gossman 2024). The development footprint is represented by the dashed blue line.

A detailed desktop study and literature review is beyond the scope of this report but given that this author conducted a HIA for a nearby property with the same spatial, environmental, and cultural setting, a revised version of the desktop study and literature review from that investigation is given below (Nilssen 2023a, Pg., 47 to 51).

In addition to a few scientific publications and this author's work conducted in the surroundings of Mossel Bay, several reports of previous Cultural Resource Management (CRM;

archaeological or heritage) studies in the area were downloaded from the SAHRIS website and these include MAPID or SAHRA numbers in the references section (https://sahris.sahra.org.za/map/reports). CRM reports cited below, but that are not in the SAHRIS database, were obtained through a desktop study and from colleagues.

In archaeological circles, and before significant discoveries were made at the Pinnacle Point Site Complex, Mossel Bay was perhaps best known for having hosted one of the earliest archaeological excavations in South Africa. The Provincial Heritage Site of Cape St. Blaize Cave (CSBC) is situated about 14,5 km SSW of 23/129 and beneath the lighthouse at The Point of Mossel Bay. The cave was first excavated by George Leith in 1888 and then again by Goodwin and Malan in 1932 (Leith 1898 and Goodwin & Malan 1935).

Leith's work in 1888 consisted primarily of collecting certain stone artefacts and excavating a few holes (Leith 1898). Collectively, the stone artefacts recovered by Goodwin, Malan and Leith, among others, were used to describe and define the MSA Industry from Cape St. Blaize Cave. As a result, the Mossel Bay region is well known in Stone Age studies because it lent its name to one of the first formally recognized stone tool industries in South Africa, namely, the Mossel Bay Industry.

The last archaeological excavations in CSBC by Goodwin and Malan in 1932 revealed that the upper deposits are badly disturbed, but that part of the lower MSA material, dating to around 60 000 years ago or earlier, is still intact (Goodwin & Malan 1935). No LSA material or microlithic stone artefacts dating to the last 20 000 years were found and the excavators do not mention the presence of pottery, which would indicate the presence of KhoeKhoen (KhoeKhoe) pastoralists during the last 2000 years. These early excavations used fairly coarse, and now outdated excavation techniques, and excavated material was sieved through coarse or large-grain sieves. Excavated material included stone artefacts, animal bones and a few fragments of human bone. Shellfish was not found in the MSA layers suggesting that when occupied in the MSA, the sea was a considerable distance from the cave. Due to large rock-falls from the cave ceiling, the excavations could not reach bedrock, but they suggest that earlier occupations are likely to be preserved in the cave. After these investigations, archaeological research in and around Mossel Bay effectively stopped until 2000.

Since the initial discovery of numerous Stone Age archaeological sites some 9 km west of Mossel Bay by Kaplan and Nilssen in 1997 (Kaplan 1997), Pinnacle Point was under rigorous archaeological and palaeo-scientific research that began in 2000 (Marean & Nilssen 2002 and Marean *et al.* 2004). Dozens of research articles were published on the archaeological, geological, and palaeo-environmental work undertaken at Pinnacle Point. Among the most significant discoveries contributing to our understanding of the origins of modern human behaviour are; 1) early evidence for the consumption of substantial quantities of marine foods, 2) early evidence for the use of ochre, and 3) early evidence for using heat as an engineering tool to improve the fracturing qualities of silcrete for stone tool production (Marean *et al.* 2007 and Brown *et al.* 2009). These finds are dated to between about 100 000 and 170 000 years ago and led to the declaration of the Pinnacle Point Site Complex as a Provincial Heritage Site in 2012. Along with other South African MSA sites, the Pinnacle Point Site Complex was nominated for World Heritage Site status with UNESCO in January 2023.

CRM excavations in mitigation have revealed that the most recent shell middens in the Pinnacle Point Site Complex date to the last 3000 years, including one midden containing Cape coastal pottery as evidence of pastoralists in the landscape from at least 1200 years ago (Rudner 1968 and McGrath *et al.* 2015). At the other extreme, archaeological monitoring during construction has identified the presence of numerous ESA implements in soft sediments

above the cliffs. Some of these implements are reminiscent of the Oldowan or developed Oldowan type, suggesting that they may date from between about 2, 6 and 1, 7 million years ago, while others are of Acheulean type and may date to around 1, 5 and 1, 3 million years ago (Nilssen 2005c).

In addition to archaeological research and CRM work described above, much of the information gained about the archaeological record of the surroundings is from archaeological and heritage-related impact assessments conducted for a range of development proposals in terms of the NHRA. The archaeological record has shown that indigenous societies and predecessors of modern humans have occupied the area for more than a million years since the Early Stone Age. The following is a chronological account of the types of archaeological resources documented in the area starting with the Early Stone Age and ending with the colonial period.

ESA stone implements are quite common in the landscape, and particularly in higher lying areas and away from the present shoreline (Hart 2005, Kaplan 2007, Nilssen 2005a, 2005c, 2006, 2009a, 2009b & 2022, Pelser 2021 and Thompson 2006). In the general surroundings of 23/129 ESA pieces are relatively common and are mostly made in quartzite. Artefacts include flaked cobbles, cores, flakes, hammer stones, hand axes and cleavers. Due to their low densities, open and disturbed contexts as well as the complete absence of associated cultural and organic remains, the ESA pieces are considered to be of low significance. There are no known ESA sites in this area that preserve any other cultural or organic remains in addition to stone artefacts.

Apart from *in situ* MSA deposits (including cultural and organic remains) preserved in sites like cave 13B in the Pinnacle Point Site Complex, the MSA in the area is most commonly represented by stone implements such as flakes, blades, cores, and points; often with faceted or prepared striking platforms, that most commonly occur *ex situ* in disturbed areas and in agricultural lands, and without any associated cultural or organic remains (Hart 2005, Kaplan 1997 & 2005, Nilssen 2005a, 2005b, 2005c, 2006, 2009a, 2009b & 2022, Pelser 2021, Thompson 2006). MSA pieces are mostly found in isolation or at best in low density scatters, but medium density scatters do occur (personal observations).

Isolated stone tools or low-density scatters of LSA stone implements have been identified, but are less common than ESA and MSA pieces in this area (Kaplan 1996, Nilssen 2005a, 2009c & 2022 and Orton 2021). In the absence of any known caves or rock shelters in the immediate surroundings, the most common LSA sites that preserve other cultural and food remains are shell middens (Kaplan 1996, McGrath *et al.* 2015 and Orton 2021). Shell middens are most commonly found in association with rocky intertidal zones and are usually situated close to the shoreline and rarely more than a few hundred meters inland of the high-water mark. It is not surprising, therefore, that in this area, shell middens are not documented beyond about 2km from the current shoreline or further inland.

Although indigenous pastoralists, often referred to as KhoeKhoe, were present in the area since about 2000 years ago, archaeological sites with definitive evidence of their presence - pottery and/or sheep/goat/cattle - in the surroundings are rare. Only a few sites, including shell middens that contain shards of pottery were recorded in the area (Kaplan 1996, McGrath *et al.* 2015 and Nilssen 2005a).

The colonial period was initiated in the Mossel Bay area by the landfall of Bartolomeu Dias in 1488. Mossel Bay was the place of first contact between European colonists and indigenous peoples, the place of the first recorded murder of an indigenous person perpetrated by

Bartolomeu Dias, and the first place of Christian worship in South Africa (Schoeman 1987). Due to the sheltered bay, the presence of freshwater springs, and meat available from local pastoralists, the area was immediately attractive to early explorers and travellers.

Despite this early arrival of colonists, the Dutch Governor of the Cape Colony only planted a "possession stone" in 1734, and the Post House (Customs house) and granary, the first colonial buildings in Mossel Bay, were only built in 1783 and 1787 with the reconstructed granary situated at today's site of the Dias Museum (Schoeman 1987, https://en.wikipedia.org/wiki/Mossel_Bay#History). As one of the few sheltered bays on South Africa's south-eastern coastline, Mossel Bay has served as a maritime port since the first shipment of wheat from the area sailed from Mossel Bay in 1788 (*ibid*). Numerous structures protected by the NHRA as well as colonial period Provincial Heritage Sites are scattered throughout the town. 23/126 formed part of the parent Farm Wolwedans 129 that was most likely first granted along with other farms in the surroundings in the early- to mid-1700s (De Kock 2021 & 2022).

Early colonists met indigenous societies comprised of pastoralists, foragers and people practicing a mixture of these two economies / lifestyles. A good overview of the social context, perceptions, relationships, and conflicts involving foragers (hunter-gatherers), pastoralists and colonists is given by Henshilwood & Yates (2001) and is not repeated here. While both pastoralists and colonists had a devastating impact on foraging societies (including government authorised and permitted genocide up to 1927), it is thought that smallpox was responsible for killing up to 90% of the KhoeKhoe population in 1713, thus opening the land for easier colonial settlement (Henshilwood & Yates 2001).

The built environment – colonial period structures, homesteads, outbuildings, features, and transport infrastructure - is the most common evidence for the presence of colonists in the area from roughly the early to mid 18thC. While colonial period structures are common in Mossel Bay and smaller villages in the surrounding area, not many structures were recorded in previous heritage-related studies consulted for this project. Exceptions include the protected historic water furrow in Great Brak River (Kaplan 2008) and the Not Conservation Worthy colonial period ruins between the Hartenbos and Klein Brak rivers (Nilssen 2005a). Colonial period structures are known to occur in the general surroundings and are visible on 1939 and 1957 aerial photographs.

Although cemeteries and burials are known to occur in the wider area, only one study refers to a "Bushman" burial that was excavated from the sands close to the mouth of the Great Brak River (Kaplan 1996). No other burials or graves are reported in the literature consulted for this project.

Four investigations reported that no archaeological resources were identified and that the affected areas were not archaeologically sensitive (Kaplan 2003, 2019, Nilssen 2007a and 2023b).

Based on the above findings, and particularly studies conducted nearby and with similar spatial and sedimentary contexts as that of 23/129, it is anticipated that the most likely archaeological resources to occur on the property are isolated Stone Age implements of mainly MSA and ESA origin with the occasional LSA piece, or at best, low to medium density scatters of the same materials (Hart 2005, Kaplan 2007, Nilssen 2005b, 2022 & 2023 and Pelser 2021). Due to their low densities, often disturbed contexts and the complete absence of associated cultural and organic remains, such finds are of low to no archaeological value and hence rated as Grade IIIC or Not Conservation Worthy. Consequently, and due to the transformed nature of

23/129, the study area is not expected to be sensitive from a palaeontological, archaeological and cultural heritage standpoint.

None of the Provincial Heritage Sites mentioned above, or any other known significant heritage sites will be impacted by the proposed development on 23/129.

6. SG Diagrams, Historic Aerial Photographs and Results of Site Inspection

In addition to Google Earth "historic" imagery, all available SG Diagrams and high resolution historic aerial photographs were obtained and carefully examined for indications and traces of heritage resources such as built structures, roads, features, and evidence for ploughing and human-related impacts.

The following includes information obtained from the available and relevant Surveyor General (SG) diagrams, title deeds and aerial photographs for 23/129, which was originally part of the larger farm Wolwedans 129, Mossel Bay. Although requested, earlier SG Diagrams showing the deduction of Portion 23 from the original Farm Wolwedans 129 are not available. Consequently, a detailed Title Deeds and archival search for records of the original granting of Wolwedans 129, subsequent subdivision, and ownership are beyond the scope of this report.

Apart from a trig beacon to the north, and roads to the south and traversing the site, no colonial period structures are shown in the study area on the 1880-1890 SG Mapping, Mossel Bay (Figure 18).

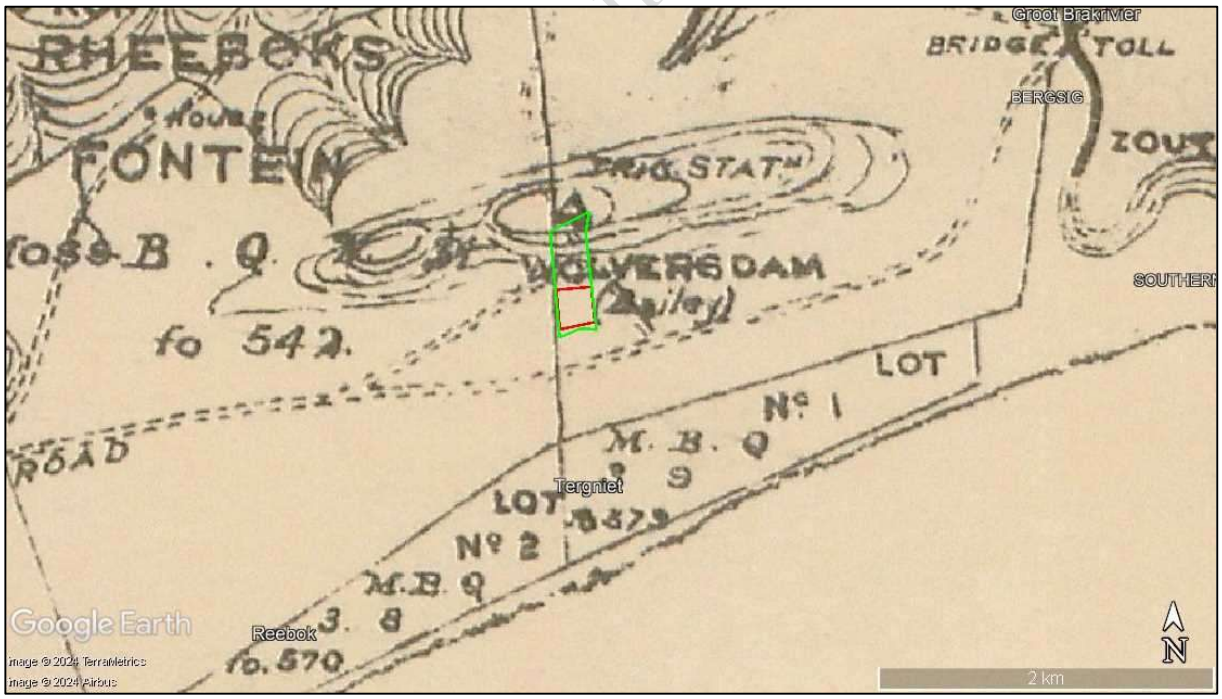


Figure 18. Enlarged portion of 1880-1890 SG Mapping Mossel Bay showing the approximate location of the affected portion of 23/129 (green and red polygons). Note trig beacon to the north and roads traversing the site. No structures are indicated. Superimposed using Google Earth imagery.

SG Diagram A1633/1924 shows that 23/129 (Nahoogte) was transferred to JJ van Rensburg and son on 28 January 1871 (Figures 19 & 20).

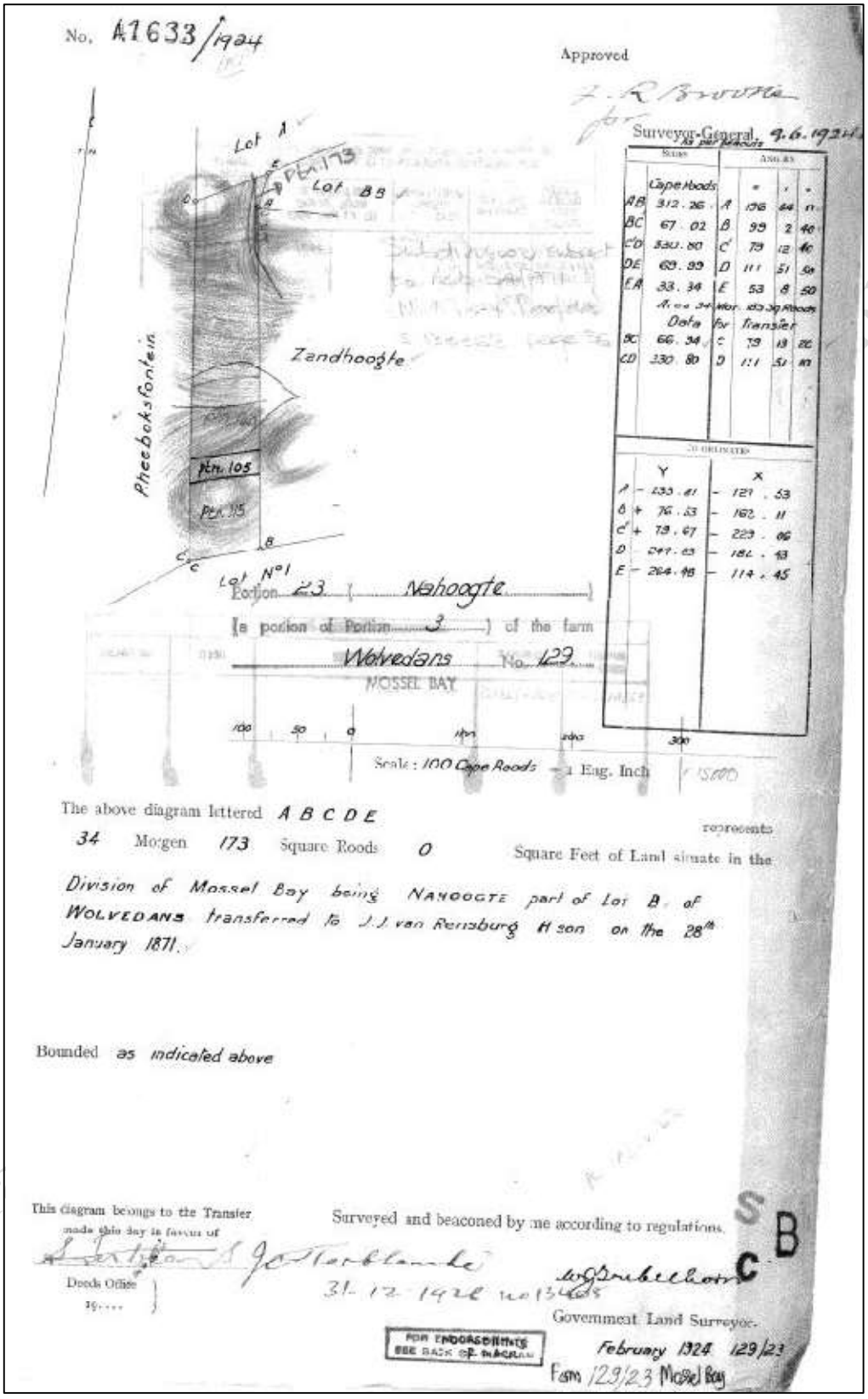


Figure 19. SG Diagram A1633/1924 showing the original extent and subdivision of Portion 23 (Nahoogte) of the Farm Wolwedans 129. Note that, apart from roads, no structures are indicated on the diagram. Diagram enlarged in Figure 20.

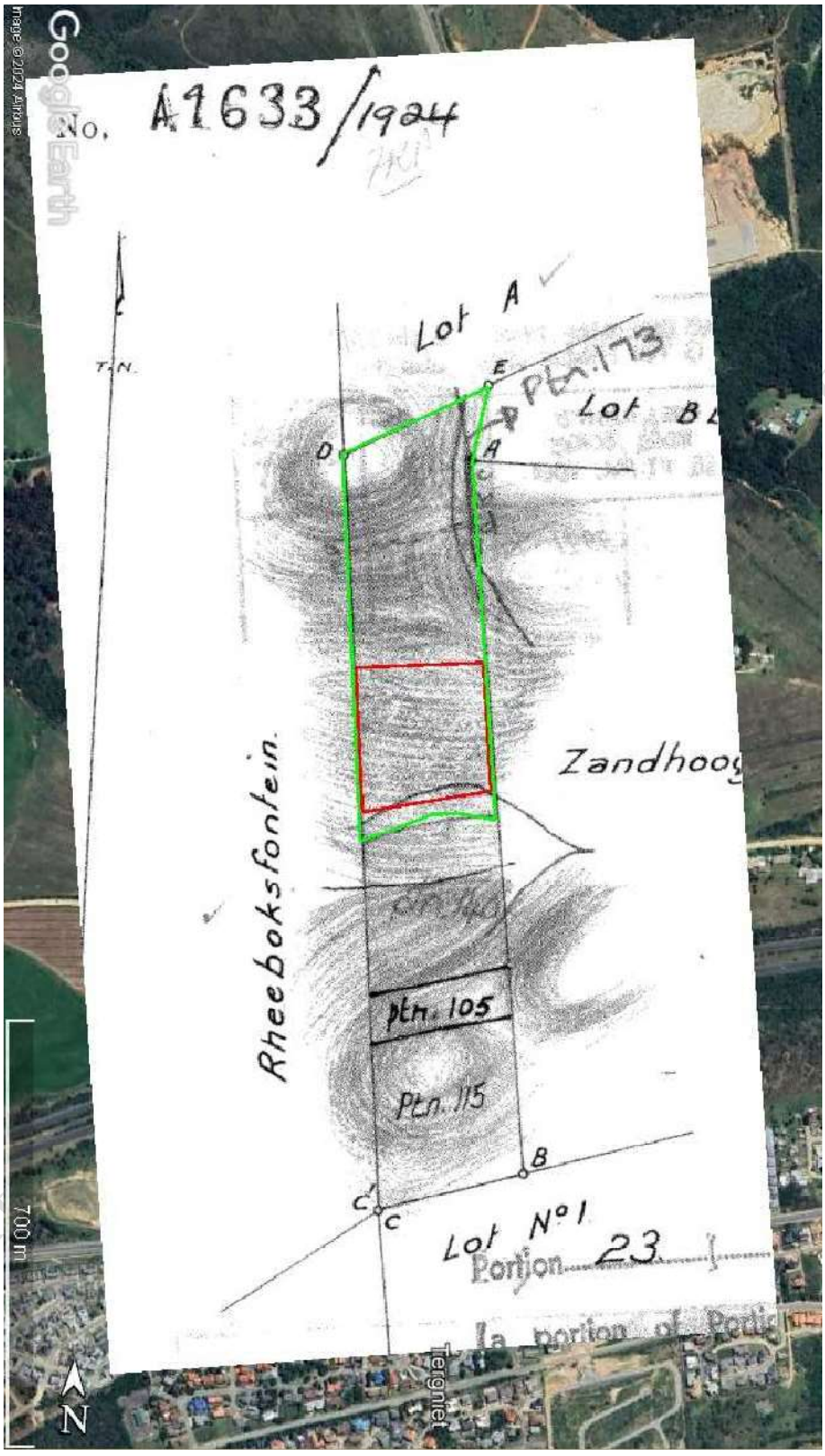


Figure 20. Enlarged portion of SG Diagram A1633/1924 showing the larger site (green polygon) and the development footprint (red polygon). Note various subdivisions, servitudes, and roads. Portion 140 is part of the Grootbrak WWTW and Portion 105 is the N2 road reserve. Superimposed with Google Earth.

All other available SG diagrams relating to 23/129, which are submitted with this NID application, represent deductions and servitudes, some of which are on the second page or back of SG Diagram A1633/1924 (Figure 21). The dates of deductions suggest that the property has been registered to and managed by the Mossel Bay Municipality since at least the mid 1970's when portion 105/129 was subdivided for the eventual construction of the N2 highway (Figure 21).

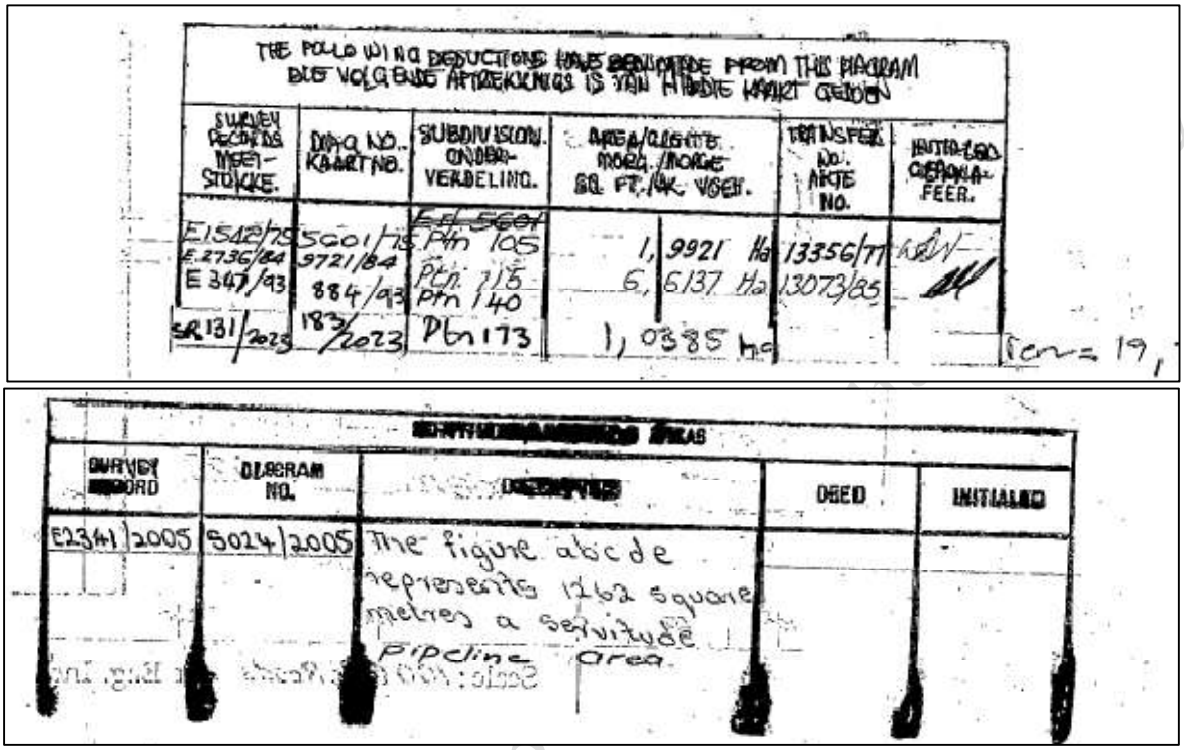


Figure 21. Back of or 2nd page of SG Diagram A1633/1924 showing subdivisions and some of the servitudes associated with 23/129.

It is clear from the early SG mapping and diagrams as well as the 1998 topographic map shown in Figure 2 that no colonial period structures of significance are directly associated with the affected portion of 23/129.

The historic aerial photographs shown in Figures 22 through 31 illustrate the overall development of the site and surroundings from 1939 to 2003. The earliest aerial photograph shows that the area was already cleared of indigenous vegetation for cultivation and for grazing of domestic stock, and that the road leading to Friemersheim as well as the Sandhoogte Road are already in place by 1939 (Figures 22 & 23). The Friemersheim road is also indicated in the SG mapping shown in Figures 18 and 20. It is likely that vegetation clearing for farming purposes would have started soon after the arrival of colonists in the early 1700s and by the time the early farms were first granted in the early to mid-1700s (Nilssen 2023a).

Several structures, roads and the railway line are in place in the surrounding landscape by 1939 (Figure 22). Pedestrian or single "vehicle" tracks are visible in the northern part of the site in the 1939 and 1957 photographs. Three possible "structures" are shown in the 1939 image (Figure 23), but only one of these is visible in the 1957 and 1963 photographs (Figures 24, 25 & 26). The latter structure was likely demolished by 1968, but certainly by 1974 (Figures 27 & 28). No structures or infrastructure of the colonial period occur within the proposed development footprint (Figures 23 & 25)

The overall development of the area shows that construction of the N2 was well underway by 1974 (Figure 28), that the Grootbrak WWTW was in place by 1998 (Figure 30), and that the earthen dam was built in the northern part of the larger study area by 2003, around the same time that earth works in the SW portion gave birth to the small artificial wetland shown in Figure 9 (Figure 31).

This basic historic overview and documents presented above and below show that no colonial period heritage resources of significance occur on or in the immediate vicinity of the affected portion of 23/129.

Figure 22. 1939 aerial photograph with larger study (green polygon) and development footprint (red). Area in green polygon enlarged in Figure 23. Superimposed with Google Earth.

Figure 23. Enlarged from Figure 22 showing larger study area with tracks and three possible "structures" (white ellipses) in 1939. Note cultivated fields and that there are no structures in the proposed development footprint.

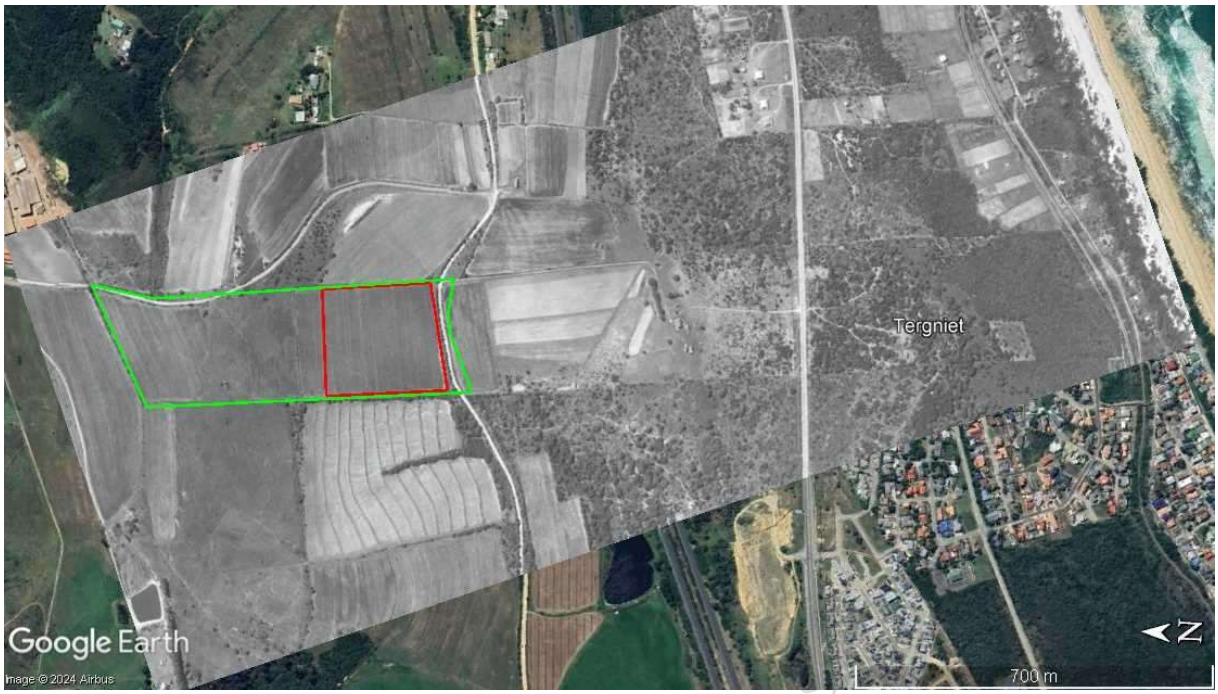


Figure 24. 1957 aerial photograph with larger study (green polygon) and development footprint (red). Area in green polygon enlarged in Figure 25. Superimposed with Google Earth.

Figure 25. Enlarged from Figure 24 showing larger study area with one possible “structure” (white ellipse) in 1957. Note enlarged cultivated fields and that there are no structures in the development footprint.

Figure 26. 1963 aerial photograph with larger study area (green polygon) and proposed development footprint (red polygon) superimposed via Google Earth. Beginnings of Municipal infrastructure NW of study area.

Figure 27. 1968 aerial photograph with larger study area (green polygon) and proposed development footprint (red polygon) superimposed via Google Earth. Note new road linking Sandhoogte Road with the R102.

Figure 28. 1974 aerial photograph with larger study area (green polygon) and proposed development footprint (red polygon) superimposed via Google Earth. Construction of N2 highway underway and Impala Road (Tergniet) in place.

Figure 29. 1991 aerial photograph with larger study area (green polygon) and proposed development footprint (red polygon) superimposed via Google Earth.

Figure 30. 1998 aerial photograph with larger study area (green polygon) and proposed development footprint (red polygon) superimposed via Google Earth. Grootbrak WWTW in pace.

Figure 31. 2003 aerial photograph with larger study area (green polygon) and proposed development footprint (red polygon) superimposed via Google Earth. Earthen dam in north in place.

After obtaining permission to access the site from the Mossel Bay Local Municipality, an independent site inspection of 23/129 was conducted on 11 April 2024 by means of a foot and vehicle survey that covered a representative portion of the proposed development footprint. Due to the transformed status of the site and dense vegetation cover, a more detailed foot survey is not warranted. Nevertheless, a representative sample of the area was covered and

inspected along a disused vehicle track as well as exposed surfaces. Archaeological visibility was poor, but adequate for the purpose of this baseline assessment. Examples of the studied area are shown above in Figures 5 through 12.

Survey tracks and observations were fixed with a handheld Garmin Etrex 30x GPS to record the investigated area (Figure 32). A high quality, comprehensive digital photographic record was made with a DooGee S86 mobile phone, including location data for photographs. All GPS and photographic data are available on request.

The property was examined with a focus on the potential impact of the proposed development on heritage related resources of both colonial and pre-colonial origin. Heritage resources listed in Section E of the NID application form were considered but are not listed here unless they are present on or in the immediate vicinity of the development footprint, or if they are anticipated to occur on or in the immediate vicinity of the property.

Due to the transformed nature of the study area, ongoing human-related activities, previous heritage-related studies in the surroundings, as well as a foot survey (archaeological walk-through) of the larger study area, proposed development footprint and exposed surfaces, adequate observations and information are available for input to the HWC NID application process.

Notwithstanding the transformed status of the site, the approach was:

- to evaluate the visual / aesthetic sensitivity of the study area from the scenic route of the N2 highway,
- to inspect the three areas for suspected “structures” as indicated in Figures 23 & 25, and
- to inspect the site and proposed development footprint to gain an understanding of its archaeological content and context by accessing a representative portion of the affected area.

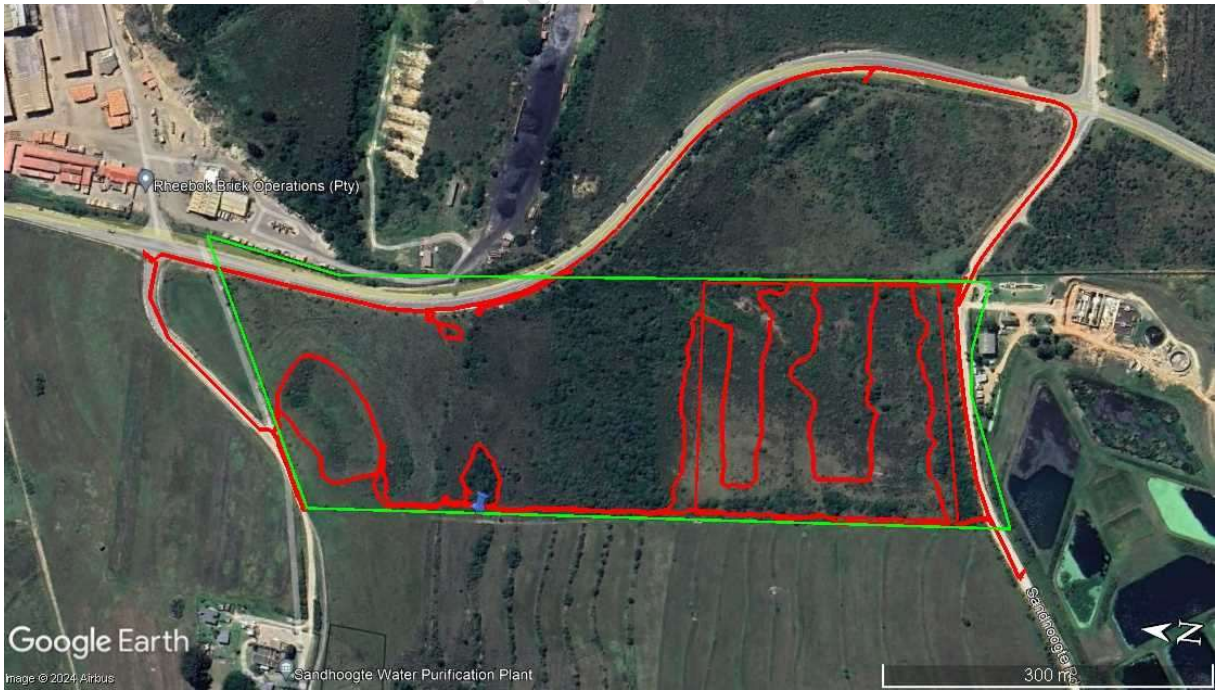


Figure 32: Study area (green & red polygons) with GPS-fixed survey tracks (wandering red lines). Blue marker denotes location of three Stone Age pieces shown in Figures 33 & 34. (A4 version below)

As is evident from the walk tracks in Figure 32, the three areas with suspected “structures” were inspected and no structures or artefactual materials were identified at these localities.

The earth dam, artificial wetland, overhead transmission lines (Figures 6, 7, 8 & 9), a manhole associated with bulk services traversing the site, as well as a small culvert are a few examples of modern impacts identified on the property (Figure 33).

Figure 33: Manhole (top) and small culvert (bottom) in northern portion of the larger site.

Three Stone Age pieces of indeterminate age were identified on exposed surfaces in the northern part of the larger study area (see blue marker in Figure 32 and Figures 34 & 35). These isolated pieces are like Stone Age materials recorded in the surrounding landscape (see the archaeology summary in Section 5 above). Due to their isolated nature, temporal mixing, and the absence of organic and other cultural remains, these finds are rated Not Conservation Worthy.

Figure 34: Context (top) of a few Stone Age pieces identified on an exposed surface with rounded gravels in the northern part of the site. Large Stone Age flake in quartz with flake scars of indeterminate age (bottom).

Figure 35: Large quartzite flake in quartzite with modified/flaked end of possible Early Stone Age origin, but patination suggests at least of Middle Stone Age origin (top). Flaked quartzite of indeterminate age (bottom).

Due to colonial period and more recent agricultural activities as well as several other recent human-related disturbances, the heritage context of the site is compromised. No colonial or pre-colonial period archaeological or heritage resources of significance were identified within the studied area or in its immediate vicinity. No fossil-bearing sediments were seen.

The study area is only distantly visible from the scenic route of the N2 highway when eastbound (Figure 5). The former natural and rural landscape is already transformed by existing developments and infrastructure. Being a field of solar panels, the proposed PV solar plant will have a relatively low vertical aspect and will be partially screened by topography, existing vegetation, and existing developments. Nevertheless, on heritage grounds, due to the transformed nature of the site and the absence of significant heritage resources or themes in and around the affected portion of 23/129, the proposed solar facility and battery energy storage system will have a negligible impact on the visual or aesthetic heritage value of the area.

Given the transformed context of the area, existing developments, and the absence of significant heritage and archaeological resources, the proposed activity will have negligible to no impact on the already altered cultural landscape and heritage value of the area. For the same reason there will be negligible to no cumulative impact on the heritage value of the area.

7. Conclusions and Recommendations

The following conclusions and recommendations are arrived at after reviewing information obtained through:

- previous archaeological and heritage related studies in the surrounding area,
- SAHRIS PalaeoSensitivity map and inputs from palaeontologist Prof John Pether,
- SG Diagrams,
- historic and Google Earth aerial photographs, and
- a site inspection (archaeological walk-through).

The SAHRIS PalaeoSensitivity map shows that the study area is shaded red, meaning that palaeontological sensitivity is VERY HIGH and that “field assessment and protocol for finds is required”. Consequently, palaeontologist, Prof John Pether was commissioned for inputs.

Prof Pether concludes as follows “The Kirkwood Fm. beneath the site is covered by colluvium and previously-ploughed windblown sands. The construction of the SEF and associated infrastructure will mainly affect these surficial deposits which are of LOW fossil potential. A lateritic soil is developed in the underlying Kirkwood Fm. which is unfavourable for the preservation of unpetrified fossil material. A significant impact on the palaeontological resources of the Kirkwood Formation and surficial coversands, due to construction of the SEF and BESS, is not anticipated and additional palaeontological investigation is not required” (Pether 2024, Pg. 4).

“Just in case petrified fossil wood is unearthed in the shallow trenches made for the SEF cabling, an alert for the uncovering of fossil wood must be included in the Environmental Management Plan (EMP). A collection must be made of the finds of fossil wood, for later deposition at a museum, together with information of the find location. The fossil wood must be handed into the custody of the Environmental Control Officer (ECO) and/or the site manager, who must ensure its interim safe storage. On the completion of Construction Phase earthmoving activities, the fossil wood collection must be conveyed to a curatorial institution.

The Albany Museum in Grahamstown (www.am.org.za) is an appropriate repository where palaeobotanist Dr Rosemary Prevec studies and curates the fossil plant collections, including Cretaceous plant fossils. A Collections Agreement exists with the Palaeosciences Centre, University of the Witwatersrand (Dr Marion Bamford), for petrified fossil wood specimens collected from the Maandagskop Quarry on Portion 12 of Farm Hartenbosch 217. As collaborating palaeobotanists Drs Bamford and Prevec must be consulted about the preferred repository for fossil wood specimens from the SEF site" (Pether 2024, Pg. 4).

The larger site and development footprint are significantly transformed through agricultural activities during colonial and recent times, construction of an earth dam in the northern part of the property, as well as earthmoving activities in the southern extent of the site. No colonial or pre-colonial heritage resources of significance were identified in the study area. A few Stone Age implements identified near the earth dam are Not Conservation Worthy. If present in buried sediments, then Stone Age implements are expected to be of low significance and Not Conservation Worthy. No caves or rock shelters occur on site or in the immediate surroundings. No heritage resources in the surroundings will be impacted by the proposed activity.

Because there are no significant heritage resources associated with the development footprint, it does not meaningfully contribute to the already altered cultural landscape of the area. For the same reason there will be negligible to no cumulative impact on the heritage value of the area.

Being a field of solar panels, the proposed PV solar plant will have a relatively low vertical aspect and will be partially screened by topography, existing vegetation, and developments. Nevertheless, on heritage grounds, due to the transformed nature of the site and the absence of heritage resources or themes in and around Portion 23 of Wolwedans 129, the proposed solar facility and battery energy storage system will have a negligible to zero impact on the visual or aesthetic heritage value of the area. The former rural landscape is already transformed by roads, the Grootbrak WWTW, and bulk services infrastructure. Consequently, the proposed solar plant will have negligible visual impact on the aesthetic value of the area.

The positive socio-economic impact, including short-, medium- and long-term jobs as well as the urgent need for increasing the supply of electricity outweigh the negligible to zero negative impacts this project may have on heritage resources.

Because of the above, and because there is no reason to believe that significant heritage resources will be impacted by the proposed activity, it is recommended that the proposed activity be approved in full, and that a Heritage Impact Assessment is not warranted for the project.

Nevertheless, it is recommended that Heritage Western Cape consider and/or require that the following be included in the Environmental Authorisation / Environmental Management Program, if the project is approved:

- although not requiring further Palaeontological investigation, an alert for the uncovering of fossil wood must be included in the Environmental Authorisation and/or the Environmental Management Program (EMP) for the construction phase of project,
- due to the disturbed and transformed nature of the site, as well as the findings of this and previous archaeological studies, archaeological monitoring is NOT recommended, but,
- if any human remains or significant archaeological materials are exposed during construction activities, then the find should be protected from further disturbance and

work in the immediate area should be halted and Heritage Western Cape must be notified immediately. These heritage resources are protected by Section 36(3)(a) and Section 35(4) of the NHRA (Act 25 of 1999) respectively and may not be damaged or disturbed in any way without a permit from the heritage authorities. Any work in mitigation, if deemed appropriate, should be commissioned, and completed before construction continues in the affected area and will be at the expense of the developer.

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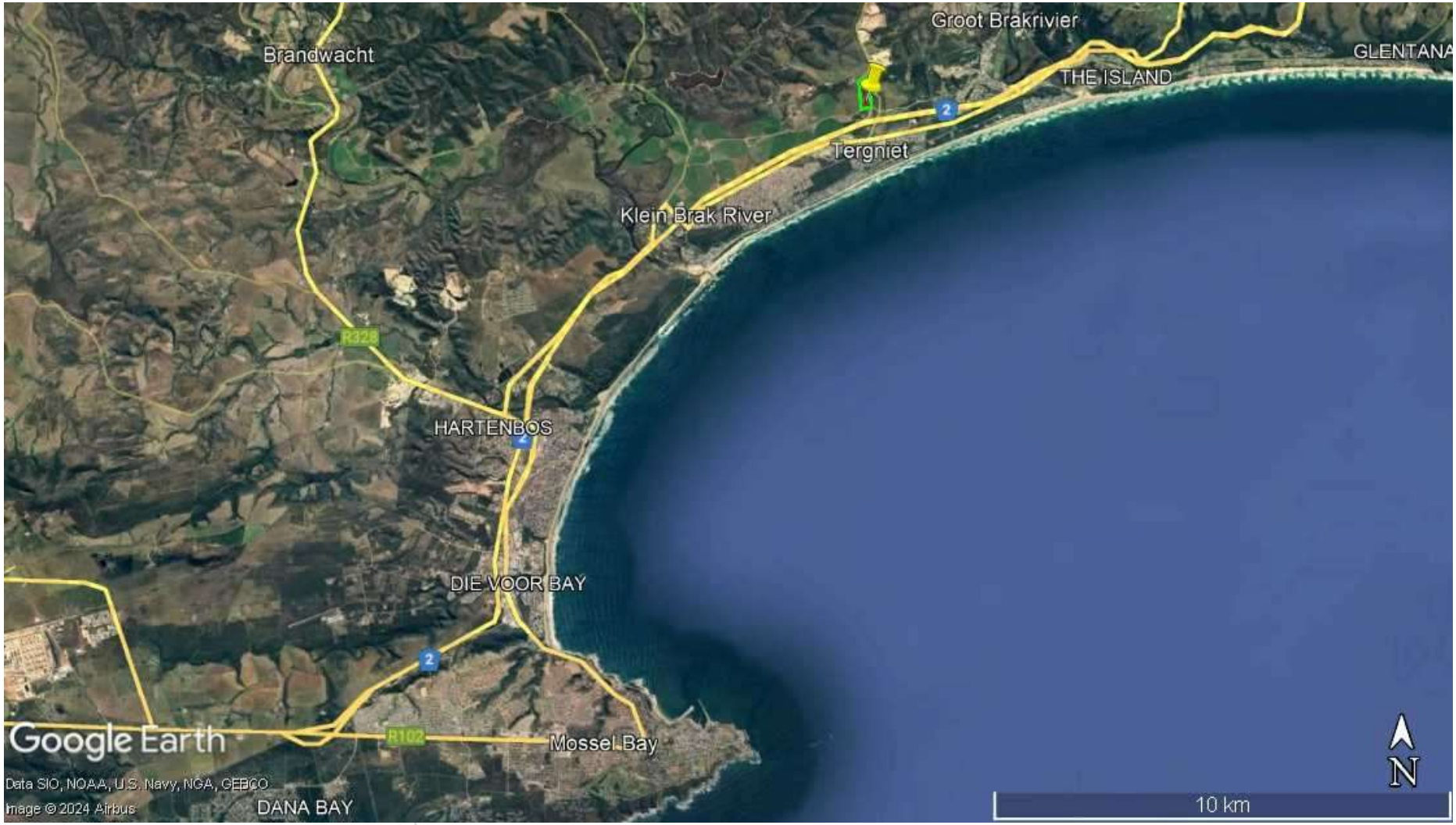

Figure 1. Enlarged from Locality Map showing 23/129 (yellow marker and green polygon) relative to and Mossel Bay, Tergniet and Grootbrakrivier, Western Cape. Courtesy of Google Earth 2024.

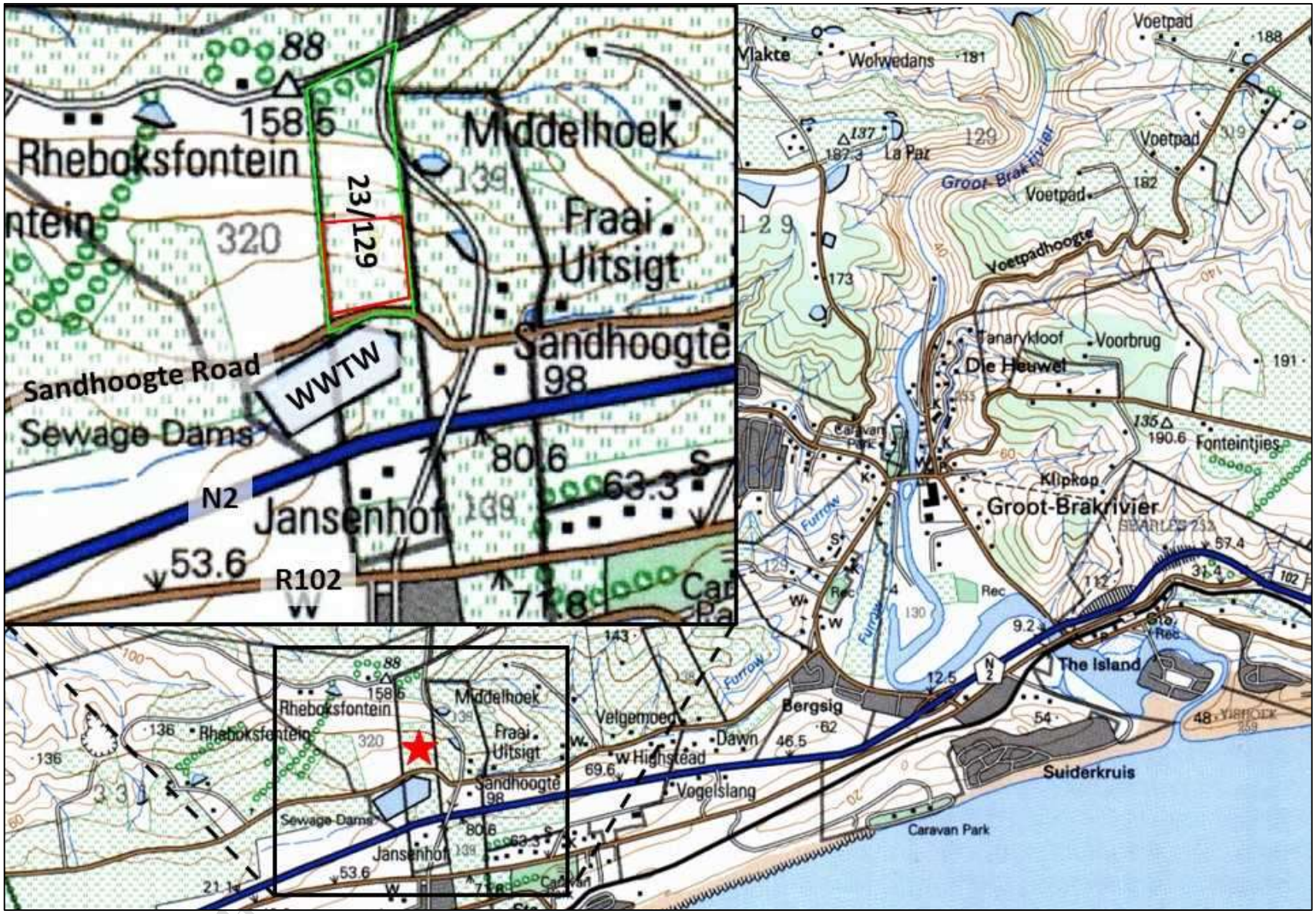

Figure 2. Enlarged portion of 1:50 000 topographic map 3422 AA 1998 Mossel Bay showing 23/129 (red star and green/red polygons in inset) relative to Grootbrak WWTW and Sandhoogte Road. Red polygon represents the proposed development footprint. No structures are indicated in the study area. Courtesy of the Chief Directorate Surveys and Mapping, Mowbray and Google Earth 2024.

Figure 3. Enlarged from Figure 1 showing 23/129 (green polygon) with existing developments, surroundings properties, and roads. Courtesy of Cape Farm Mapper.

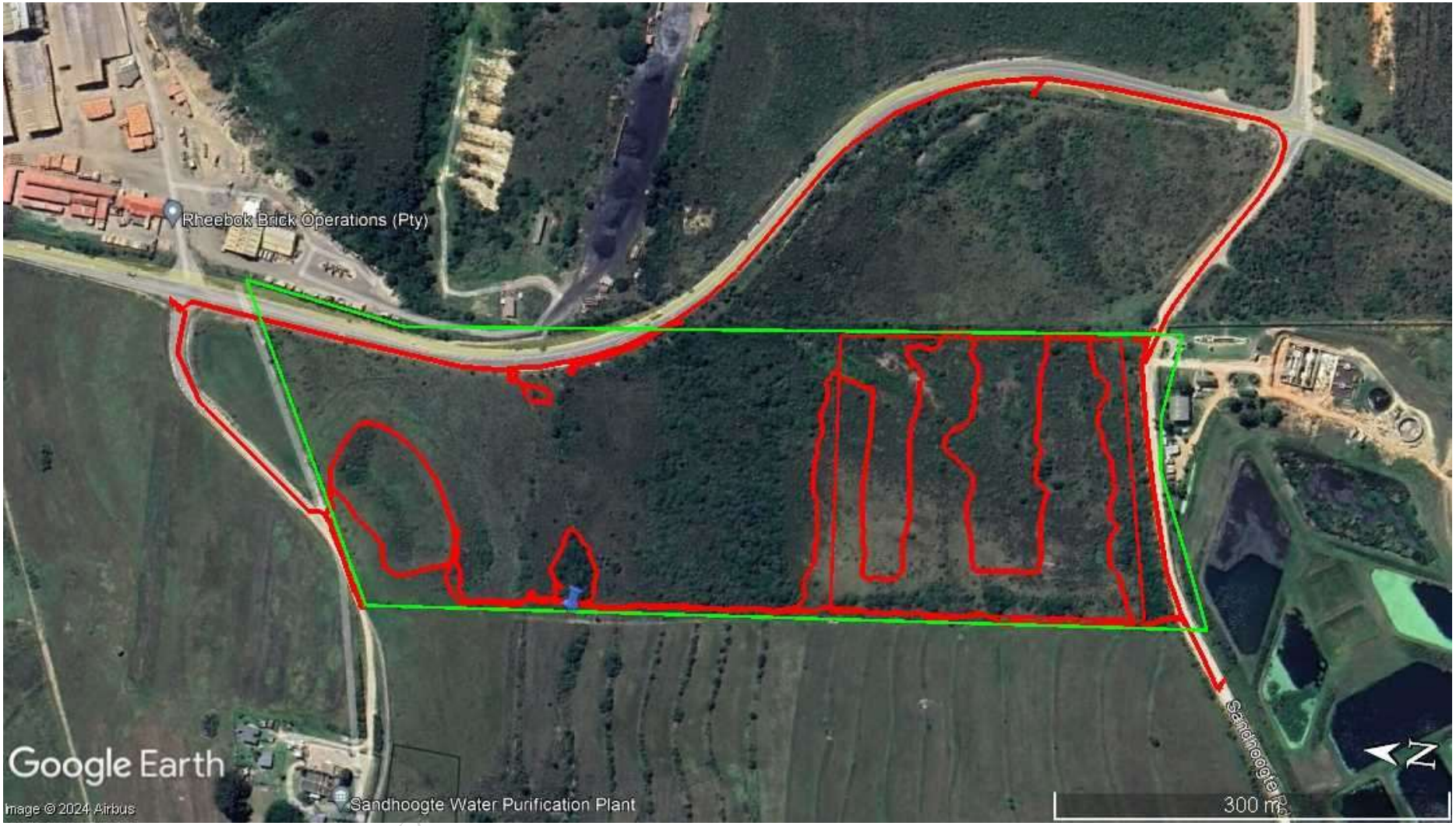

Figure 32: Study area (green & red polygons) with GPS-fixed survey tracks (wandering red lines). Blue marker denotes location of three Stone Age pieces shown in Figures 33 & 34.