

**ARCHAEOLOGICAL IMPACT ASSESSMENT
PROPOSED SECOND HIKING ROUTE ON THE
WHALE TRAIL
DE HOOP NATURE RESERVE**

Prepared for

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Executive summary

Introduction

CCA Environmental (Pty) Ltd requested that the Agency for Cultural Resource Management conduct an archaeological impact assessment for a second hiking route on the Whale Trail in the De Hoop Nature Reserve, in the Western Cape.

The proposed project comprises the development of an upmarket, 3-day guided hiking trail in the eastern sector of the De Hoop Nature Reserve, including the construction of three fully serviced overnight accommodation units and a new visitor facility. Associated infrastructure planning includes construction and upgrading of new and existing access roads.

The proposed development entails the following:

- A hiking trail starting near the eastern most point of the reserve at Witklippunt and ending at Hammerkop in the west.
- Three fully-serviced overnight points at Mosselbank, Bloukrans and Hammerkop. The Mosselbank and Bloukrans sites are previously disturbed areas with existing (but no longer used) structures. The proposed Hammerkop site is a 'greenfields' area.
- A service centre at the Sandhoogte entrance where hikers would be received and staff would be accommodated.
- Smaller trail networks around each of the proposed overnight points, including trail networks at Lekkerwater and at Witwater.
- The existing self-catering house at Lekkerwater would be upgraded as part of the project, but does not form an integral part of the proposed new trail.
- Existing roads and tracks within the reserve would be upgraded to improve access to the overnight facilities for staff and servicing. Existing roads would be realigned to avoid sensitive areas and 3-4 kms of new roads will be constructed
- Water would be supplied by new boreholes. Solar power would be utilised and on-site waste water treatment is envisaged.

Findings

- Numerous archaeological sites were documented along a chosen route between Witklippunt and Hammerkop. Archaeological heritage remains were also documented at the overnight points at Mosselbank and Bloukrans. Most of remains, however, comprise fairly marginal scatters of stone tools and shellfish, but several large and fairly well-preserved sites were also recorded.
- A large number of limestone and sandstone caves were recorded along the route, including the massive shelter at Bloukransrots with its impressive underground chamber of stalagmites and stalactites.

- No archaeological remains were located at the proposed overnight point at Hammerkop, nor at Lekkerwater.
- No archaeological remains were located during an assessment of the proposed and existing access roads.
- No archaeological remains were located during an assessment of the proposed trail networks.

Assessment

The impacts of the proposed project on archaeological sites are presented in the table below.

The impact of the proposed second hiking route on the Whale Trail in the De Hoop Nature Reserve, on archaeological heritage sites, is likely to be low to negligible.

There are no important or highly threatened sites that will be directly or negatively impact by the proposed project.

The significance of the archaeological impacts (with and without mitigation) is likely to be low to negligible.

With effective management actions in place, negative impacts can be minimised and positive impacts enhanced.

Sites	Extent	Duration	Intensity	Probability	Confidence	Significance	
						Without mitigation	With mitigation
WT 1	Local	Permanent	Low	Probable	High	Low	Low
WT 2	Local	Permanent	Low	Probable	High	Low	Low
WT 3	Local	Permanent	Low	Probable	High	Low	Low
WT 4	Local	Permanent	Low	Probable	High	Low	Low
WT 5	Local	Permanent	Low	Probable	High	Low	Low
WT 6	Local	Permanent	Low	Probable	High	Low	Low
WT 7	Local	Permanent	Low	Probable	High	Low	Low
WT 8	Local	Permanent	Low	Probable	High	Low	Low
WT 9	Local	Permanent	Low	Probable	High	Low	Low
WT 10	Local	Permanent	Low	Probable	High	Low	Low
WT 11	Local	Permanent	Low	Probable	High	Low	Low
WT 12	Local	Permanent	Low	Probable	High	Low	Low
WT 13	Local	Permanent	Low	Probable	High	Low	Low
WT 14	Local	Permanent	Low	Probable	High	Low	Low
WT 15	Local	Permanent	Low	Probable	High	Low	Low
WT 16	Local	Permanent	Low	Probable	High	Low	Low
WT 17	Local	Permanent	Low	Probable	High	Low	Low
WT 18	Local	Permanent	Low	Probable	High	Low	Low
WT 19	Local	Permanent	Low	Probable	High	Low	Low
WT 20	Local	Permanent	Low	Probable	High	Low	Low

No significant archaeological impacts are likely to occur during the proposed construction and upgrading of new and existing access roads, as these activities are located in less sensitive and threatened areas.

No significant archaeological impact are likely to occur during the proposed, development of smaller trail networks around each of the proposed overnight facilities, and the existing facility at Lekkerwater, and at Witwater, as these activities are located in less sensitive and threatened areas.

No significant archaeological impacts are likely to occur during the proposed construction of a water supply pipeline, from boreholes, to the proposed overnight points at Bloukrans, Mosselbank and Hammerkop. Important vertebrate (fossil) remains may however, be exposed should excavations penetrate underlying calcrete and limestone deposits

Unmarked human burials may be uncovered or exposed during bulk earthworks and excavations for the proposed overnight facility at Hammerkop, as well as during upgrading and expansion of the existing facility at Lekkerwater and Witklippunt.

There are exciting educational opportunities for integrating the pre-colonial archaeological history of the study area, with the guided component of the hiking trail. There are also numerous accounts and records of historic shipwrecks in the study area and this information can also be included in guide training.

The archaeological heritage component will 'add value' to the proposed development and contribute to enhancing the overall visitor experience.

Recommendations

With regard to the proposed development of a second hiking route on the Whale Trail in the De Hoop Nature Reserve, the following recommendations are made:

- An Archaeological Heritage Management Plan (HMP) must be implemented as part of the Environmental Management Plan for the proposed project. At its core is guide training and education.
- No mitigation of archaeological deposits is required prior to the proposed development proceeding. It is very possible that the archaeological impacts arising from the proposed development can be effectively managed and minimised. For example, raised boardwalks should be constructed to a proposed viewing deck overlooking the penguin colony at Witklippunt.
- The archaeologist must be consulted in the detailed final planning of the proposed hiking route. It is important to consider that the proposed final route may deviate from the route followed by the archaeologist during the current study. Some sections of the trail are considered quite arduous and dangerous and CapeNature may prefer a route that is less strenuous for the average hiker. The archaeological impacts of a new trail layout would therefore need to be considered. Therefore, the final, pegged-out route of the trail must be assessed by the archaeologist.
- Although the overall impact on archaeological remains is considered to be low to negligible, care must be taken to avoid sensitive sites when developing the hiking route.

- With regards to the proposed construction of an overnight facility at Hammerkop and the proposed upgrading of the existing facilities at Lekkerwater and Witklippunt, bulk earthworks and excavations must be monitored by a professional archaeologist during the construction phase of the project. Should any archaeological deposits be exposed during these operations, test sampling (and possibly) systematic archaeological excavations may be required.
- Alternatively, monitoring of bulk earthworks can be carried out by an Environmental Control Officer (ECO), subject to training by a professional archaeologist and approval by Heritage Western Cape.
- Should any unmarked human remains be disturbed, exposed or uncovered during excavations for the proposed project, these should immediately be reported to the South African Heritage Resources Agency (Mrs Mary Leslie (021) 462 4502). Burial remains should not be disturbed or removed until inspected by the archaeologist.
- Should any fossils be exposed or uncovered during excavations for underground water pipelines, these should immediately be reported to Heritage Western Cape (Att: Mr Calvin van Wyk (021) 483 9685).
- Finally, the proposed project presents exciting opportunities to develop the areas rich archaeological heritage and to enhance the overall visitor experience of the trail. These opportunities should be thoroughly explored.

1. INTRODUCTION

CCA Environmental (Pty) Ltd, on behalf of CapeNature requested that the Agency for Cultural Resource Management conduct an archaeological impact assessment for a second hiking route on the Whale Trail in the De Hoop Nature Reserve, in the Western Cape.

Archaeological scoping of the proposed project was undertaken in 2006 (Kaplan 2006).

The proposed project comprises the development of an upmarket, 3-day guided hiking trail in the eastern sector of the De Hoop Nature Reserve, including the construction of fully serviced overnight accommodation units and a new visitor facility.

Associated infrastructure planning includes construction and upgrading of new and existing access roads.

The main purpose of the proposed project would be to generate additional revenue for conservation. Secondary goals of the proposed project include job creation, community development and public access.

The eastern sector of the De Hoop Nature Reserve is state-owned land currently used by industrial group Denel as part of a missile and aviation system testing facility.

The proposed development entails the following:

- A hiking trail starting near the eastern most point of the reserve at Witklippunt and ending at Hammerkop in the west.
- Three fully-serviced overnight points at Mosselbank, Bloukrans and Hammerkop. The Mosselbank and Bloukrans sites are previously disturbed areas with existing (but no longer used) structures. The proposed Hammerkop site is a 'greenfields' area about 500 m to the east of the existing Hammerkop overnight facility. It is anticipated that each of the proposed overnight facilities will have a development footprint of about 285 m².
- A service centre at the Sandhoogte entrance where hikers would be received and staff would be accommodated.
- The existing self-catering house at Lekkerwater would be upgraded as part of the project, but does not form an integral part of the proposed new trail.
- Smaller trail networks around each of the proposed overnight points, including a trail network around the existing facility at Lekkerwater.
- Existing roads and tracks within the reserve would be upgraded to improve access to the overnight facilities for staff and servicing. Existing roads would be realigned to avoid sensitive areas and 3-4 kms of new roads will be constructed
- Water would be supplied by new boreholes. Solar power would be utilised and on-site waste water treatment is envisaged.

2. TERMS OF REFERENCE

The terms of reference for the archaeological study were to:

- Provide a description of the archaeology of the study area and identify sites of archaeological or cultural significance at the overnight and service hub locations and along the proposed trail route;
- Provide a conservation importance rating of any sites of archaeological or cultural significance and assess the significance of any impacts resulting from the proposed development (with and without mitigation);
- Recommend practicable mitigation measures to reduce any negative impacts and enhance any positive impacts associated with the proposed project, and
- Provide guidance for the requirement of any permits from Heritage Western Cape and/or South African Heritage Resources Agency that might become necessary.

3. THE STUDY AREA

De Hoop Nature Reserve is located in the Overberg region of the Western Cape, approximately 260 kms east of Cape Town (Figures 1).

A more detailed locality map of the study area is illustrated in Figure 2 and 3.

An aerial photograph of the study site and the proposed hiking trail, overnight facilities and infrastructure, is illustrated in Figure 4.

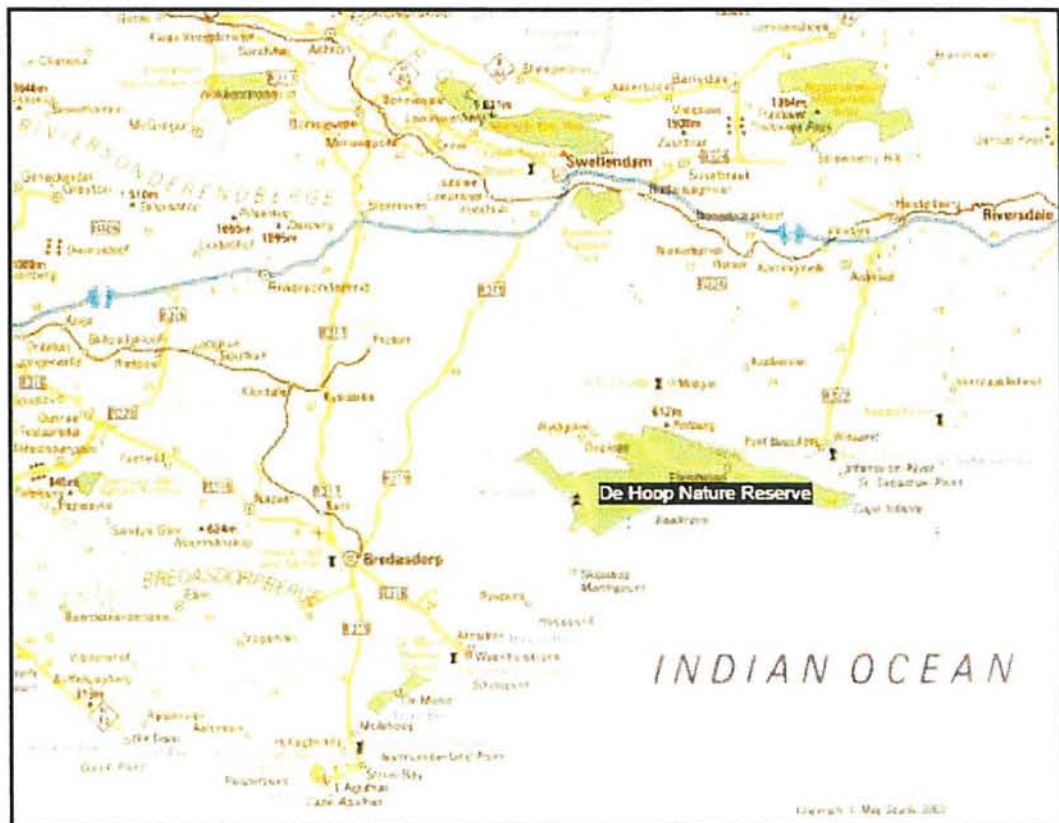


Figure 1. Map showing the location of De Hoop Nature Reserve

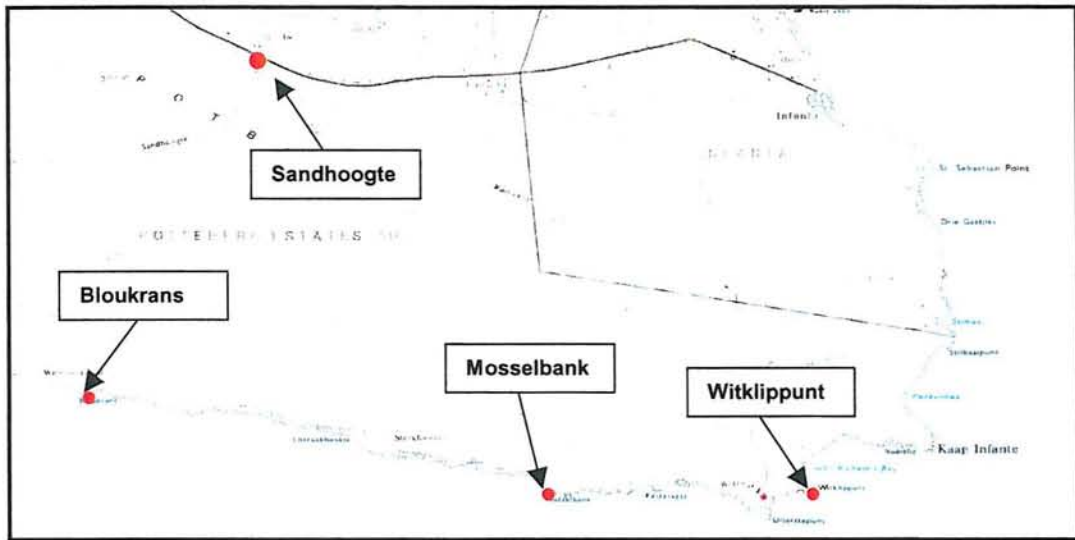


Figure 2. Locality Map (3420 BD Kaap Infanta).

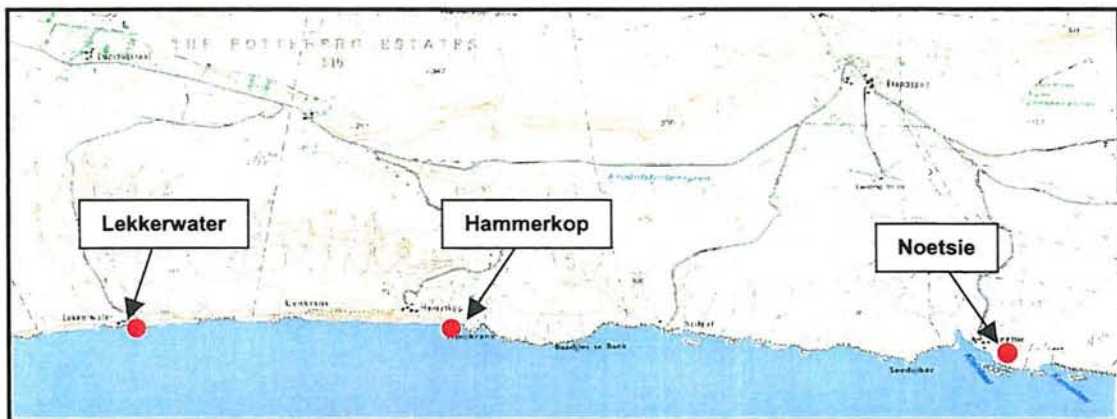


Figure 3. Locality Map (3420 BC Malgas).

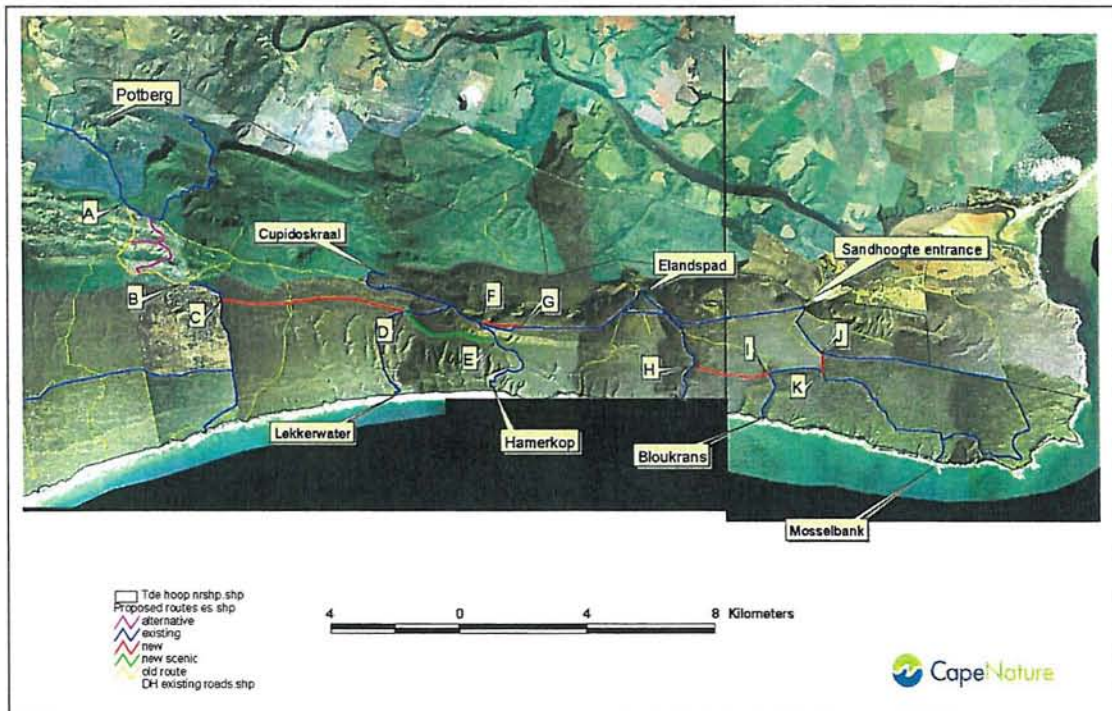


Figure 4. Whale Trail2: Proposed layout of existing and proposed roads, trails, overnight facilities and service hub.

4. STUDY APPROACH

4.1 Method of survey

A route between Witklippunt and Hammerkop was walked, a distance of about 25 kms. The route was not planned before-hand, and followed where possible, already existing footpaths and small informal tracks.

The receiving environment is characterised by steep limestone and sandstone cliffs, and smaller bays and coves, along a very rugged coastline. Except for the area around Hammerkop, and at Witwatermond near Bloukrans, there are no sandy beaches along the route.

The route from Noetsie to Hammerkop (about 6 kms) is part of the existing whale trail route.

A detailed archaeological assessment of the chosen route and a detailed assessment of each of the proposed overnight facilities were carried out.

A detailed assessment of the proposed pick-up and refreshment station at Witklippunt was also carried out.

An assessment of the proposed visitor hub at Sandhoogte was undertaken.

An assessment of the existing facility at Lekkerwater was undertaken.

An assessment of the proposed trail networks was undertaken.

An assessment of the proposed and existing access roads was also undertaken.

The assessment took place on the 18th, 19th and 20th September, 2007.

Archaeological occurrences were recorded and given a co-ordinate using a Garmin Gecko 201 GPS set on map datum wgs 84.

A desktop study was also undertaken.

The archaeologist consulted with archaeologist Dr Chris Henshilwood in 2006, who is currently involved in research in the western sector of the De Hoop Nature Reserve.

Dr Graham Avery of Iziko: SA Museum was also consulted with regard to possible palaeontological impacts arising out of the proposed project.

4.2 Assumptions

The study site is located within a known archaeologically sensitive area (see for example Kaplan 1993, 2006; Rudner 1968, Henshilwood pers. comm. 2006).

The assessment therefore assumes that:

- Damage to heritage resources potentially will occur in the proposed development.

4.3 Constraints and limitations

Most of the receiving environment behind the steep coastal cliffs is covered with thick coastal Fynbos vegetation as well as being infested with alien vegetation, resulting in extremely difficult access and poor archaeological visibility.

4.4 Results of the desktop study

Research has shown that the majority of coastal sites in South Africa are located within 300 m of the shoreline (Kaplan 1993). As development spreads in these areas, archaeological sites have come under increasing threat and many sites have already been destroyed completely. Planning for the coastal zone must therefore take account of this rich archaeological heritage. The rocky and sandy shoreline at De Hoop was clearly very attractive to Stone Age hunter-gatherers, who harvested the abundant marine resources. Shellfish was stripped from rocks and meat was either cooked in pots or on open fires, but there is also evidence to suggest that meat was dried and smoked. Other marine resources exploited included sea birds, fish, crayfish, seal, dolphin, and even occasionally whales.

More than 22 archaeological sites have been documented in the De Hoop Nature Reserve, mostly in the western sector, between Koppie Alleen and Wyoming (Kaplan 1993; Rudner 1968). However, according to Dr Chris Henshilwood (pers. comm. 2006), recent surveys undertaken in the western sector of the reserve have documented many more (previously unknown) archaeological sites. Archaeological excavations at Vaalkrans, under the supervision of Dr Henshilwood, are also ongoing.

Archaeological scoping in 2006 identified and noted a relatively high number of sites, including scatters of shellfish and stone artefacts, as well as several well-preserved shell middens and coastal caves (Kaplan 2006).

Until the current study was undertaken, the eastern sector of De Hoop Nature Reserve had not been surveyed in detail.

According to Dr Graham Avery (Iziko: SA Museum, pers. comm., 2007) parts of a hippo mandible/maxilla were found in the weathered side of a path high on the existing whale trail near Koppie Allen. Erosion, caused by human traffic, in the side of the path had exposed the teeth. Dr Avery is of the opinion that similar finds may likely occur in the calcrete deposits and be individual or, more obviously, in the form of larger concentrations like hyena accumulations. In each case they provide information on the more ancient faunas of the area and the material should be carefully recorded and retained as display specimens. Where there are shelters or tunnels into the calcrete, hyenas and/or people might have utilised them.

5. IDENTIFICATION OF POTENTIAL RISKS

- Unless properly managed, the development of a proposed second hiking route on the whale trail (with the resulting increase in the number of visitors to the area) may impact negatively on archaeological heritage remains.
- Unless properly managed, the proposed construction of an overnight facility at Mosselbank may impact negatively on archaeological heritage remains in the surrounding area.

- The proposed construction of an overnight facility at Hammerkop may uncover or expose unmarked human burials and buried shell middens.
- The proposed development of a refreshment facility at Witklippunt may uncover or expose human burials and buried shell middens
- The proposed upgrading and expansion of the building footprint at Lekkerwater may also uncover or expose human burials and buried shell middens

6. OPPORTUNITIES

The presence of a rich archaeological heritage in the study area presents exciting opportunities for integrating heritage information with the guided component of the proposed project. There are many options that can be explored. For example:

- Archaeological points of interest can be established along the proposed hiking route.
- The large and impressive domed shelter at Bloukransrots near Bloukrans, with its deep chamber filled with stalagmites and stalactites can also be developed as an exciting visitor interest site.
- A number of historical shipwrecks occur in the study area (Jonathan Sharfman, SAHRA pers. comm.). These include wrecks dating back to the late 1600's, as well as more recent wrecks dating to the Second World War.

The above will contribute to the overall visitor experience of the proposed project. Positive educational spin-offs also include greater awareness of the sensitive and fragile nature of the regions rich archaeological heritage.

7. LEGISLATIVE REQUIREMENTS

The following section provides a brief overview of the relevant legislation with regard to the archaeology of the proposed site.

7.1 The National Heritage Resources Act (Act No. 25 of 1999)

The National Heritage Resources (NHR) Act requires that the construction of a road, pipeline or other similar form of linear development exceeding 300 m in length, or any development or other activity which will change the character of a site exceeding 5 000m², or the rezoning or change of land use of a site exceeding 10 000 m², requires an archaeological impact assessment in terms of the National Heritage Resources Act (No. 25 of 1999).

The relevant sections of the Act are briefly outlined below.

7.1 Structures (Section 34 (1))

No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the South African Heritage Resources Agency (SAHRA), or Heritage Western Cape.

8.1 Whale Trail 2

It is important note that the proposed Whale Trail 2 will be guided **at all** times. Visitor numbers will be also be strictly limited. Most important, the trail will be bush-cut and will be less than a metre wide. No physical construction will take place.

At least 20 coherent archaeological sites were documented between Witklippunt and Hammerkop. Numerous displaced and ephemeral scatters of shellfish and stone tools were also encountered, but these were not assigned GPS readings. Many caves were also noted along the route, some of which have been documented. Most of the caves were, however, not formally documented, mainly because the majority of them were either inaccessible or very difficult to get too.

WT 1 (S 34° 28' 182" E 20° 51' 059")

Relatively well-preserved shell midden deposits occur on soft, vegetated south facing dunes, and in the existing footpath, all the way from Witklippunt, till just before the lighthouse. Most of the scatters are fairly marginal and dispersed (Figure 6), but there are places where the shell deposits are more substantial and in-tact (Figure 7). Some disturbance, probably caused by trampling and grazing, has also occurred in places. The shellfish is dominated by Turbo sarmaticus, Operculum, limpets including S. argenvillei, S. cochlear, S. longicosta, and Haliotis (Perlemoen).

Only a small numbers of lithics were noted. These include mainly quartzite chunks, flakes and some broken/flaked quartzite cobbles. The quartzite is readily available from the rocky shoreline.



Figure 6. Whale Trail 2. WT 1. Note the shellfish in the open spaces



Figure 7. Whale Trail 2. WT 1. Note the shellfish on the south facing slopes

WT 2 (S 34° 28' 107" E 20° 50' 203")

A hearth was documented in the existing footpath above the steep coastal cliffs about 250 m west of the lighthouse (Figure 8). The small feature comprises a partial circle of burnt calcrete. A few pieces of dispersed shellfish occur in the footpath, while several small pieces of charcoal and some ash were found within the feature. Some scattered bits of shellfish were also noted in a cutting/slump on a dune slope a few meters from footpath.



Figure 8. Whale Trail 2. WT 2. Scale is in cm

WT 3 (S 34° 28' 140" E 20° 50' 005")

Relatively large numbers of weathered and bleached shellfish occurs on a flat limestone ridge above the steep coastal cliffs near Keizersgat (Figure 9). Much of the shellfish is fragmented, but many large, whole pieces of shell were also documented. The weathered shell (some covered in lichen) suggests that the material is quite old. The shellfish is dominated by limpets including S. longicosta, S. cochlear and S. argenvillei. Some Turbo sarmaticus and Operculum also occurs. Marginal numbers of stone tools were found including mainly quartzite flakes and chunks. A series of limestone caves are also situated below the steep cliffs (Figure 10). They are all overlain by a thick layer of yellow wind blown sands.



Figure 9. Whale Trail 2. WT 3



Figure 10. Whale Trail 2. Caves below WT 3

WT 4 (S 34° 28' 123" E 20° 49' 864")

A thin scatter of weathered and lichen-covered shellfish, including both whole shell and fragments, were located on a flat limestone ledge above the high coastal cliffs near Keizersgat. The shellfish is dominated by S. cochlear, S. argenvillei and S. longicosta, while some Turbo sarmaticus and Operculum were also noted. Interestingly, several Early Stone Age (ESA) flake tools were also found. Most of the stone is in quartzite, but at least one Later Stone Age (LSA) silcrete flake and two quartz flakes was also found. One partially ground, lower grindstone was also documented (Figure 11).

WT 5 (S 34° 28' 214" E 20° 49' 451")

A relatively large amount of shellfish and a few stone tools were located on the flat vegetated dunes alongside the existing footpath, as well as in the small footpath along the cliff edge, about half a kilometre west of Keizersgat (Figure 12). The coastline starts to flatten out a bit at this point and is not too steep and precarious. The shellfish is dominated by S. cochlear, S. argenvillei and S. longicosta, with some Turbo sarmaticus also occurring. Several large quartzite flakes, chunks and flaked/broken cobbles, as well as a few quartz chunks and flakes were found.



Figure 11. Whale Trail 2. WT 4. Note the grindstone in the foreground of the plate



Figure 12. Whale Trail 2. WT 5

WT 6 (S 34° 28' 155" E 20° 49' 100")

Large amounts of crushed and fragmented shellfish occur on the grassy slopes and steep grass banks alongside the rugged shoreline at Mosselbank (Figure 13). Much of the shellfish is in-situ. Shellfish is also visible in several footpaths in the surrounding area. Fragmented and crushed shellfish is visible in the informal car park leading down to the shoreline, as well as in the footpath leading down to a disused shack (Figure 14). Quartzite flakes and chunks are visible in the car park as well as in the footpath. A limestone flake and one small piece of ostrich eggshell were found. Relatively well-preserved shellfish deposits are visible on the south facing vegetated dunes alongside the car park. Predictably, the shellfish is dominated by Turbo sarmaticus, S. argenvillei, S. cochlear and C. granatina. The lithics are dominated by relatively large numbers of quartzite flakes, chunks and broken cobbles/pebbles. Much of the surrounding archaeological remains have been fairly heavily impacted on by past human activity, prior to it being incorporated into the protected nature reserve.

A fairly deep sandstone cave occurs about 150 m east of the wooden shack at Mosselbank (Figure 15). Large amounts of shellfish, including pottery, stone flakes, ostrich eggshell and bone (both marine and terrestrial) occur on a steep grass slope directly in front of one of the cave. Both Later Stone Age (LSA) and Middle Stone Age (MSA) tools were counted. Relatively well-preserved shell midden and ash deposit occurs near the top of the steep slope, much of which has spilled down the slope. Well-preserved archaeological deposits, perhaps several meters deep, overlain by yellow Aeolian (wind-blown) sands, occurs within the small shelters, as well as on the grass talus immediately in front of the cave. A wild bee hive protects the entrance to the cave.



Figure 13. Whale Trail 2. WT 6



Figure 14. Whale Trail 2. WT 6



Figure 15. Whale Trail 2. WT 6. View facing east

WT 7 (S 34° 28' 058" E 20° 48' 628")

Large amounts of shellfish – mainly S. argenvillei, S. longicosta and S. cochlear, including some large whole shell, occurs on a flat limestone ledge alongside the footpath about 250-300 m west of Mosselbank (Figure 16). A few Turbo sarmaticus and some Operculum were also noted. Small numbers of quartzite flakes and chunks were found. Some burnt calcrete was seen.

WT 8 (S 34° 27' 894" E 20° 47' 877")

An extensive, but thin, scatter of shellfish and relatively large numbers of stone tools occur on a slightly sloping limestone ridge below the existing footpath (Figure 17). The immediate surrounding area is infested with wind-flattened Rooikranz. Burnt calcrete also occurs. The shellfish is dominated by S. argenvillei, S. cochlear and S. longicosta, but relatively large amounts of Turbo sarmaticus, Operculum, Haliotis (Perlemoen) Oxystele and Black Mussel (Choromytilus meridionalis) were also identified. MSA and LSA tools, including several hammerstones and grindstones, are abundant, while a few large ESA flake tools were also counted. The majority of tools are in quartzite, but a handful of silcrete flakes, including two utilised flakes and one blade, several chunks and at least two small irregular cores, were also found. A handful of quartz flakes and chunks were also identified. A large edge-retouched limestone flake was found.



Figure 16. Whale Trail 2. WT 7



Figure 17. Whale Trail 2. WT 8

WT 9 (S 34° 27' 881" E 20° 47' 747")

Marginal amounts of shellfish and a few quartzite flakes were documented on a steep rocky slope leading down to the rugged beach at Sterkfontein. Shellfish deposits also occur in the informal footpath and on the flat grassy slopes in the surrounding area.

A dry packed, stone wall about halfway down slope was also documented (Figure 18). According to Mr Thys Steyn (pers. comm.), a local farmer, Sterkfontein was used by early stock farmers in the area, as an Outspan. A natural spring occurs close by in a wooded kloof, while the remains of a stone dam are situated near the beach that was used to capture and store fresh water.

A series of sandstone shelters occur below the steep coastal cliffs and in the vegetated kloofs (Figure 19). A small cave (Figure 20) around the corner from a prominent overhang contains some archaeological deposit, some of which has been leached out. Large amounts of shellfish including Turbo sarmaticus, S. argenvillei, S. cochlear and S. longicosta occur inside the cave. Some Haliotis was also noted. Relatively large numbers of quartzite and some silcrete and quartz flakes were found. Many pieces of ostrich eggshell, tortoise, bird and small antelope bone also occur in the small cave and in the drip line.



Figure 18. Whale Trail 2. WT 9. Stone walling



Figure 19. Whale Trail 2. WT9. Arrow indicates location of small cave



Figure 20. Whale Trail 2. WT 9. Small cave

WT 10 (S 34° 27' 754" E 20° 47' 342")

An underground cave at the base of a very steep coastal cliff was located about midway between Sterkfontein and Bruinklip. Here the trail route is quite precarious. A small opening and steep, slippery ledge opens into a large limestone chamber covered with wind blown sands and fallen pieces of stalagmites and stalactites. The site has been visited before, as dates of 1932 and 1933 and the names of several people have been written on a stalagmite.

A large limestone shelter occurs about 100 m beyond the above underground cave, at the base of the very steep cliffs (Figure 21). The cave is situated at the top of a steep slope about 25 m above the small winding footpath. Windblown yellow sands up to several meters thick cover the floor of the shallow shelter. A ± 3-10 cm thick layer of dark-brown humic deposit caps the sand overburden on the lip in front of the shelter. Much of the archaeological deposit has spilled down the slope, and large amounts of bone, including bird and seal has fallen further down the steep slope into a vegetated gully. A few quartzite flakes and chunks were also noted. The shellfish is dominated by S. longicosta, S. argenvillei with some Choromytilus meridionalis, Turbo sarmaticus and Oxysteles also occurring.

Several more, limestone caves and shelters occur at the base of the steep coastal cliffs, all the way to Bloukransrots. Most of these shelters are accessible, but require negotiating very steep and precarious rocky and slippery vegetated slopes.



Figure 21. Whale Trail 2. WT 10

WT 11 (No GPS reading taken)

A massive limestone shelter, measuring more than 120 m across, occurs at the base of the steep coastal cliffs at Bloukransrots (Figure 22). Popularly known as Bloukrans Arch, the site has been visited by many people since at least the early 1800s. Its main attraction is a large underground chamber comprising several smaller chambers containing many stalagmites and stalactites. Many visitors have left their names and date of visit on the stalagmites. Some collapsed stone (limestone) walling also occurs near the small opening to the shelter.

Outside the chamber, a fairly substantial archaeological deposit occurs in the far western corner of the shelter (Figure 23). Large amounts of shellfish and many pieces of bone (including fish, seal, bird, carnivore, tortoise and probably antelope) occur in this corner of the site. A large pile of carefully placed limestone blocks may indicate a possible burial site. Quartzite stone flakes and ostrich eggshell was also counted.



Figure 22. Whale Trail 2. Bloukransrots



Figure 23. Whale Trail 2. WT 11. Arrow indicates possible burial cairn

WT 12 (S° 34 27' 622" E 20° 46' 496")

A fairly large scatter of shellfish occurs on the ledge of the cliff as one climbs back onto the top of the cliff just after Bloukransrots (Figure 24). The route back up the cliffs is steep and rocky. Shellfish occurs in the footpath, as well as on the vegetated slopes alongside the footpath. The shellfish is dominated by large amounts of fragmented S. argenvillei, S. cochlear and S. longicosta, with some Turbo sarmaticus, Operculum, Oxysteles and some whelk occurring. Lithic remains are fairly low, and comprise mainly a few quartzite flakes and small round quartzite pebbles. One quartz flake was also found.

WT 13 (S° 34 27' 516" E 20° 46' 043")

A thin scatter of shellfish and a low density scatter of stone tools were documented alongside the footpath on the steep coastal cliffs, just before Bloukrans. The shellfish is dominated by fragments of S. argenvillei, and S. longicosta, with some Turbo sarmaticus and Operculum also occurring. A fairly extensive, but still thin, scatter of shellfish and stone tools occur on a wide, flat limestone ridge directly above the coastal cliff (Figure 25). A shallow limestone shelter occurs immediately below the flat ledge. Two large quartzite cores, as well as several quartzite flakes, chunks, broken and flaked cobbles and a few large manuports were also documented.



Figure 24. Whale Trail 2. WT 12



Figure 25. Whale Trail 2. WT 13

WT 14 (S 34° 27' 016" E 20° 40' 430")

A small, mostly already damaged shell midden occurs alongside the rocky footpath at the end of the existing whale trail near Hammerkop. The shellfish comprises mainly small amounts of crushed and fragmented Black Mussel (*Choromytilus meridionalis*) and some *S. argenvillei*. Some fragmented and crushed shellfish is scattered either side of the footpath. No stone tools were found.

WT 15 (S 34° 27' 068" E 20° 40' 664")

Shell midden deposits occur in and alongside the small winding footpath east of Rooikranz (Figure 26). Some trail erosion has also occurred and midden material has become a bit displaced in the footpath. Relatively well-preserved, but marginal shell midden deposits also occur on the vegetated and rocky south facing slopes a bit further along the existing trail (Figure 27). The shellfish is dominated by fragments of Black Mussel, and limpets (mainly *S. argenvillei* and a few *S. longicosta*), including some whole shell. Some *Turbo sarmaticus* also occurs. A few quartzite flakes and chunks were counted on the vegetated slopes.

Marginal amounts of fragmented shellfish occur for much of the way in and alongside the existing trail between Rooikranz and Baadjies se bank in the east. Displaced shellfish is also visible in the some of the trail cuttings on either side of the narrow winding footpath.



Figure 26. Whale Trail 2. WT 15. View facing east toward Hammerkop



Figure 27. Whale Trail 2. WT 15. View facing west

WT 16 (S 34° 27' 027" E 20° 41' 882")

Relatively large amounts of fragmented and crushed shellfish occur alongside (and in) the trail, near Stilgat (Figure 28). The shellfish is dominated by Black Mussel with limpets such as S. argenvillei and S. longicosta also occurring. No S. cochlear was identified. Some Turbo sarmaticus, Operculum and Oxysteles was identified. Quartzite flakes, chunks and smashed and broken quartzite cobbles were counted, as well as a thin scatter of quartz flakes, chunks, chips, two small quartz irregular cores and a large quartz chunk. Three silcrete flakes, two silcrete utilised flakes and one silcrete adze were also found.

The foundations of a ruined (modern) farmhouse occur at Stilgat.

A large cave was seen at the base of the cliff at this popular swimming and snorkelling stop off point on the trail.

Occasionally, small amounts of fragmented and crushed shellfish were noted alongside and in the trail between Stilgat and Noetsie.

A marginal scatter of shellfish was noted in the trail and on the low, vegetated south facing dunes about 25 east of the overnight hut at Noetsie. A few quartzite tools were also counted. No GPS readings were taken.

WT 17 (S 34° 27' 258" E 20° 44' 123")

A large shell midden was documented about 175 m east of the overnight hut at Noetsie (Figure 29). A thin scatter of fragmented shellfish first occurs as the narrow trail starts to climb up from the eastern end of Kleinbaai, onto a grassy knoll. Well-preserved shell midden deposits occur in large patches on the south facing vegetated dunes about 3-4 metres above the existing trail. Large numbers of whole and fragmented shell (S. argenvillei, S. cochlear and S. longicosta) and large numbers of Turbo sarmaticus and Operculum were identified. Relatively large numbers of quartzite flakes, chunks, broken/flaked cobbles and manuports, including two hammerstones were also counted. Several quartz flakes and chunks were found.

Looking back toward Noetsie, a series of large caves occurs below the steep cliffs, but these sites are not very accessible.



Figure 28. Whale Trail 2. WT 16. View facing west



Figure 29. Whale Trail 2. WT 17. View facing west

WT 18 (S 34° 27' 303" E 20° 44' 522")

A marginal scatter of crushed and fragmented shellfish and a few quartzite stone tools were documented below a sweep of steep and rugged sandstone cliffs at the eastern end of Kampsbaai. Black Mussel, Limpet (*S. longicosta*), *Turbo sarmaticus* and *Operculum* dominate the shellfish. One quartz chunk was counted.

Crushed and fragmented shellfish were occasionally noted in and alongside the winding trail between Kampsbaai and Witwatermond.

WT 19 (S 34° 27' 352" E 20° 45' 096")

A fairly thick patch of shellfish, comprising both whole and fragmented shell, occurs on a flat, rocky ledge at the bottom of a very steep sandstone cliff overlooking the western end of the sandy beach at Witwatermond (Figure 30). Shellfish has also spilled down a steep vegetated and rocky gully leading down to the beach. The shellfish comprises both, Black Mussel, *Oxysteles*, *S. longicosta*, *S. argenvillei*, *Turbo sarmaticus* and some *S. cochlear*. Fairly large numbers of *Operculum* also occur. Quartzite flakes and chunks, as well as some quartz flakes, chunks and one bipolar core were counted. A very small cave obscured by bush immediately above the gully contains wind-blown sands and a few fragments of shellfish and one upper grindstone.

WT 20 (S 34° 27' 457" E 20° 45' 497")

Several fairly large, scatters of shellfish occur on the grassy swards and among sandstone boulders on the rocky beach at Bloukrans (Figure 31). Much of the shellfish is crushed and fragmented but some whole shell also occurs. Marginal scatters of shellfish also occur on the vegetated dunes heading up to the informal parking area at Bloukrans. The shellfish is dominated by Black Mussel, *S. argenvillei*, *S. cochlear*, *Oxysteles*, *Turbo sarmaticus*, *Operculum* and some whelk. Small numbers of quartzite flakes and chunks were found. A few quartz flakes and chips were counted.



Figure 30. Whale Trail 2. WT 19. View facing east



Figure 31. Whale Trail 2. WT 20. View facing west

8.2.3 Mosselbank (S 34° 28' 210" E 20° 49' 169")

At Mosselbank, the proposed overnight facilities will replace an existing but disused building located on a platform with a limestone cliff backdrop (see Figure 15). A gravel access road to the site ends on an area above the cliff to the west of building. Figure 34 illustrates the layout of the proposed units. Units will be connected to each via raised boardwalks. As reported earlier, archaeological heritage remains at Mosselbank (WT 6) have been recorded in detail.



Figure 34. Whale Trail 2. Proposed layout of units at Mosselbank

8.2.4 Bloukrans (S 34° 27' 415" 20° 45' 647")

At Bloukrans a number of small, dilapidated structures located in a little cove with a sandstone ridge backdrop will be replaced by the proposed overnight facilities (Figure 35). Figure 36 illustrates the layout of the proposed units. The gravel access road to the site ends above and to the west of the site. The ruins of an old enclosure occur at the end of the access road overlooking the cove (Figure 37). Built of undressed limestone blocks that were probably quarried from a limestone ridge set back behind the structure, the ruins are reasonably well-preserved with portions of several low walls still standing. Older than 60 years, the structure is protected under the National Heritage Resources Act and may not be damaged, altered or destroyed without a permit from Heritage Western Cape.

No archaeological remains were located in the rocky small cove, which is well vegetated.

Marginal and displaced scatters of shellfish and one or two stone flakes occur alongside a small informal footpath on the steep rocky and vegetated sandy slopes, and in several eroded sandy gully's leading down to the small cove at Bloukrans.

The remains of an ostrich eggshell water container were found in a small footpath on the steep coastal cliffs in 2006 (Kaplan 2006). The footpath is situated within a known (botanically) sensitive area, and will not form part of the hiking trail. No development will take place here (Peter Chadwick, General Manager, De Hoop Nature Reserve, pers. comm.)



Figure 35. Whale Trail 2. Bloukrans



Figure 37. Whale Trail 2. Ruins at Bloukrans



Figure 36. Whale Trail 2. Proposed layout of units at Bloukrans

8.2.5 Hammerkop (S 34° 26' 80" E 20° 46' 25")

The proposed overnight site at Hammerkop is a greenfields site located about 500 m east of the existing Hammerkop overnight facility utilised by the existing whale trail hiking route. There is currently no access road to the site, although the site can be accessed on foot from the road to the existing Hammerkop unit. The proposed site is set back behind some vegetated frontal dunes, and is covered with indigenous vegetation (Figure 37). Figure 38 illustrates the layout of the proposed units.

No archaeological heritage remains were located at the proposed Hammerkop site, although scattered and displaced shellfish (mainly small Black Mussel shell) and a few quartzite stone flakes were noted in the small footpath leading to the beach, from the existing Hammerkop facility.



Figure 37. Whale Trail 2. Greenfield site at Hammerkop



Figure 38. Whale Trail 2. Proposed layout of unite at Hammerkop

8.2.6 Lekkerwater

Although Lekkerwater would not form an integral part of the proposed new whale trail, it is proposed that upgrading the existing self-catering facility on the beach would improve its attraction as tourist accommodation and increase its income generating ability (Figure 39). The upgrading of the building at Lekkerwater (which would include enlarging the current footprint), would increase the number of beds and services.

No archaeological heritage remains were found at Lekkerwater.



Figure 39. Whale Trail 2. Existing facility at Lekkerwater

8.3 Trail networks

Various trail networks have been proposed. These will be developed at each of the proposed overnight facilities at Bloukrans, Mosselbank and Hammerkop. A proposed trail network at Witklippunt was not assessed as it is unclear whether this will be developed or not (Peter Chadwick, pers. comm.).

Trail networks have also been proposed at Lekkerwater and Witwater. Witwater is situated about 2 kms north of Bloukrans (see Figure 5). A proposed interpretive centre may also be developed in an existing building at Witwater (Figure 40). This building is younger than 60 years and is therefore not protected by the National Heritage Resources Act.

The proposed trail networks are infested with a mix of alien and indigenous vegetation, resulting in very low archaeological visibility. It is unlikely that significant archaeological sites will be located in the development of the proposed trails, but ancient MSA and ESA tools may be recovered during vegetation clearing operations.

No archaeological remains were documented during an assessment of the trail networks, at Bloukrans, Mosselbank, Hammerkop, Lekkerwater and Witwater, although two MSA flakes were documented in the existing access road at Witwater.



Figure 40. Whale Trail 2. Building at Witwater

8.4 Buildings and structures

None of the existing structures at Witklippunt, Bloukrans, Mosselbank and Witwater are older than 60 years and are therefore not protected under Section 34 (1) of the National Heritage Resource. The existing facility at Lekkerwater is a modern building.

The limestone ruin at the end of the parking area at Bloukrans is protected under Section 34 (1) of the National Heritage Resources Act, and may not be altered or renovated without a permit issued by Heritage Western Cape. Currently, there is no proposal to restore the ruins and the feature will be retained in-situ (Peter Chadwick pers. comm.).

8.5 Roads

Existing roads and tracks within the reserve will be upgraded to provide access to the overnight facilities for staff and servicing. It is also proposed to align sections of existing road (to avoid sensitive areas) and to construct about 3-4 kms of new roads (Refer to Figure 4).

The receiving environment for the construction of new roads is infested with (mainly) alien vegetation, resulting in low archaeological visibility. It is highly unlikely that significant archaeological sites will be located in the proposed new roads, but MSA and ESA tools may be recovered during road construction activities.

8.6 Services

Currently, there is no water supply at the proposed overnight facilities, the proposed service hub at Sandhoogte, nor at Witklippunt. Lekkerwater has an existing borehole, but this has since dried up. Boreholes may be used to supply water to the proposed and existing facilities which may necessitate construction of buried pipelines to supply water to the facilities. These pipelines will follow road alignments as much as possible. It is possible that vertebrate (fossil) remains may be uncovered during construction for buried pipelines (Graham Avery pers. comm.).

Solar power would provide electricity to the overnight facilities. Any powerlines would be buried underground and follow road alignments as much as possible.

Wastewater would be disposed of on-site via Biolytic system.

9. IMPACT STATEMENT

The impacts of the proposed project on archaeological heritage sites are presented in Table 1.

Sites	Extent	Duration	Intensity	Probability	Confidence	Significance	
						Without mitigation	With mitigation
WT 1	Local	Permanent	Low	Probable	High	Low	Low
WT 2	Local	Permanent	Low	Probable	High	Low	Low
WT 3	Local	Permanent	Low	Probable	High	Low	Low
WT 4	Local	Permanent	Low	Probable	High	Low	Low
WT 5	Local	Permanent	Low	Probable	High	Low	Low
WT 6	Local	Permanent	Low	Probable	High	Low	Low
WT 7	Local	Permanent	Low	Probable	High	Low	Low
WT 8	Local	Permanent	Low	Probable	High	Low	Low
WT 9	Local	Permanent	Low	Probable	High	Low	Low
WT 10	Local	Permanent	Low	Probable	High	Low	Low
WT 11	Local	Permanent	Low	Probable	High	Low	Low
WT 12	Local	Permanent	Low	Probable	High	Low	Low
WT 13	Local	Permanent	Low	Probable	High	Low	Low
WT 14	Local	Permanent	Low	Probable	High	Low	Low
WT 15	Local	Permanent	Low	Probable	High	Low	Low
WT 16	Local	Permanent	Low	Probable	High	Low	Low
WT 17	Local	Permanent	Low	Probable	High	Low	Low
WT 18	Local	Permanent	Low	Probable	High	Low	Low
WT 19	Local	Permanent	Low	Probable	High	Low	Low
WT 20	Local	Permanent	Low	Probable	High	Low	Low

Table 1. Archaeological Impact Assessment of the proposed second hiking route on the Whale Trail, De Hoop Nature Reserve

The impact of the proposed second hiking route on the Whale Trail in the De Hoop Nature Reserve, on archaeological heritage sites, is likely to be low to negligible.

There are no important or highly threatened sites that will be directly or negatively impact by the proposed project.

The significance of the archaeological impacts (with and without mitigation) is likely to be low.

With effective management, negative impacts can be minimised and positive impacts enhanced.

10. RECOMMENDATIONS

With regard to the proposed development of a second hiking route on the Whale Trail in the De Hoop Nature Reserve, the following recommendations are made:

- An Archaeological Heritage Management Plan (HMP) must be implemented as part of the Environmental Management Plan for the proposed project. At its core is guide training and education.
- No mitigation of archaeological deposits is required prior to the proposed development proceeding. It is very possible that the archaeological impacts arising from the proposed development can be effectively managed and minimised. For example, raised boardwalks should be constructed to a proposed viewing deck overlooking the penguin colony at Witklippunt.
- The archaeologist must be consulted in the detailed final planning of the proposed hiking route. It is important to consider that the proposed final route may deviate from the route followed by the archaeologist during the current study. Some sections of the trail are considered quite arduous and dangerous and CapeNature may prefer a route that is less strenuous for the average hiker. The archaeological impacts of a new trail layout would therefore need to be considered. Therefore, the final, pegged-out route of the trail must be assessed by the archaeologist.
- Although the overall impact on archaeological remains is considered to be low to negligible, care must be taken to avoid sensitive sites when developing the hiking route.
- With regards to the proposed construction of an overnight facility at Hammerkop and the proposed upgrading of the existing facilities at Lekkerwater and Witklippunt, bulk earthworks and excavations must be monitored by a professional archaeologist during the construction phase of the project. Should any archaeological deposits be exposed during these operations, test sampling (and possibly) systematic archaeological excavations may be required.
- Alternatively, monitoring of bulk earthworks can be carried out by an Environmental Control Officer (ECO), subject to training by a professional archaeologist and approval by Heritage Western Cape.
- Should any unmarked human remains be disturbed, exposed or uncovered during excavations for the proposed project, these should immediately be reported to the South African Heritage Resources Agency (Mrs Mary Leslie (021) 462 4502). Burial remains should not be disturbed or removed until inspected by the archaeologist.
- Should any fossils be exposed or uncovered during excavations for underground water pipelines, these should immediately be reported to Heritage Western Cape (Att: Mr Calvin van Wyk (021) 483 9685).
- Finally, the proposed project presents exciting opportunities to develop the areas rich archaeological heritage and to enhance the overall visitor experience of the trail. These opportunities should be thoroughly explored.

11 REFERENCES

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