

Heritage Assessment Cape Recife Waste Water Treatment Works

Cape Recife

Port Elizabeth

South Africa



**HERITAGE IMPACT ASSESSMENT (HISTORICAL COMPONENT)
PROPOSED UPGRADE OF THE CAPE RECIFE WASTE WATER
TREATMENT WORKS IN PORT ELIZABETH, NELSON MANDELA BAY
MUNICIPALITY, EASTERN CAPE**

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Declaration:

I, Jenny Bennie, declare that I have no financial or personal interest in the proposed upgrade, its developers or any of their subsidiaries, apart from the provision of heritage assessment services.

Jenny Bennie
Historian/ Maritime Archaeologist
September 2013

EXECUTIVE SUMMARY

This document presents the historical component of the Heritage Impact Assessment assessing the area of the proposed upgrade and expansion of the Cape Recife waste water works in Port Elizabeth, Nelson Mandela Bay Municipality, Eastern Cape. The project will include a survey of shipwrecks in the vicinity of the proposed new sea outfall for treated effluent and the effect of the approximately 8 km long sludge pumping main from the Driftsands Waste Water Treatment Works that will traverse a portion of the Nelson Mandela Metropolitan University's property.

The historical report follows the minimum standard guidelines required by the South African Heritage Resources Agency.

Proposal

- To conduct a desktop survey of a database of known and suspected shipwrecks in the vicinity of the proposed site of the upgrade and expansion.
- To assess any built structures of historical importance in the demarcated area
- To assess the significance and impact on these areas

Survey

The survey was conducted to establish how many shipwrecks, remaining historical structures and grave or burial sites of more than 60 years old are likely to be affected by the proposed alterations at

- i) Cape Recife Waste Water Works
- ii) Driftsands Water Works
- iii) Seashore between Cape Recife and Pine Lodge border

Sites 1 and 3 are situated approximately 4km south-east of the suburb of Summerstrand, Port Elizabeth and 2km south-east of the Nelson Mandela Metropolitan University (34°0084S; 25°6706E). Site 2, the Driftsands Waste Water Treatment Works (34° 0053S; 25°3611E) is south-east of the suburb of Forest Hill. The encroaching sands are tending to swallow the existing dune growth and could pose a problem to the ponds at the Cape Recife reclamation works in the long term. No graveyards or informal graves were found in the designated area in the preliminary survey although there was a tendency of mariners to bury their deceased on beaches above the high water mark so these areas should be regarded as sensitive..

Sites uncovered during the extension and upgrading of the area should be dealt with on an ad hoc basis.

No impact on historical or shipwreck sites will be allowed without an appropriate permit from the South African Heritage Resources Agency (SAHRA)

Recommendations

1. The South African Heritage Resource Agency (SAHRA) or Eastern Cape Provincial Heritage Resource Agency permit committee (ECPHRA) needs to be informed, and a permit issued, if any sections of shipwreck, significant structures, buildings, graves, walls or historic trees older than 60 years are to be removed, altered, cleared or demolished on the project sites.

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2. If any unusual or sensitive material is found when excavating the site, work should stop immediately until a proper investigation is launched by SAHRA, an archaeologist and/or the historian.
3. NB It is recommended that cognisance be taken of the wrecks of the *Sabina*, *Fidela*, *Galloway* and *Itzehoe* when the new outfall pipe is aligned.
4. A geophysical survey, including airborne magnetometry, will not impact on MUCH sites although it is recommended that the relevant surveys are accessed from GeoScience records. The magnetometer has no physical impact on its environment or cultural material on the sea floor.
5. No cultural heritage resources, as defined and protected under the NHRA (Section 25) 1999, were identified on the Driftsands Waste Water Treatment Works property. Upgrades at the treatment works should not impact negatively on any heritage resources.
6. Development must not occur within 10 -15m of any informal or designated graveyards or burial sites. It would appear from oral history and consultations that no graves occur in the proposed area..
7. The South African Marine Rehabilitation and Education Centre (SAMREC) needs to be consulted and informed regarding the implications of the proposed upgrade and expansion of the Cape Recife Waste Water Treatment Works.



Fig 1 Aerial view of Cape Recife and Thunderbolt Reef ([www. Cape Recife](http://www.CapeRecife))

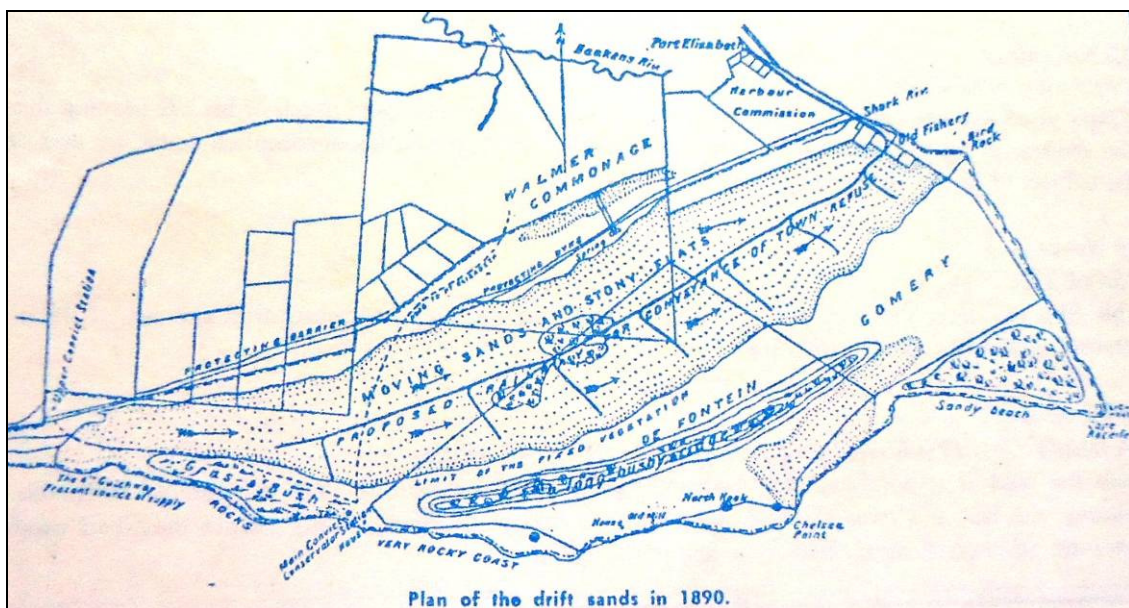


Fig 2 Plan of the Driftsands 1890

(PE Museum collection)

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Table 1: Impact Assessment

GLOSSARY OF ACRONYMS

EIA	Environmental Impact Assessment
FOP	Fortress Observation Post
HIA	Heritage Impact Assessment
MUCH	Maritime and Underwater Cultural Heritage
NHRA	National Heritage Resources Act (No 25 of 1999)
SAHRA	South African Heritage Resource Agency
SAMA	South African Museums Association
SAMREC	South African Marine Rehabilitation & Education Centre
UHIA	Underwater Heritage Impact Assessment

1. NATIONAL HERITAGE RESOURCES ACT (NO 25 OF 1999)

Definitions

Section 2

In this Act, unless the context requires otherwise:

ii. *“Archaeological”* means –

a) material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;

b) rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10 m of such representation;

c) **wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic,... and any cargo, debris, or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation.**

viii. *“Development”* means any physical intervention, excavation or action, other than those caused by natural forces, which may in the opinion of a heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including –

a) construction, alteration, demolition, removal or change of use of a place or structure at a place;

b) carrying out any works on or over or under a place;

c) subdivision or consolidation of land comprising, a place, including the structures or airspace of a place;

d) constructing or putting up for display signs or hoardings;

e) any change to the natural or existing condition or topography of land; and

f) any removal or destruction of trees, or removal of vegetation or topsoil;

xiii. *“Grave”* means a place of interment and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place;

xxi. *“Living heritage”* means the intangible aspects of inherited culture, and may include –

a) cultural tradition;

b) oral history;

c) performance;

d) ritual;

e) popular memory;

f) skills and techniques;

g) indigenous knowledge systems; and

h) the holistic approach to nature, society and social relationships.

xxxi. *“Palaeontological”* means any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace;

xli. *“Site”* means any area of land, including land covered by water, and including any structures or objects thereon;

xliv. *“Structure”* means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith;

National Estate

Section 3

1) For the purposes of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.

2) Without limiting the generality of subsection 1), the national estate may include –

- a) places, buildings, structures and equipment of cultural significance;
- b) places to which oral traditions are attached or which are associated with living heritage;
- c) historical settlements and townscapes;
- d) landscapes and natural features of cultural significance;
- e) geological sites of scientific or cultural importance
- f) archaeological and palaeontological sites;
- g) graves and burial grounds, including –
 - i. ancestral graves;
 - ii. royal graves and graves of traditional leaders;
 - iii. graves of victims of conflict
 - iv. graves of individuals designated by the Minister by notice in the Gazette;
 - v. historical graves and cemeteries; and
 - vi. other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No 65 of 1983)
- h) sites of significance relating to the history of slavery in South Africa;
- i) movable objects, including –
 - i. objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
 - ii. objects to which oral traditions are attached or which are associated with living heritage;
 - iii. ethnographic art and objects;
 - iv. military objects;
 - v. objects of decorative or fine art;
 - vi. objects of scientific or technological interest; and
 - vii. books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1 xiv) of the National Archives of South Africa Act, 1996 (Act No 43 of 1996).

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 relevant provincial heritage resources authority.

Archaeology, Palaeontology and Meteorites

Section 35

1) Subject to the provisions of section 8, the protection of archaeological and palaeontological sites and material and meteorites is the responsibility of a provincial heritage resources authority: Provided that the protection of any wreck in the territorial waters and the maritime cultural zone shall be the responsibility of SAHRA.

2) Subject to the provisions of subsection (8)(a), all archaeological objects, palaeontological material and meteorites are the property of the State. The responsible heritage authority must, on behalf of the State, at its discretion ensure that such objects are lodged in a museum or other public institution that has a collection policy acceptable to the heritage resources authority and may in so doing establish such terms and conditions it sees fit for the conservation of such objects.

3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately

report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.

- 4) No person may, without a permit issued by the responsible heritage resources authority –
- a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
 - b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
 - c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
 - d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.
- 5) When the responsible heritage resources authority has reasonable cause to believe that any activity or development which will destroy, damage or alter any archaeological or palaeontological site is under way, and where no application for a permit has been submitted and no heritage resources management procedure in terms of section 38 has been followed, it may –
- a) serve on the owner or occupier of the site or on the person undertaking such development an order for the development to cease immediately for such period as is specified in the order;
 - b) carry out an investigation for the purpose of obtaining information on whether or not an archaeological or palaeontological site exists and whether mitigation is necessary;
 - c) if mitigation is deemed by the heritage resources authority to be necessary, assist the person on whom the order has been served under paragraph a) to apply for a permit as required in subsection 4); and
 - d) recover the costs of such investigation from the owner or occupier of the land on which it is believed an archaeological or palaeontological site is located or from the person proposing to undertake the development if no application for a permit is received within two weeks of the order being served.
- 6) The responsible heritage resources authority may, after consultation with the owner of the land on which an archaeological or palaeontological site or meteorite is situated, serve a notice on the owner or any other controlling authority, to prevent activities within a specified distance from such site or meteorite.

Burial Grounds and Graves

Section 36

- 3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority –
- a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
 - b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
 - c) bring onto or use at a burial ground or grave referred to in paragraph a) or b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction of any burial ground or grave referred to in subsection 3a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection 3b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority –

a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and

b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.

6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority –

a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and

b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

Heritage Resources Management

Section 38

1) Subject to the provisions of subsections 7), 8) and 9), any person who intends to undertake a development categorised as –

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

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

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

i. exceeding 5 000 m. in extent; or

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

iii. involving three or more erven or subdivisions thereof which

have been consolidated within the past five years; or

iv. the costs which will exceed a sum set in terms of regulations

by SAHRA or a provincial heritage resources authority;

d) the rezoning of a site exceeding 10 000 m. in extent; or

e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

2) The responsible heritage resources authority must, within 14 days of receipt of a notification in terms of subsection 1) –

a) if there is reason to believe that heritage resources will be affected by such development, notify the person who intends to undertake the development to submit an impact assessment report. Such report must be compiled at the cost of the person proposing the development, by a person or persons approved by the responsible heritage resources authority with relevant qualifications and experience and professional standing in heritage resources management; or

b) notify the person concerned that this section does not apply.

- 3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection 2a) ...
- 4) The report must be considered timeously by the responsible heritage resources authority which must, after consultation with the person proposing the development decide –
- a) whether or not the development may proceed;
 - b) any limitations or conditions to be applied to the development;
 - c) what general protections in terms of this Act apply, and what formal protections may be applied, to such heritage resources;
 - d) whether compensatory action is required in respect of any heritage resources damaged or destroyed as a result of the development; and
 - e) whether the appointment of specialists is required as a condition of approval of the proposal.
- 5) A provincial heritage resource authority shall not make any decision under section (4) with respect to any development which impacts on a heritage resource protected at national level unless it has consulted with SAHRA.

The legislation in terms of the project

There is extensive national legislation covering MUCH sites. With regard to this project, Section 38 of the NHRA (25 of 1999) states that an assessment of potential heritage resources in the development area needs to be done. This is the purpose of the desktop study and the in situ survey. These processes identify potential MUCH sites. If such a site is uncovered during the project, a maritime archaeologist needs to be contacted to assess the find. A decision, in conjunction with SAHRA, will be made regarding its cultural significance. Depending on the outcome, the contractor can apply for a permit to SAHRA in terms of Section 35 of the NHRA.

Appointment and Powers of Heritage Inspectors

Section 50

- 7) Subject to the provision of any other law, a heritage inspector or any other person authorised by a heritage resources authority in writing, may at all reasonable times enter upon any land or premises for the purpose of inspecting any heritage resource protected in terms of the provisions of this Act, or any other property in respect of which the heritage resources authority is exercising its functions and powers in terms of this Act, and may take photographs, make measurements and sketches and use any other means of recording information necessary for the purposes of this Act.
- 8) A heritage inspector may at any time inspect work being done under a permit issued in terms of this Act and may for that purpose at all reasonable times enter any place protected in terms of this Act.
- 9) Where a heritage inspector has reasonable grounds to suspect that an offence in terms of this Act has been, is being, or is about to be committed, the heritage inspector may with such assistance as he or she thinks necessary –
- a) enter and search any place, premises, vehicle, vessel or craft, and for that purpose stop and detain any vehicle, vessel or craft, in or on which the heritage inspector believes, on reasonable grounds, there is evidence related to that offence;
 - b) confiscate and detain any heritage resource or evidence concerned with the commission of the offence pending any further order from the responsible heritage resources authority; and
 - c) take such action as is reasonably necessary to prevent the commission of an offence in terms of this Act.

10) A heritage inspector may, if there is reason to believe that any work is being done or any action is being taken in contravention of this Act or the conditions of a permit issued in terms of this Act, order the immediate cessation of such work or action pending any further order from the responsible heritage resources authority.

2. Introduction and Terms of Reference

In accordance with the NHRA (see above), Mrs Jenny Bennie was approached by Dr Mike Cohen of CEN Integrated Environmental Management Unit to conduct the historical component of the Heritage Impact Assessment to determine whether any shipwrecks, structures older than 60 years or objects of cultural significance would be affected during the proposed upgrade and expansion of the Cape Recife Waste Water Works and the Driftsands Waste Water Treatment Works in Nelson Mandela Bay Municipality Port Elizabeth.

The scope of the work included a desktop study, consisting of a database of known and possible shipwrecks in the area ascertained through written and oral resources. In addition, a survey of the built environment in the designated vicinity was undertaken in order to identify potential cultural sites. The impact of the expansion and upgrade needs to be evaluated and recommendations made regarding the effects on such sites. An assessment of the sensitivity and significance of these will be considered and the influence on the local communities will be evaluated.

This report is one section of the Environmental Impact Assessment(EIA) as required by the EIA Regulations in terms of the National Environmental Management Act, (1998 (Act No 107 of 1998) and is intended for submission to SAHRA.

3. Study Approach and methodology

3.1 Extent of the Assessment

This survey and impact assessment is concerned primarily with MUCH and the shipwrecks in the designated area, but also considers aspects of the built environment as described in Section 5

3.2 Methodology

3.2.1 Preliminary investigation

A shipwreck database was compiled from the available written and oral sources and is available in Section 4

It highlights the large numbers of wrecks in the vicinity. There are areas where there are higher concentrations of casualties (eg Thunderbolt Reef) due to the prevailing winds and currents. Although most of these are not directly in the area likely to be affected by the proposed upgrading and expansion of the outfall pipe, wreck artefacts are often scattered over a wide field that is not always directly linked to the actual grounding, presenting a possibility of the discovery of MUCH sites.

The objective of this investigation is to assess the possible impact of the proposed upgrading and expansion of the outfall pipe on any shipwrecks in the vicinity and the effect of alterations to the historical built environment or the likelihood of finding graves in the area.

A four phase approach to heritage sites requires understanding the site; assessing the cultural significance; assessing its vulnerability and proposing relevant suitable management policies if necessary.

It is crucial to undertake historical research and analysis to prevent actions which could be detrimental to the significance of the sites; and also to provide a framework in which a future conservation plan could be put forward if deemed necessary.

3.2.2 Limitations

Underwater cultural heritage sites are difficult to identify owing to the nature of the environment, the shifting sands, poor historical records and the timeframes since the disasters occurred. The localised database should make it easier to identify wrecks and so assess the cultural and historical significance, but it is a constantly evolving research tool as information is uncovered and added.

4. Description of the Affected Environment

4.1 Physical features of the defined area:

Cape Recife lies at 34° 01S; 25° 42E. The peninsula is edged with outcrops of hard sandstone of the Table Mountain series. In the geological past the rock formations came under great pressure causing the strata to be sharp and jagged – a hazard for shipping. The interior consists of bush. The Port Jackson Willow was originally planted to control the large stretches of moving sands. Heath and small indigenous rare plants are also to be found. The calcareous sands consist of broken shells and quartz. Lieut. Wiley's map of 1816 marks "bush bucks, porcupines, wild boar, tygers etc." in the demarcated lands.

Recife Hillock (149 feet) was mentioned in the Admiralty manual of sailing instructions as a guide to mariners who were likely to confuse Cape Recife with Cape St Francis. Thunderbolt Reef, which lies $\frac{3}{4}$ of a mile WSW of the cape was also mentioned as being distinguished by breakers at high tide with jagged, visible rocks at low water. Vessels were warned to keep 2½ miles off when approaching Port Elizabeth harbour.

Fig 3, 4, 5 from background document

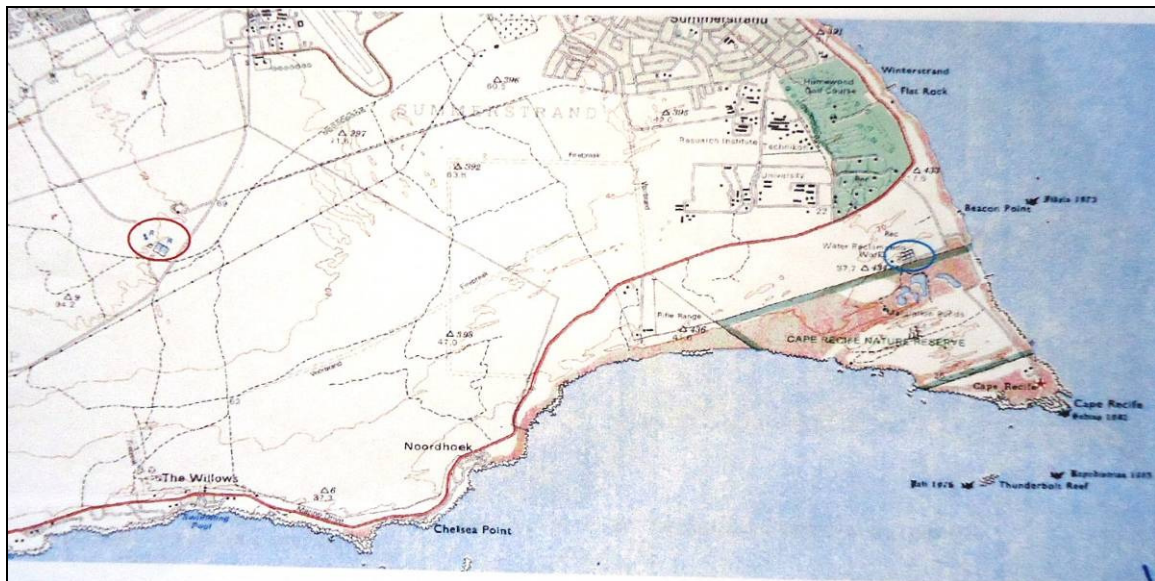


Fig 3 An extract of a 1:50 000 topographical map showing the relative location of the Cape Recife Waste Water Treatment Works (blue oval) and the Driftsands WWTW (red oval).

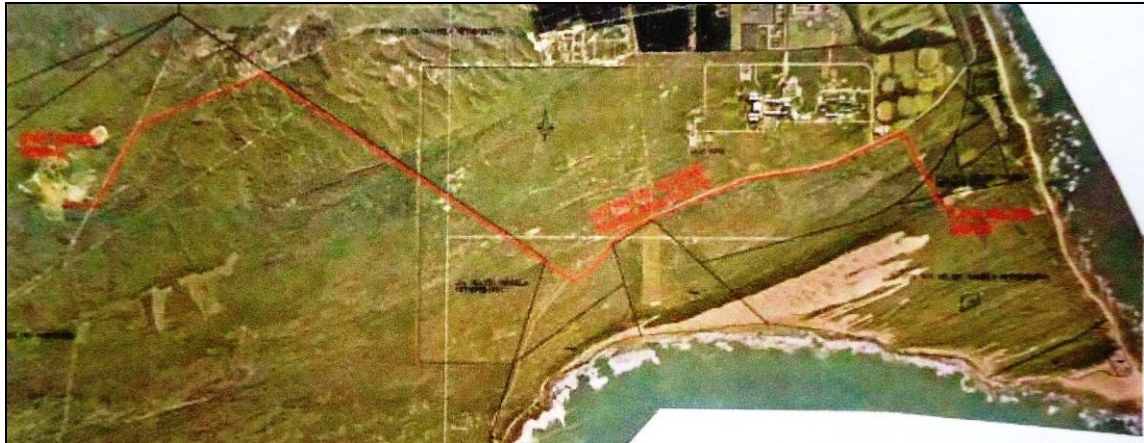


Fig 4 Aerial view showing the location of the Cape Recife WWTW, Driftsands WWTW and possible alignment of the sludge pumping main



Fig 5 & 6 An indication of the area to be surveyed for new sea outfall

4.2 Cultural sensitivity

There is a strong possibility that culturally sensitive pre-18th century artefacts might be found in the zone, as Early, Middle and Stone Age man could once have passed through this area. The Strandlopers, of San and Khoi origin, lived mostly on shellfish found along the seashore. Their middens can be seen at Sardinia Bay and all along the eastern seaboard. With the recent discovery of what is presumed to be fish traps close to the lighthouse at Cape Recife in the Nature Reserve, it could be that they inhabited the vicinity more permanently than originally believed.

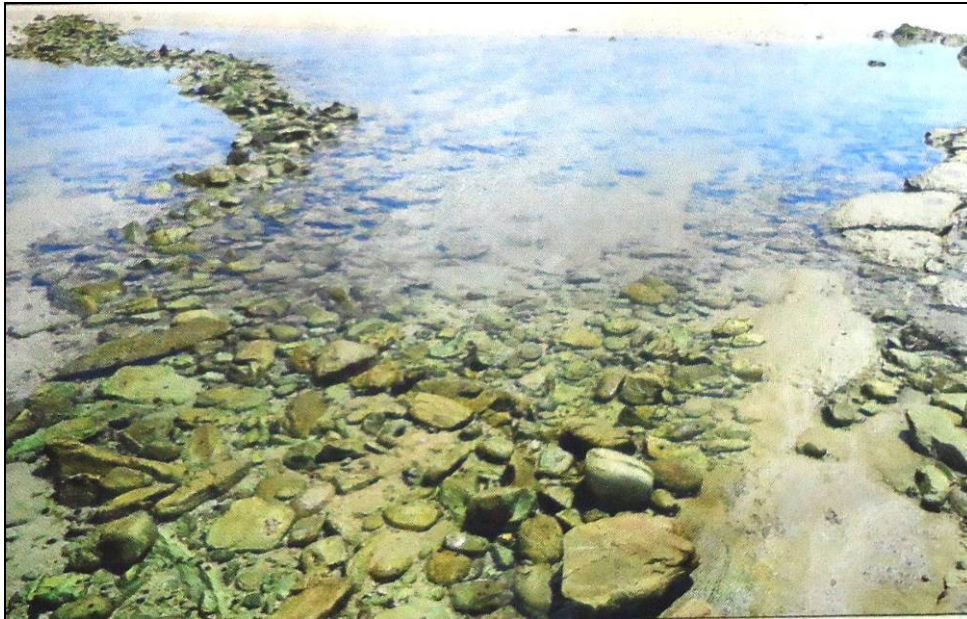


Figure 7 Possible Strandloper stone fish traps Cape Recife
(Photo:John Harvey)

5. History

5.1 Pre-history

A short overview

Probably the earliest hominids to inhabit the Cape Recife area were a Stone Age people who migrated to southern Africa thousands of years ago. If the identification of early Strandloper fish traps, recently discovered below the site of the lighthouse can be proved, it will significantly pre-date previous evidence of humanoid occupation along the coastline.

The Late Stone Age left its traces in coastal middens, as did the Strandlopers, who were the last primitive groups of people recorded to have lived along these shores as late as the 18th Century. The San (hunter-gathers) were subjugated and assimilated by the Khoekhoen (cattle herders), the amaXhosa and finally the first European migrants. History records that the few remaining early inhabitants were decimated, ultimately, by smallpox in 1740.

5.2 Early History

In about 600BC the Phoenicians are reputed to have circumnavigated Africa. The first Europeans to set eyes on the cape were Bartholomeu Dias and his crew when they sailed into Algoa Bay and anchored in the lee of Ilheu da Cruz (Island of the Cross) and erected a wooden cross on its summit in 1488. He named it Cabo de Roca, and Baia da Roca (Cape and Bay of the Rock). On the later Cantino map of 1502, it is marked as Cabo do Arrecife (the Cape of the Reef) as Vasco da Gama's charts of 1497 appear to have given Cape Recife this name. He was on his way to India when he noted the Ilheus Chaos (Flat Islands –Bird Islands). In 1576 cartographer Perestrelo of Portugal, surveying the coast visited the Bay, known as Bahia da Lagoa. Almost seventy years later, in 1647, the *Santissimo Sacramento* on a maiden voyage from Goa to Lisbon, ran aground between Schoenmakerskop and Sardinia Bay. Survivors *en route* to Mozambique would have passed Cape Recife.

In 1752 Ensign Beutler erected a Dutch East India Company possessional beacon at the mouth of the Zwartkops River to prevent French occupation of the coast. During the 18th Century many travellers and botanists visited Algoa Bay and in 1799 Fort Frederick was built to protect the British against the French, as well as uprisings from the Khoekhoen and Xhosa (who were attacking the Dutch farmers).

5.3 Contemporary history

The first owner of land around Cape Recife was Piet Retief who was granted the quitrent of the farm “Strandfontein” in 1814. It was earlier occupied by Nicholaas Oosthuizen, Theodorus Potgieter, Johannes Knoetze and Casparus Knoetze. It was only surveyed in 1818. Frederick Korsten bought the farm from Retief in December of that year.

Port Elizabeth was officially founded in 1820 to accommodate the 4,000 British settlers who were encouraged to emigrate here, not knowing that they were to act as a buffer between the Cape Colony and the Xhosa who were moving southwards. Sir Rufane Donkin, Acting Governor of the Cape, realised a seaport would be necessary to a developing interior and offered land to settlers who had the money to buy it. He named the small town after his late wife, Elizabeth.

In 1851 the Cape Recife lighthouse was commissioned, an important addition, as with increased harbour activity came increased shipping to the Bay.

The town became a Borough (an autonomous municipality) with a Mayor and Town Council elected by the residents in July 1860. The community comprised European, Cape Malay, Mfengu, Xhosa and other immigrants. In 1913 Port Elizabeth became a city and ratepayers voted to fall under the Cape Municipal Ordinance.

The 366ha Cape Recife Nature Reserve was proclaimed a municipal nature reserve in 1973. After the Reclamation Works opened in 1972, the area became a haven for birds, mammals and other small animals although the water is unsuitable for drinking or washing purposes.

The Cape Penguin Sanctuary was situated due west of the lighthouse. The 2m high outer fence was erected in July 1994. It was about 230m in length and enclosed an area of 2500m² which could hold about 700 nests. The concept of a penguin colony at Cape Recife was mooted originally by marine biologists, research scientists and Oceanarium staff at the Port Elizabeth Museum, with the help of the Eastern Cape Wild Bird Society.

In 2000 the South African Marine Rehabilitation and Education Centre (SAMREC) was established to care for sick and vulnerable penguins. The current premises in Cape Recife Nature Reserve were opened on 24 September 2009.

6. Sites

6.1. Database of shipwrecks in the vicinity of Cape Recife and Thunderbolt Reef

No	Name	Position	Events	Date	History	Area
1	Abeona		Wrecked on voyage to Algoa Bay	4 Sept. 1900	British barque of 1004 tons . Built in 1867. Commander Capt. McCorkindale. Cargo of coal. Crew of 19.	Thunderbolt Reef off Cape Recife between reef and mainland.The reef off the Cape extends half a km offshore and is fringed with a bank where the depth of the water is less than five fathoms. The main reef is called Thunderbolt Reef after HMS Thunderbolt which struck there in 1854. In addition, a pinnacle of rock with less than six feet of water over it lies to the south-east of the lighthouse. The "Africa Pilot" advises that" except with a commanding breeze, sailing vessels should not attempt to approach either Cape Recife or Thunderbolt Reef within a distance of two miles, on account of the indraught towards them."
2	Colonial Empire	34°02.00S, 25°42.30E	Run ashore . On voyage from New York to Delagoa Bay via Algoa Bay	27 Sept. 1917	British barque 2 436 tons. Built J Reid & Co Glasgow. Owned Anglo American Oil Company. Wreck dynamited. Cargo of paraffin oil in tins.	Near Cape Recife lighthouse after striking Thunderbolt Reef
3	Cuba		Struck off Cape Recife. Lost rudder but made so much water she was abandoned. On trip from London to Algoa Bay	12 July 1853	Barque 270 tons. Master Captain W Woolley	On rocks beneath lighthouse Cape Recife
4	RMS Dane		Wrecked on voyage from Zanzibar to Table Bay while conveying stores for naval forces suppressing the slave trade. No lives lost	1 Dec. 1865	Iron screw steamer of 530 tons. Built 1855 by Lungley London. Owned by Union Company. Commanded by Capt. Waldeck	Thunderbolt Reef off Cape Recife between reef and mainland.
5	SS Fidela	34°00.60S, 25°42.00E	Wrecked in thick fog on voyage from Cape Town to Mauritius via Algoa Bay. No lives lost.	7 April 1873	British steel screw steamer of 714 tons. Commanded by Capt H Swainstone. Intended for mail service between Melbourne, Australia and New Zealand	1.7km north of Cape Recife lighthouse. Engine block visible in surf. Used as practice target by bombers using concrete bombs in World War II
6	Fountain		Wrecked on voyage from Algoa Bay to East London. No lives lost	20 March 1872	Schooner	Thunderbolt Reef off Cape Recife
7	Galloway		Wrecked on voyage from Cardiff	11 Oct. 1882	British ship of 1 329 tons. Built 1863 in New Brunswick.Capt. Stenhouse. Cargo of coal for railways.	North of Cape Recife lighthouse close to Fidela
8	Harmonie		Wrecked while on voyage from Frederickstad to Algoa Bay.	22 Oct. 1891	Wooden Norwegian barque of 406 tons built in 1873 at Arendal. Cargo of deals.	Near Cape Recife lighthouse.
9	Hotbank		Struck object off Cape Recife. Developed leak, run ashore On trip from London to Algoa Bay	25 April 1873	British wooden snow of 249 tons. Commanded by Capt. James Binet. Cargo of coal and bar iron.	Run ashore at Shark River in Algoa Bay.
10	SS Itzehoe	34°01.30S, 25°42.20E	Ran aground on moonlit night. On voyage from Hamburg to Australia	24-May-11	Twin-funnelled screw steamer of 4 487 tons German Australian Line. Capt. Kirstein. 8,000 tons of cargo including pianos and soft goods (rescued by lighters).	North of Cape Recife lighthouse.
11	Josephine		Wrecked	17 May 1855	Schooner of 99 tons. Commanded by Capt A Equino	Rocks 16km west of Cape Recife
12	Mathilda		Wrecked on rocks	2 April 1838	Brig Commanded by Captain Comin	Outer rock of Cape Recife
13	MV Kapodistrias	34°02.40S, 25°42.10E	Ran ashore in calm weather while leaving Algoa Bay for	29-Jul-85	Greek bulk carrier of 29 185 tons built in 1972 by Hakodate Dock Co Muroran, Capt. N Liodis.	Eastern section of Thunderbolt Reef Cape Recife

6.2 Shipwrecks that might influence the location of the proposed new sea outfall between Cape Recife and Summerstrand.

6.1.1 The Wreck of the *Sabina* 1842

34° 01.90S; 25° 42.20E

The Spanish sailing ship was *en route* from Manila in the Philippines to Cadiz in Spain when she sprung a leak off Cape Agulhas. The Captain attempted to make for the sheltered waters of Algoa Bay, but she was wrecked on the western point of Cape Recife, almost opposite D'Urban Rock, at about 4am on 7 August 1842. The heavy swell, combined with "an unusual high tide", ensured that the *Sabina* passed over the reefs and pinnacles into extremely shallow water.

Her cargo of tobacco became "saturated" which added to her dead weight so she could not be manoeuvred off the rocks. The crew had believed themselves to be several miles from land "according to erroneous charts which they had on board." Twenty of the 64 passengers and crew perished and were buried in the Russell Road cemetery. The heavy gales and storm ensured that very little of the wreck remained. "Some of the cargo...has drifted eastward, as far as the Kowie..."; or was washed up to the high tide mark and buried under sand - an indicator of how wreck material can move and how site findings are not always true indicators of the original wreck site.

The *Sabina* was initially discovered by divers in January 1981, but the site was very rough and dangerous. Further excavations, with a National Monuments Council permit, took place in 1983 and again in 1991. Magnetometer and sonar surveys did not happen because the water was too shallow, there were too many pinnacles and the sea was too turbulent. The site was mapped with reference to a fixed point on the shore. The bow seemed to be east of the reef and the stern west of it. Although the ship's bell was recovered, it did not have an engraved name. The *Sabina* site appears to fall into the category of "discontinuous site" i.e. "fundamentally different from nearly all other archaeological situations" (Muckelroy, 1978) owing to its difficult location.



Fig 8 *Sabina* site in westerly gale Aug 1991 (Photo: I Conradie)



Fig 9 Wading ashore from *Sabina* anchor site (*Photo: I Conradie*)



Fig 10 Wading ashore from cannon site 1991 (*Photo: I Conradie*)

6.1.2 The *Fidela* wrecked 7 April 1873

34°00.60S; 25°42.00E

The *Fidela* wrecked about 1.7 km north of the Cape Recife lighthouse in thick fog between 9 and 10 o'clock in the evening. She was a British steel screw-steamer of 714 tons and was on a voyage from Cape Town to Mauritius via Natal and Zanzibar. A new vessel under the command of Captain H Swainstone, she was intended for mail service between Melbourne Australia and New Zealand.

When the vessel struck she first grated and bumped and then settled on a rock which pierced her hull. It would appear that the compasses were at fault and the lighthouse light appeared deceptively far away (20 miles). In addition, the current was extremely swift. There was no panic amongst those on board and there was no loss of life owing to calm directions from the Captain.

The ship was used for target practice by bombers from Port Elizabeth using concrete bombs during World War II. These are still visible on the site, as is her engine block. She lies close to the *Galloway* (1882)

NB It is recommended that cognisance be taken of this wreck when the new outfall pipe is aligned.

6.1.3 The wreck of the *Galloway* 11 October 1882

This British ship of 1,329 tons was built in New Brunswick and commanded by Captain Stenhouse. While on a voyage from Cardiff in Wales, she ran ashore between Roman Rock and the beacons, north of Cape Recife, carrying coal for the railways. One of her crew was washed overboard and drowned. The vessel lies on a rocky patch close to the *Fidela* (1873). The Captain reported that the ship had experienced heavy seas and storms. He accounts the loss of the vessel to rounding the reef too closely and mistaking the town lights for the lighthouse light.

In the sailing directions for the South Coast, it is laid down that the low shore of Cape Recife is rocky and should be given a wide berth when running in to Algoa Bay. Note is also made of the dangerous "indraught towards the beach".

NB It is recommended that cognisance be taken of this wreck when the new outfall pipe is aligned.

6.1.4 The *Itzehoe* wrecked 24 May 1911

The twin-funnelled screw-steamer, *Itzehoe*, of the German Australian Line struck a reef opposite the first beacon a little north of Cape Recife lighthouse about a quarter of a mile from the shore, on a clear night. The lighthouse keeper summoned help and all were rescued, although the captain was injured falling from the bridge. The cargo included railway materials, pianos and soft goods.

NB It is recommended that cognisance be taken of this wreck when the new outfall pipe is aligned.

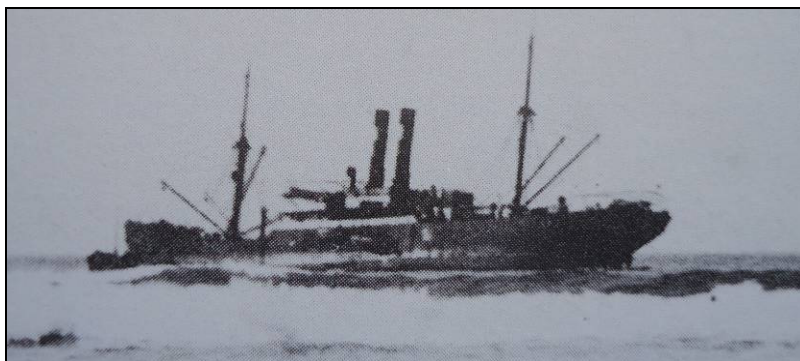


Fig 11 Itzehoe wrecked 1911 *(Public Library)*



Fig 12 Itzehoe, Cape Recife lighthouse in background *(Public Library)*



Fig 13 Itzehoe *(Public Library)*

NB It is recommended that cognisance be taken of this wreck when the new outfall pipe is aligned.

6.2 Cape Recife Lighthouse

34° 01 3.97S;25° 42 03,90E

It is situated on a peninsula at the southern tip of Algoa Bay in the Cape Recife Nature Reserve approximately 15 from Port Elizabeth centre. It should be noted that sand is transported around the point via the by-pass sand-dune system.

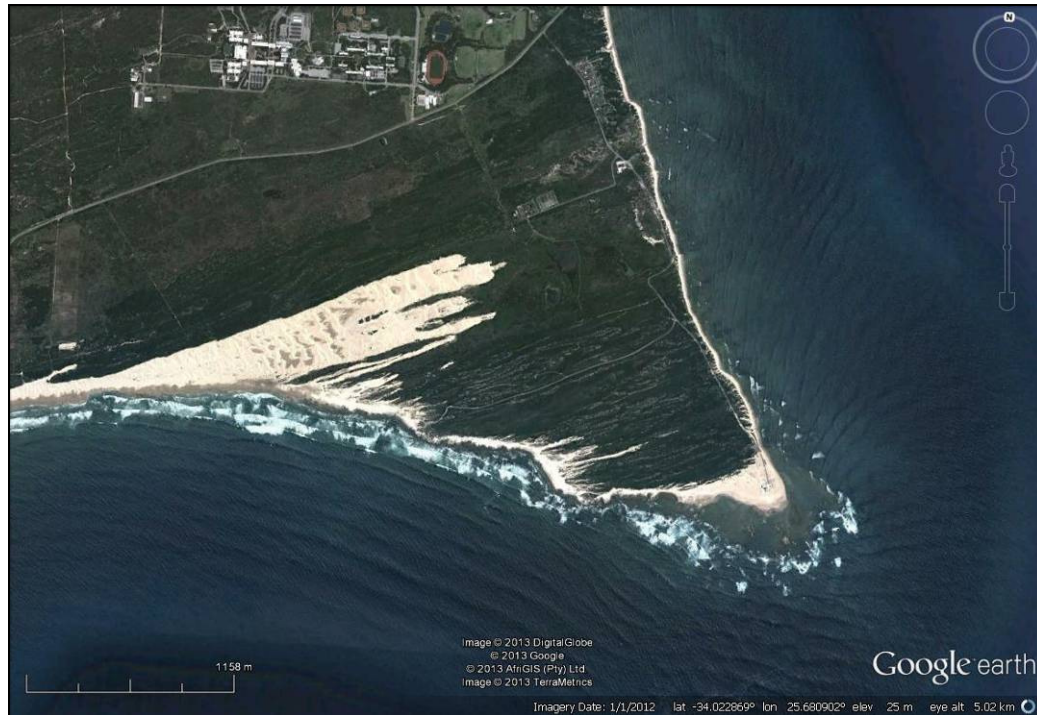


Fig 14 Peninsula at Cape Recife



Fig 15 Cape Recife lighthouse, Sept. 2013

(Photo: JS Bennie)



Fig 16 Engine room, Cape Recife lighthouse.

(Photo: JS Bennie)



Fig 17 Lighthouse Mechanism



Fig 18 Glass dome and bulb
(Photos JS Bennie)



Fig 19 View of Thunderbolt Reef

(Photo: JS Bennie)

Background

In July 1820, Captain Moresby, who supervised the landing of the 1820 Settlers in Algoa Bay, carried out a survey of the southern African coastline from Cape Recife to the Keiskamma River. He was the first to draw attention to the many reefs, rocks, distinctive landmarks and seabed soundings in the area.

As shipping increased with the growth of the town of Port Elizabeth, local merchants began to petition for improved safety measures for vessels entering the bay. By 1828 the Report for the Commissioners for Trade and Navigation recommended that a lighthouse be erected at Cape Recife. When Sir Benjamin D'Urban visited the town after the end of the 1835 Frontier War, he was feted by the residents, and D'Urban Rock on which it was proposed to erect a lighthouse, was named. In the interim a black and white marker spar was set up on the spot. It was named "Selwyn's Beacon" after Major C J Selwyn of the Royal Engineers who supervised its erection.

On 1 April 1851, a stone lighthouse with an octagonal tower of 24m and painted with black and white bands, was commissioned on government property. The light was actually 28m above sea level and its beams could be seen 29 nautical miles away. Currently, the warning system is equipped with a radio beacon, a fog signal, a red light (28°) and a flashing white light (332°) that shines every 30 seconds. The power of the beam is 4 million Candelas. The original installation cost was £17,537.10.2 Sterling. A fog detector was added in November 1989.

The first lighthouse keeper was Henry Switzer and the longest serving was Henry Jenkins from 1851-1864, who with his wife, five daughters and four sons lived in the house beneath the tower. Today the lighthouse is fully automated.

The Cape Recife lighthouse is the third oldest of the 56 lighthouses along the South African coastline. For the last 162 years the light has continued to burn although many changes have taken place to keep up with modern technology.

6.3 Cape Recife World War II Fortifications and Radar Posts

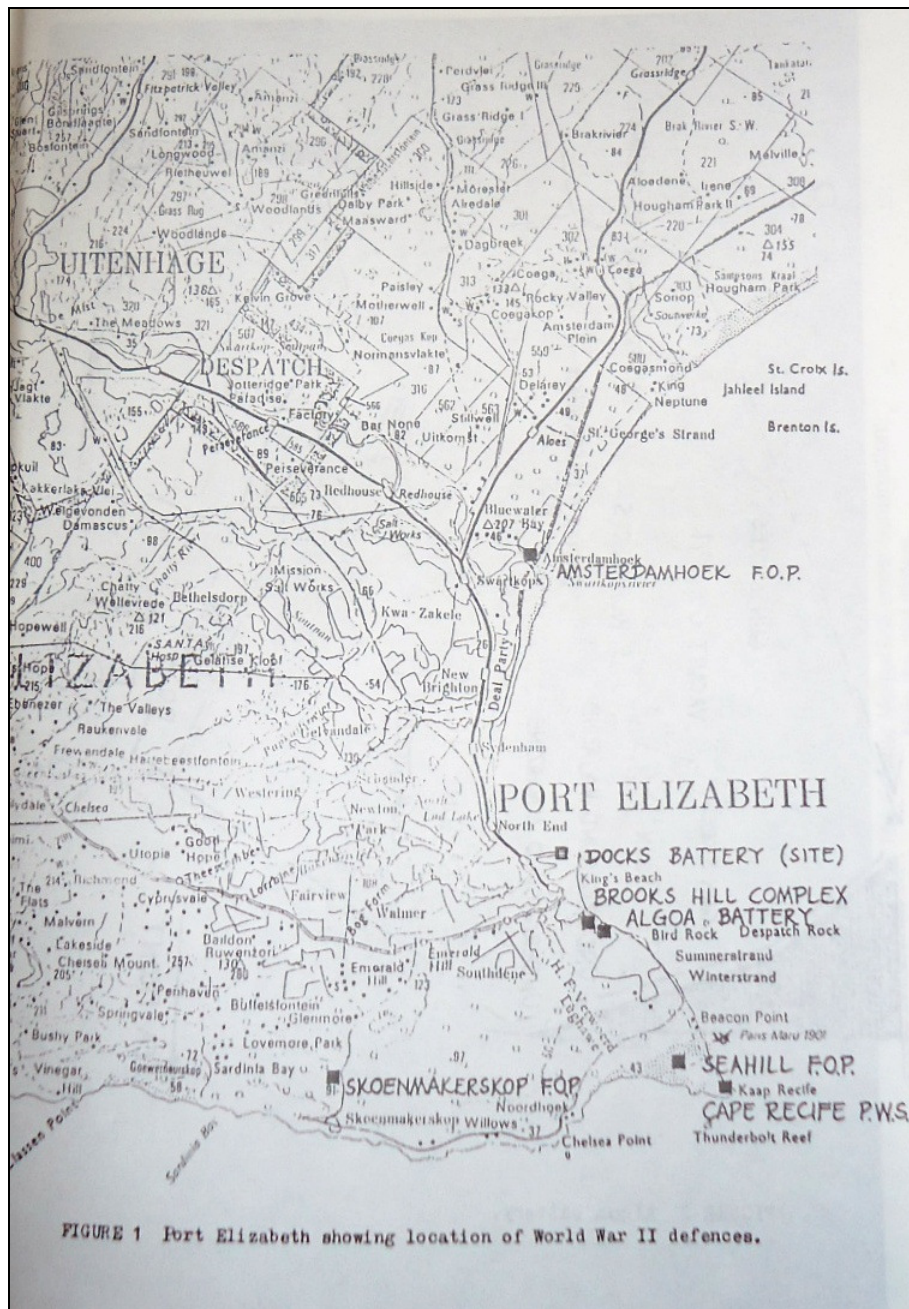


Fig 20 Map of World War II Defences in Algoa Bay



Fig 21 World War II fortification Cape Recife built 1940 *(Photo:J Bennie)*



Fig 22 View from loop-holed free form parapet *(Photo: J Arries/J Bennie)*



Fig 23 & 24 Installation and iron ladder

(Photo: J Arries/J Bennie)



Fig 25 Tech Hut

(Photo: J Arries/J Bennie)

6.3.1

Background:

In 1799 a prefabricated wooden blockhouse was erected in Algoa Bay at the mouth of the Baakens River and a stone edifice, Fort Frederick was built on the hill. By 1868 both had been abandoned by the military. Today the fort is a historical

monument. Only with the threat of World War II (1939 -1945) did Algoa Bay once again look to its defences.

Two weeks before war was declared between Britain and Germany on 6 September 1939, two Mark XIX field guns were deployed to the Charl Malan quay and later installed at Humewood, for harbour defence. Advance warning of approaching shipping was allocated to three Fortress Observation Posts - at Amsterdamhoek, at Seahill (on the Cape Recife peninsular) and at Schoenmakerskop.

The first two Radar stations in Algoa Bay were commissioned in 1942 (namely *Schoenmakerskop 201* and *Cape Recife 202*). The others were also commissioned and built in 1942, guarded by the Native Military Corps – black personnel who were seconded to the unit, one group to drive the ration truck and another undertaking guard duty around the camp and the Tech Hut (the Technical Hut was a small building away from the camp, housing the radar set and operators).

The F.O.P.s were built in 1940 – double-storeyed with a flat roof accessed by a steel ladder, with a loop-holed free-form parapet rising above the roof. Each was protected by a wire fence or entanglement. The FOP at Cape Recife also had a complex of barracks and other buildings. Towards the end of the war most of the coast artillery batteries were “mothballed” as the threat of enemy action decreased. By 1955 they were obsolete.



Fig 26 Fortress Observation Post

(Photo: J Arries/J Bennie)

The Seahill Fortress Observation Post at Cape Recife is situated in the Cape Recife Nature Reserve in overgrown bush up on a hill with a view to the sea. Amongst the ruins two toilet cubicles can be identified and one of the small brick Rifleman's Posts building is to be found in the bush north of the FOP.



Fig 27 Guard House

(Photo: J Arries/J Bennie)

To the west there is also a brick building with a gabled roof of timber and asbestos sheeting (possibly a guard house). There are two small buildings next to the access track from the road and a row of five roofless buildings used for barracks and offices, with ablution blocks and toilets, alongside the road.



Fig 28 Roofless barracks

(Photo: J Arries/J Bennie)



Fig 29 Roofless barracks and FOP

(Photo: J Bennie)

NB It is unlikely that any of these structures will be affected by the proposed upgrading of the Cape Recife Waste Water Works.

6.3.2 Cape Recife Port War Signal Station

Situated on the Cape Recife peninsula this detached three storeyed flat-roofed building is to the left of the Cape Recife lighthouse. The lower floor consists of three lock-up garages. The middle floor was living accommodation and the upper floor offices. The observation room, at the second level, still retains its original east side lift-out windows. On the north side external stairs service a mezzanine storeroom and two upper floors. The buildings and lighthouse are the property of Portnet and are excellently maintained. (2013).



Fig 30 Cape Recife Port War Signal Station

(Photo: J Bennie)

6.4 South African Marine Rehabilitation & Education Centre (SAMREC)



Fig 31 Building SAMREC 2004



Fig 32 (Photos: L Sharwood)



Fig 33 SAMREC 2009
(Photo: L Sharwood)



Fig 34 SAMREC 2013 (Photo J Bennie)

Background

The South African Marine and Rehabilitation & Education Centre was formed in 2000 to care for sick, oiled and starving penguins. It operates with a stranding network of trained volunteers and a response team that will collect animals needing assistance. The African penguin numbers are in decline as they are forced to forage further and further from their breeding colonies owing to shortages of fish. Pollution, near St Croix Island is also a problem although it is strictly controlled. As a result of a National Lottery grant SAMREC opened its new premises at Cape Recife on 24 September 2009. They can accommodate 2000 birds should there be a bad oil spill, in addition to 20-30 other seabirds, turtles, a few seals and 10-12 seal pups.

NB This is a modern building but SAMREC should be kept informed of proposed upgrading and extensions as they are closely involved in the area.



Fig 35 Municipal buildings opposite SAMREC 2013 (Photo: J Bennie)

6.5 These Municipal buildings originally housed a small museum.

6.6 Cape Recife Water Treatment Works

34° 00'56.79"S; 25°41'08.73E

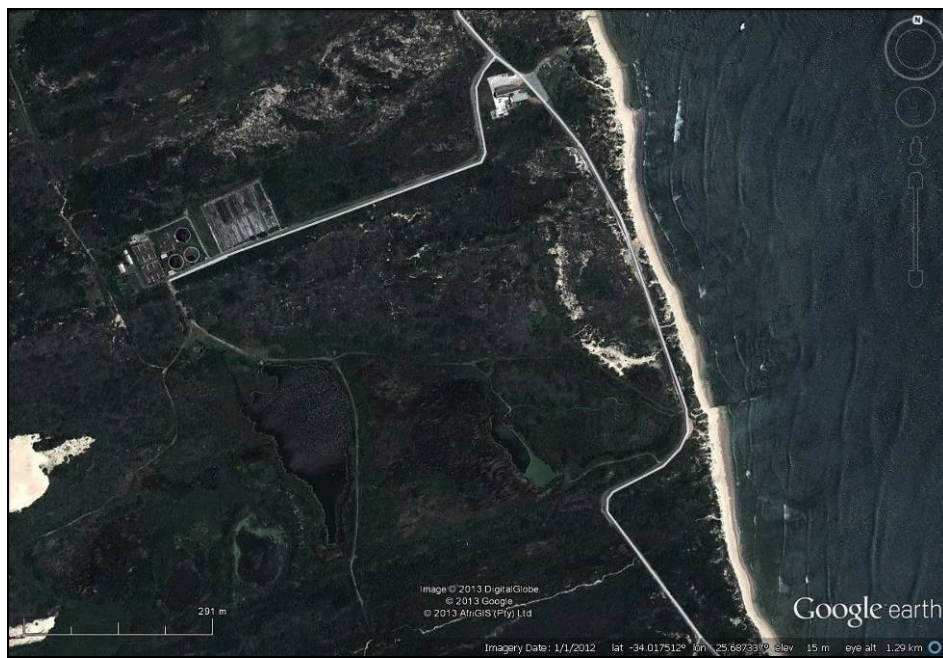


Fig 36 Google Earth image of Cape Recife WWTW road and coastline

Background

The Cape Recife Water Reclamation Works were commissioned in 1969, coming online in 1972. They receive sewage from Summerstrand, Forest Hill, Walmer, Greenshields Park, Charlo, Lovemore Heights, Newton Park, Kabega Park and Sunridge Park.

During the 1990's the works processed 9 megalitres per day. Sewage was firstly passed through screens, then grit traps where sand, stones and grit were removed. During the purification system sewage flowed through aeration tanks where bacteria and organic matter formed sludge. The stirring action of the accelerators provided oxygen to the bacteria which in turn changed harmful pollutants into harmless carbon monoxide, nitrogen and water. The effluent finally flowed into the two maturation ponds which were 1m deep. Photosynthesis then killed the bacteria. The first pond supplied the Reserve, NMMMU and the Humewood Golf course with water for irrigating. Water from the second pond flowed into the sea.



Fig 37 Cape Recife WWTW 1975

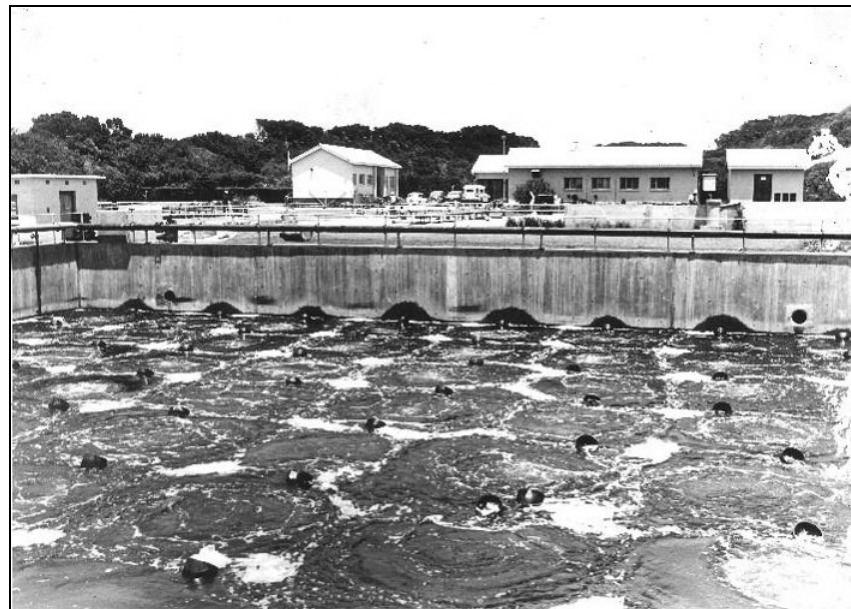


Fig 38 Cape Recife WWTW 1975



Fig 39 Cape Recife WWTW 1975



Fig 39a Cape Recife WWTW tank 1975



Fig 40 Cape Recife WWTW after the fire 2013 *(Photo: G Smith)*



Fig 41 Cape Recife WWTW 2013

(Photo: G Smith)

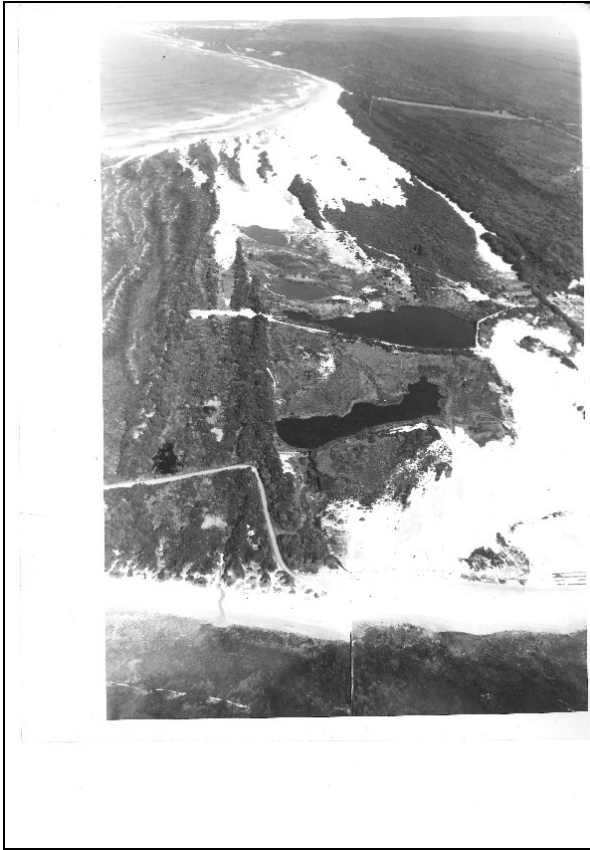


Fig 42 Cape Recife WWTW outfall sewer 1975





Figs 43-46 Outfall pipe Cape Recife

(Photos G Smith)



Fig 47 Cape Recife dune fields 1975

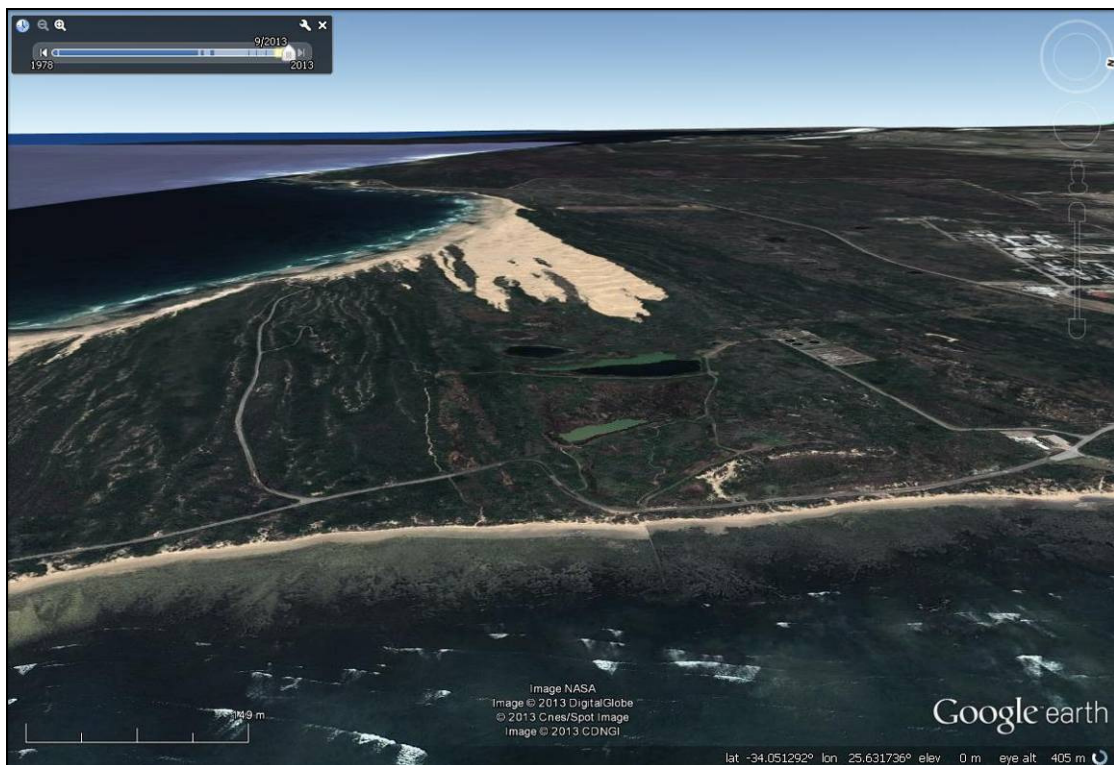


Fig 48 Google Earth dune fields comparison 2013



Fig 49 Cape Recife Reclamation ponds 1975

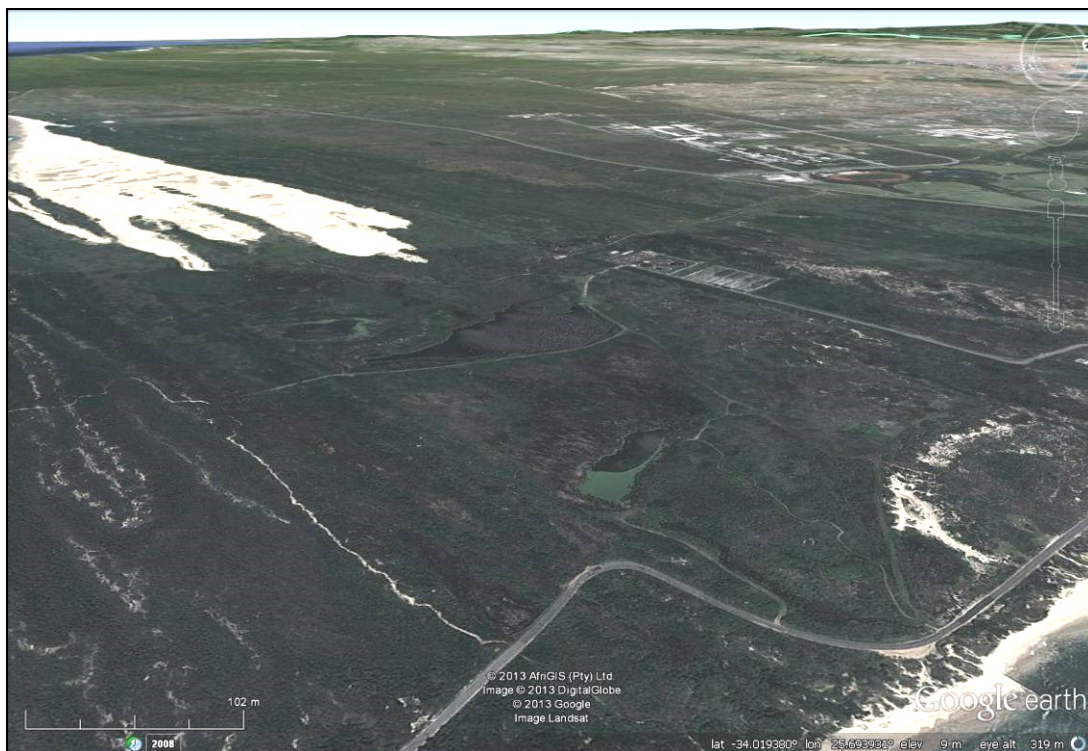


Fig 50 Cape Recife Reclamation ponds 2013

6.7 Driftsands Waste Water Treatment Works

The Driftsands WWTW area is located at S34.00'55.80"; E25.36'08.07" and comprises about a 2ha currently developed area. **No cultural heritage resources, as defined and protected under the NHRA (Section 25) 1999, were identified on the property. Upgrades at the treatment works should not impact negatively on any heritage resources.**

6.7.1 A brief history of the Driftsands

Stretching from Schoenmakerskop in the west to Humewood in the east, the encroaching sands once threatened the existence of Port Elizabeth at the end of the 19th Century.

The first record of the Driftsands appeared on an 18th Century chart prepared by Lieutenant Rice. By 1870 the fine, moving sands were killing all the vegetation in its path, even engulfing a farmstead that stood near the site of the present Humewood slipway.

In 1893 Joseph Storr Lister, from the Cape Forestry Department, was approached to solve the problem. He suggested using the town's street sweepings, stable litter and domestic refuse to spread over the dunes. This plan was approved and the "Driftsands Special" (a locomotive and trucks), was put to work. Each day it transported 80 tons of rubbish to spread over the sands. This refuse rapidly turned into humus and provided an ideal seed bed for acacia, *Pinus halepensis*, rye, pypgras, sunflower and lucerne seeds as well a fertile base for self-sown tomatoes and pumpkins.

Previously efforts to reclaim the dunes had been with the prevailing wind, now the attack was against it. By 1910 the Driftsands scheme was "successfully" completed, leaving a legacy of Port Jackson, rooikrans and domestic "artefacts". The moving sands had been temporarily halted. Middens and rubbish dumps have always proved a fertile source of information on the living conditions and habits of past cultures and the Driftsands themselves are no exception.

It is interesting to compare aerial photographs dating from 1975 with the Google Earth views of today (2013). Although considerable vegetation cover has occurred over the past 35 years, once again it would appear that the gulches at Cape Recife are on the move.

Driftsands Waste Water Treatment Works



Fig 51-55 Driftstands WWTW under construction 1980's

NB Upgrades at the treatment works should not impact negatively on any heritage resources.

7. Site significance and assessment

Recommendations regarding upgrading and expansion of the Cape Recife Waste Water Treatment works

The shipwrecks pose a constantly changing situation. Co-ordinates are available for some in the study area and there are historical records of many of them having been stranded, for example, on Thunderbolt Reef and nearby rocks. Often they only become exposed when wind and sea conditions wash up sections on the beach. The local maritime archaeologist and SAHRA should be informed immediately should anything be uncovered.

It is important to realise that with moveable structures (shipwreck material) and immovable buildings, a conservation plan needs to remain fluid and dynamic, able to respond to changing circumstances, but never forgetting the key significance of the heritage site.

The World War II buildings (outside the pipeline parameters, but significant in the area) need to be saved as they form part of a series of five related lookouts, built along the coast from Coega in the east to Schoenmakerskop in the west. Although of a relatively “modern” era, they would be worth preserving in view of the fact that they form part of a chain stretching through Amsterdamhoek, Brookes Hill, Cape Recife and Schoenmakerskop.

A Heritage Resource Management Plan should be developed to record these significant sites and structures, and provide recommendations for the monitoring and preservation thereof. Some buildings have become degraded due to neglect and it is essential that they do not continue to slide into disrepair. These structures could form part of a conservation/ preservation project for the Defence Force.

7.1 Heritage Assessment and Grading

According to the NHRA, No 25 of 1999 Section 2(v) the significance of heritage sites and artefacts is determined by its aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential.

The NHRA stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act.

- Grade 1 Heritage resources with qualities so exceptional that they are of special national significance
- Grade II Heritage resources which although forming part of the national estate, can be considered to have special qualities which make them significant within the province or region and
- Grade III Other heritage resources worthy of conservation, on a local authority level

The occurrence of sites with a Grade 1 significance will demand that the development activities be drastically altered in order to retain these sites in their original state. For Grade II and Grade III sites, the application of mitigation measures would allow the development activities to continue.

The criteria, as set out in section 7 of the NHRA, No 25 of 1999 were applied to the identified sites.

7.2 Statement of significance

In terms of Section 7 of the NHRA the sites known to occur in the relevant area are evaluated to have the following significance:

Grade 1 As all heritage resources found below the high water mark fall under the national heritage organisation (SAHRA) shipwrecks are automatically Grade 1. There are four confirmed shipwrecks in the area. If during work on the new outfall pipe a MUCH site is uncovered the significance will need to be re-assessed.

7.3 Impact Assessment

Impact Name	Cape Recife Waste Water Treatment Works+				
Alternative					
Environmental Risk					
Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
Nature of Impact	High	Moderate	Magnitude of Impact	Low	Low
Extent of Impact	Moderate	Moderate	Reversibility of Impact	High	High
Duration of Impact	Moderate	Moderate	Probability	Low	Low
Environmental Risk (Pre-mitigation)					Medium
Mitigation Measures					
Environmental Risk (Post-mitigation)					Medium
Degree of confidence in impact prediction:					High
Impact Prioritisation					
Public Response					Low
CEN to complete					
Cumulative Impacts					Low
No cumulative impacts are associated with this impact.					
Degree of potential irreplaceable loss of resources					Low
This impact will not lead to irreplaceable loss of resources.					
Prioritisation Factor					Low
Final Significance					Medium

8. Recommended Management Measures

Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact on them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the proposed upgrading and expansion can be excavated/ recorded and a management plan developed for future action. Those sites that are not impacted on can be written into the management plan, whence they can be avoided or cared for in the future.

8.1 Objectives

- Protection of MUCH within the project boundary against vandalism, destruction and theft
- Contractors and workers should be notified that maritime artefacts and parts of the built environment might be exposed during the expansion and upgrade

- Should any heritage objects be exposed during excavation, work on that area should cease immediately and the maritime archaeologist/historian be informed immediately
- All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting on advice from specialists, the Environmental Control Officer will advise the necessary actions to be taken
- Under no circumstances shall any artefact be removed, destroyed or interfered with by anyone on the site, and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts as set out in the NHRA (Act No 25 of 1999) Section 51 (1)

8.2 Control

In order to achieve the above the following should be in place

- A person or entity e.g. the Environmental Control Officer, should be tasked to take responsibility for any heritage sites that may be uncovered and should be held accountable for any damage. This person must take responsibility to contact the heritage practitioner to assess any sites uncovered during the project.

9. Conclusion

The aim of the survey was to locate, identify, evaluate and document MUCH sites, sensitive areas of the built environment and possible graves and informal burial sites in the Cape Recife, Driftsands location.

The nature of the maritime environment precludes the accuracy achieved in land-based structures. It is often only once excavation takes place that wreck sites are revealed.

Based on the study it can be concluded that

- Four wreck sites are in the possible vicinity of the outfall sewer pipe
- The lighthouse (in excellent repair) and the World War II FOP's (in derelict condition) are in need of preservation
- The Cape Recife WWTW and Driftsands WWTW do not fall into the 60 year clause and can therefore be altered
- SAMREC is new, but management needs to be kept informed of the developments likely to take place in the vicinity
- There do not appear to be any graves, formal or informal, along the proposed 8km pipeline between Cape Recife WWTW and Driftsands WWTW, but work should halt immediately should any be found
- No impact on heritage sites, features or objects can be allowed without a valid permit from SAHRA

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15. Consultations/ Oral Sources

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