ARCHAEOLOGICAL IMPACT ASSESSMENT: PROPOSED DEVELOPMENT OF THE GRANGER BAY PRECINCT AND RECLAMATION OF LAND AT THE V&A WATERFRONT IN CAPE TOWN, WESTERN CAPE

Assessment conducted under Section 38 (8) of the National Heritage Resources Act (No. 25 of 1999) as part of an Environmental Impact Assessment

Prepared for:

Cindy Postlethwaite (Heritage Practitioner)

On behalf of:

Infinity Environmental (Pty) Ltd

Draft for Comment: 3 June 2025

Revised draft: 12 March 2026

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EXECUTIVE SUMMARY

Project Name

Proposed Development of the Granger Bay Precinct and Reclamation of Land at the V&A Waterfront

Location

The approximate centrepoint of the project area: 33°54'7.19"S / 18°25'2.52"E

Locality Plan

Figure 1: The location and extent of the revised Granger Bay Land Reclamation project (red polygons) within its local context.

Purpose of the Study

TerraMare Archaeology was appointed to produce a Phase 1 archaeological impact assessment (AIA) as part of the environmental impact assessment (EIA) for the revised Granger Bay Land Reclamation project. The AIA references and updates a previous assessment conducted by ACO Associates in 2014.

Its objectives are:

- To determine whether there are likely to be important archaeological resources that will be impacted by the proposed project;
- To indicate any constraints that will need to be considered in relation to the revised development proposal;
- To identify sensitive archaeological areas; and
- To recommend any necessary mitigation action.

Brief Project Description

In 2019 Environmental Authorisation was granted for a proposed land reclamation project in Granger Bay in the Victoria and Alfred Waterfront (V&AW). The project comprised a mixed-use development of Erf 173712, a portion of Erf 149294 (referred to as the Granger Bay precinct), and associated revetment and land reclamation.

V&AW are now proposing revisions to the approved 2019 Granger Bay land reclamation project which include:

- the reshaping of the proposed revetment;
- the inclusion of two ('east' and 'west') breakwaters; and
- the inclusion of public amenities within shoreline protection infrastructure.

Methodology

The study area for this AIA comprises a terrestrial portion of the V&AW, bounded by Beach Road, Granger Bay Boulevard and Jetty Street in the south, the Water Club in the west and, on the seaward side by a line drawn between the end of the Granger Bay harbour mole and East Pier on the Breakwater

A survey of available and relevant literature was carried out to assess the archaeological context within which the Granger Bay Land Reclamation project will be set. The two principal documents used were ACO Associate's 2014 AIA for the approved Granger Bay Land Reclamation project and TerraMare Archaeology's overarching 2024 AIA for the whole of the V&AW. Other sources of information include published archaeological papers and reports for the general project area and unpublished archaeological and heritage impact assessments that have been undertaken in the vicinity of the project site.

Findings and Recommendations

Pre-Colonial Archaeology

Fragmentary survivals of pre-colonial archaeological material (principally coastal shell middens) are possible where undisturbed terrestrial coastal sediments survive, even where currently buried under later landfill or development.

It is recommended that:

- New development or earthworks which have the potential to reach the depth of the former historical land surface, the work is archaeologically monitored.
- Should pre-colonial archaeological material be encountered, this will need to be archaeologically assessed by a suitably qualified archaeologist. Archaeological

material is the property of the state and may require excavation and curation in an approved institution. If found, such material may not be removed or disturbed until inspected and, if required, mitigated by an archaeologist.

Graves and Burials

No graves or burials have been recorded within the Granger Bay Land Reclamation project area, but it is possible that unmarked burials could be present in the same areas of the site that may be archaeologically sensitive. Such, usually pre-colonial graves, are an extremely sensitive and often contested heritage resource, and it is generally impossible to predict their presence in advance of development.

It is, therefore, recommended that:

- In the event of the discovery of human remains, work in the affected area must cease immediately, the find must be made secure but left in situ, and Heritage Western Cape and an archaeologist must be informed so that the find can be assessed and arrangements can be made for its mitigation.

Terrestrial Historical Archaeology

The historical structures recorded in the Granger Bay Land Reclamation project area appear to have been demolished and removed in 1997/8.

As such, the area is of very low historical archaeological significance, and no specific mitigation is recommended, except that where new development or earthworks have the potential to reach the depth of the former, historical land surface this work is archaeologically monitored.

Submerged Prehistory

Although there is the potential for the presence of submerged prehistoric archaeological material within the maritime portion of the Granger Bay Land Reclamation project area, this is likely to be extremely low. The nature of the proposed work in this area – depositing fill on the seabed – also means that the direct interventions into the seabed that might encounter such material will not take place.

Mitigation measures in respect of submerged prehistoric archaeology are thus irrelevant, and none are recommended.

Maritime Archaeology

No wrecks have been previously reported in the Granger Bay Land Reclamation project and overall, the likelihood of encountering historical wrecks in the area is low.

Because of the uncertainty introduced by the vagueness of contemporary historical descriptions of maritime casualties in the Mouille Point and Granger Bay area, however, it is recommended that:

- A geophysical survey of the seabed, (sidescan sonar, multibeam bathymetry and magnetometry), is conducted in the project area prior to any land reclamation activities, to confirm whether there are shipwreck or other heritage sites present.
- The results of the geophysical survey is reviewed by a suitably qualified archaeologist.
- If a wrecks or wrecks are present in the area the South African Heritage Resources Agency (SAHRA) must be notified immediately, and the site/material must be assessed by a suitably qualified archaeologist, after which a decision can be made

about the need for any mitigation measures, which may include site recording, sampling/excavation, and potentially removal and recovery.

It is also recommended that:

- Any future excavations within the Granger Bay Land Reclamation precinct through existing landfill, seaward of the historical alignment of the shoreline, to levels that may intersect with the former seabed must be subject to archaeological monitoring, with the necessary contingencies in place to allow the mitigation of shipwreck remains, should they be encountered.

Lastly, the mitigation measures indicated above should be included in the project Environmental Management Programme.

Conclusion

This assessment has found that the area identified for the proposed development of the Granger Bay Precinct and associated reclamation of land is a heritage environment of variable sensitivity but that significant impacts on archaeological sites and materials arising from the project are unlikely.

It is our reasoned opinion, therefore, that from a heritage perspective the proposed Granger Bay Land Reclamation project may be authorised, but subject to the implementation of the recommendations contained within this report.

THE AUTHOR

This study has been undertaken by John Gribble of TerraMare Archaeology (Pty) Ltd.

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John Gribble has an MA (UCT, 1989), in archaeology and has been working in cultural resource management since the early 1990s. He has worked in both the regulatory and commercial heritage management fields: the former during 13 years at the National Monuments Council / South African Heritage Resources Agency (SAHRA), and the latter as both a terrestrial and maritime archaeological consultant in South Africa and the UK.

He holds archaeological accreditation with the Association of Southern African Professional Archaeologists CRM section (Member #43) as follows:

- Principal Investigator: Maritime Archaeology and Colonial Archaeology; and
- Field Director: Stone Age Archaeology.

The author's CV is attached as Appendix A.

SPECIALIST REPORT REQUIREMENTS IN TERMS OF NEMA

This report is compiled in such a manner that it adheres to the EIA Regulation requirements as detailed in Appendix 6 of the NEMA EIA Regulations of 2014, as amended.

Section	Requirements	Section addressed in report
(a)	Details of	
	(i) the specialist who prepared the report; and	The Author
	(ii) the expertise of that specialist to compile a specialist report including a curriculum vitae;	Appendix A
(b)	A declaration that the specialist is independent in a form as may be specified by the competent authority;	Appendix B
(c)	An indication of the scope of, and the purpose for which, the report was prepared, the quality and age of base data used for the specialist report and a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Sections 3 and 5
(d)	The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	N/A
(e)	A description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Section 5
(f)	Details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Section 8
(g)	An identification of any areas to be avoided, including buffers (if and where applicable);	N/A
(h)	A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers (if and where applicable);	Figures 4, 6-8, 12
(i)	A description of any assumptions made and any uncertainties or gaps in knowledge;	Section 5.4
(j)	A description of the findings and potential implications of such findings on the impact of the proposed activity or activities;	Sections 6 and 7
(k)	Any mitigation measures for inclusion in the EMPr;	Section 9
(l)	Any conditions for inclusion in the environmental authorisation;	Section 9
(m)	Any monitoring requirements for inclusion in the EMPr or environmental authorization;	Section 9

(n)	A reasoned opinion—	
	(i) whether the proposed activity, activities or portions thereof should be authorized regarding the acceptability of the proposed activity or activities; and	Section 10
	(ii) if the opinion is that the proposed activity, activities, or portions thereof should be authorised, an avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;	Section 10
(o)	A description of any consultation process that was undertaken during the course of preparing the specialist report;	N/A
(p)	A summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	N/A
(q)	Any other information requested by the competent authority.	N/A

GLOSSARY

Archaeology: 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.

Dolos: A wave-dissipating concrete block used against the erosive force of waves as a form of coastal management. Invented in 1963 and first deployed in 1964 on the breakwater in East London.

Early Stone Age: Period of the Stone Age extending between approximately 2 million and 200 000 years ago**.**

Heritage: That which is inherited and forms part of the National Estate, as defined by the National Heritage Resources Act 25 of 1999.

Heritage Western Cape: The provincial heritage compliance authority for the Western Cape.

Later Stone Age: The archaeology of the last 20,000 years associated with fully modern people.

Marine Isotope Stage: Alternating warm and cool periods in the Earth's paleoclimate, deduced from oxygen isotope data reflecting changes in temperature derived from data from deep sea core samples.

Middle Stone Age: The archaeology of the Stone Age between approximately 200,000 and 20,000 years ago, associated with early modern humans.

SAHRA: South African Heritage Resources Agency – the compliance authority which protects national heritage.

ACRONYMS

AIA	Archaeological Impact Assessment
DEA&DP	Department of Environment Affairs and Development Planning
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESA	Early Stone Age
HWC	Heritage Western Cape
LSA	Later Stone Age
MIS	Marine Isotope Stage
MSA	Middle Stone Age
NEMA	National Environmental Management Act (No 107 of 1998)
NHRA	National Heritage Resources Act (No 25 of 1999)
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System

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1 INTRODUCTION

TerraMare Archaeology (Pty) Ltd was appointed by Cindy Postlethwaite (Heritage Practitioner), on behalf of Infinity Environmental (Pty) Ltd, to undertake a desk-based (Phase 1) archaeological impact assessment (AIA) for revisions proposed by V&A Waterfront Holdings (Pty) Ltd (V&AW) to the approved Granger Bay land reclamation project. The project is located within the V&A Waterfront in Cape Town, Western Cape (see Figure 1 above and Figure 3).

This report provides baseline archaeological information for inclusion in the Scoping Report and Heritage Impact Assessment (HIA) is required as part of the Environmental Impact assessment (EIA) being undertaken for the project.

2 PROJECT DESCRIPTION

Between 2014 and 2019, a National Environmental Management Act (NEMA) process was undertaken for a proposed land reclamation project in Granger Bay in the V&AW.

The proposed development comprised two main components:

- A mixed use (primarily residential with some retail and commercial use) development of Erf 173712, portion of Erf 149294 (referred to as the Granger Bay precinct); and
- Associated revetment and land reclamation (see Figure 2).

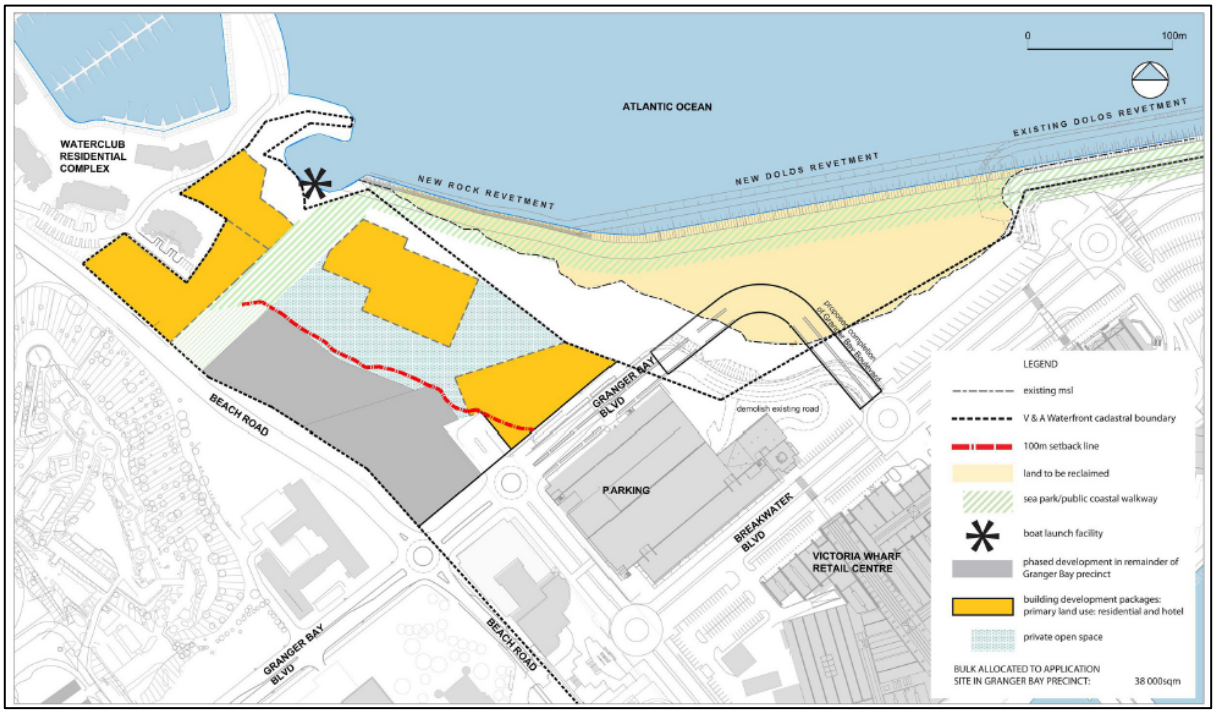

Figure 2: Approved 2019 Granger Bay notional precinct development comprising dolos revetment with land reclamation and mixed-use development.

An HIA was conducted by Dr Nicolas Baumann as part of this process (HWC Reference 15050401GT0527M) and HWC issued a Final Comment on 15 July 2015 which supported the proposal.

The final Environmental Authorisation (EA) for the proposal was granted on 10 April 2019.

V&AW are now proposing the revisions to the approved 2019 Granger Bay land reclamation project which are shown on Figure 3.

The key amendments are:

- the reshaping of the proposed revetment;
- the inclusion of two ('east' and 'west') breakwaters; and
- the inclusion of public amenities within shoreline protection infrastructure.

Certain development packages will also be reshaped.

The 2019 EIA approval was for a 310 m extension of the dolos revetment and a rock revetment of 160 m replacing the existing gravel beach and unprotected embankment. The extension was approved as a straight line extending the existing dolos revetment at the end of Breakwater Boulevard in a westerly direction across Granger Bay (Figure 2). The total combined length of the approved straight-line revetment was approximately 470 m.

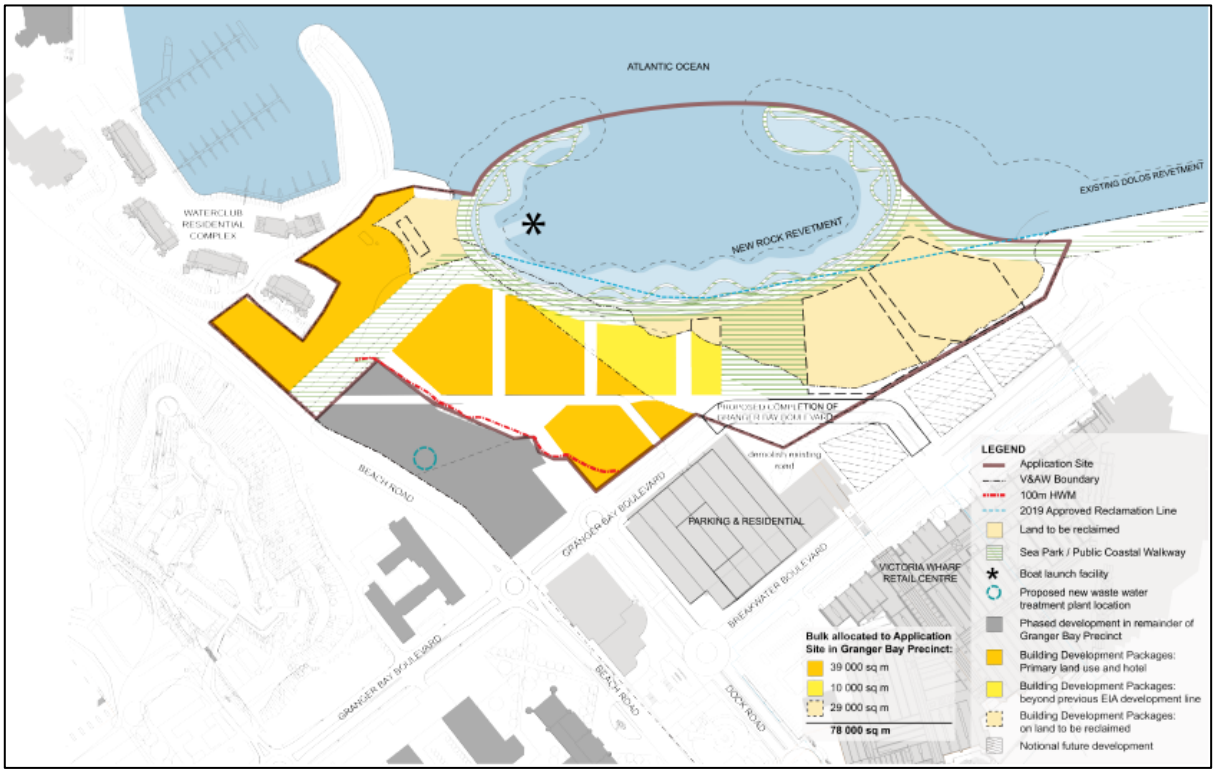

Figure 3: Proposed revised V&AW Granger Bay Precinct notional development plan.

The reshaped revetment shown in Figure 3 will be 540 m long, and the new west and east breakwaters approximately 90 m and 140 m in length respectively. This coastal infrastructure will provide the required protection for the proposed mixed-use development in the precinct as well as the existing infrastructure on Erf 149294 (e.g. parking structures and Breakwater Boulevard). This coastal protection will include a coastal public walkway that will connect to the Mouille Point promenade via Beach Road and provide continuous public access from Beach Road to and along the coast. The coastal route will consist of a paved pedestrian walkway with outdoor leisure and recreational facilities. The extended 540 m coastal walk within the application site will be supplemented by approximately 100 m of public pedestrian paths along each breakwater.

An area of approximately 2.4 ha of newly reclaimed land formed part of the 2019 Granger Bay

EIA approval. The reshaped revetment does not result in an increase of the area of land reclaimed under the previous approval, although the two new breakwaters together cover a further 0,8 ha.

3 TERMS OF REFERENCE

TerraMare Archaeology was appointed to produce a Phase 1 AIA to inform the Scoping Report and to form part of the HIA which is required as part of the EIA for the Granger Bay Land Reclamation project.

An archaeological assessment for the HIA for the previously authorised project was conducted by the ACO Associates (ACO) in 2014 (Schietecatte and Hart, 2014).

This AIA revisits and updates the 2014 AIA and Its objectives are:

- To determine whether there are likely to be important archaeological resources that will be impacted by the proposals;
- To indicate any constraints that will need to be considered in relation to the revised development proposal;
- To identify sensitive archaeological areas; and
- To recommend any necessary mitigation action.

4 RELEVANT LEGISLATION, POLICY & GUIDELINES

4.1 National Heritage Resources Act (No. 25 of 1999)

The National Heritage Resources Act (NHRA) came into force in 2000 with the establishment of the SAHRA, replacing the National Monuments Act (No 28 of 1969 as amended) and the National Monuments Council as the national agency responsible for the management of South Africa's cultural heritage resources.

The NHRA reflects the tripartite (national/provincial/local) nature of public administration under the South African Constitution and makes provision for the devolution of cultural heritage management to the appropriate, competent level of government. In the Western Cape this is HWC.

Because national government is responsible for the management of the seabed below the mean high-water mark, however, the management of maritime and underwater cultural heritage resources under the NHRA does not devolve to provincial or local heritage resources authorities but remains the responsibility of the national agency, SAHRA.

This AIA must, therefore, be submitted to both SAHRA and HWC for their comment as part of the statutory EIA public comment process.

The NHRA gives legal definition to the range and extent of what are considered to be South Africa's heritage resources. According to Section 2(xvi) of the Act a heritage resource is "any place or object of cultural significance". This means that the object or place has aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

In terms of the definitions provided in Section 2 of the NHRA, heritage resources potentially relevant to this archaeological assessment are:

- Material remains of human activity which are in a state of disuse and are in or on land [which includes land under water] and which are older than 100 years, including artefacts, human and hominid remains and artificial features;
- 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; and
- Any archaeological artefact, which as movable property of cultural significance may be protected in terms of any provisions of the NHRA.

As per the definitions provided above, these archaeological resources are protected by the NHRA and a permit from SAHRA (currently) is required to destroy, damage, excavate, alter, deface or otherwise disturb any such sites or material.

It is also important to be aware that in terms of Section 35(2) of the NHRA, all archaeological material the property of the State and must, where recovered from a site, be lodged with an appropriate museum or other public institution.

Section 38 of the NHRA requires impact assessments for certain kinds of development. In relation to this project, the relevant activities are:

- A development which will change the character of a site exceeding 5000 m^2 in extent (Section 38(1)(c)(i)).

4.1.1 Grading of Heritage Resources

The South African heritage resources management system is based on grading, by means of which the appropriate level of management responsibility is assigned to any heritage resource.

Grading, according to Winter & Oberholzer (2013) is “generally based on the intactness, rarity and representivity of the resource, as well as its role in the larger landscape or cultural context”.

Each heritage resource identified in this AIA was assessed according to criteria, specified in Section 3 of the NHRA, for assigning heritage significance. These are:

- Importance in the community or pattern in South Africa’s history;
- Possession of uncommon, rare or endangered aspects of South Africa’s natural or cultural heritage;
- Potential to yield information that will contribute to an understanding of South Africa’s natural or cultural heritage;
- Importance in demonstrating the principal characteristics of a particular class of South Africa’s natural or cultural places or objects;
- Importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- Importance in demonstrating a high degree of creative or technical achievement during a particular period;
- Strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- Strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- Significance in relating to the history of slavery in South Africa.

The generally accepted heritage resource grades are shown in Table 1 below.

Table 1: Grading of heritage resources (Source: Baumann & Winter 2005: Box 5).

Grade	Level of significance	Description
1	National	Of high intrinsic, associational and contextual heritage value within a national context, i.e. formally declared or potential Grade 1 heritage resources.
2	Provincial	Of high intrinsic, associational and contextual heritage value within a provincial context, i.e. formally declared or potential Grade 2 heritage resources.
3A	Local	Of high intrinsic, associational and contextual heritage value within a local context, i.e. formally declared or potential Grade 3A heritage resources.
3B	Local	Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources.
3C	Local	Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources.

4.1.2 Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment Reports

SAHRA has published *Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment Reports* (SAHRA, 2007), n terms of which standards an AIA must:

- Identify the archaeological sites on a proposed development site;
- Assess their significance;
- Comment on the impact of the development on these archaeological resources; and
- Make recommendations for their mitigation or conservation as appropriate.

Similarly, HWC has published its *Guide for Minimum Standards for Archaeology and Palaeontology Reports Submitted to Heritage Western Cape* (HWC, 2021) which lays out its requirements for a range of reports, including specialist reports produced during the impact assessment process.

This HIA complies with both SAHRA and HWC's minimum standards and is based on the report template for Section 38 (1 and 8) HIAs set out in Section 9.2. of the former document.

4.2 National Environmental Management Act (No 107 of 1998)

The National Environmental Management Act (NEMA), as amended, provides a framework for the integration of environmental issues into the planning, design, decision-making and implementation of plans and development proposals that are likely to have a negative effect on the environment.

Regulations governing the environmental authorisation process have been promulgated in terms of NEMA and include the EIA Regulations, 2014 as amended (GNR R326/2017) and Listing Notices 1 – 3 (GNR 324, 325 and 327/2017). These regulations were amended in April 2017 by Government Notices 324, 325, 326 and 327.

This project triggers a number of activities in the Listing Notices and will thus, in terms of GNR 325, be subject to an EIA process. V&AW will be required to obtain a positive EA from the Department of Environment Affairs and Development Planning (DEA&DP) prior to

commencement of the proposed activities.

5 METHODOLOGY

This desktop AIA provides an assessment of the archaeological potential of the Granger Bay land reclamation project site, within the study area defined in Section 5.1 below.

The overarching TerraMare Archaeology AIA (2024) identifies areas of archaeological sensitivity across the entire V&AW footprint and indicates that the Granger Bay land reclamation project site has potential pre-colonial archaeology and maritime archaeology sensitivity.

In addition, there may be some limited terrestrial historical archaeological potential on the site, and possible submerged pre-colonial archaeological potential offshore.

This report therefore addresses the following categories of archaeological resources which could be impacted by the proposed development:

- Pre-colonial terrestrial archaeology;
- Historical terrestrial archaeology;
- Submerged pre-colonial archaeology; and
- Maritime archaeology, principally shipwrecks.

The following sections provide an outline of the approach and methodology used in the assessment.

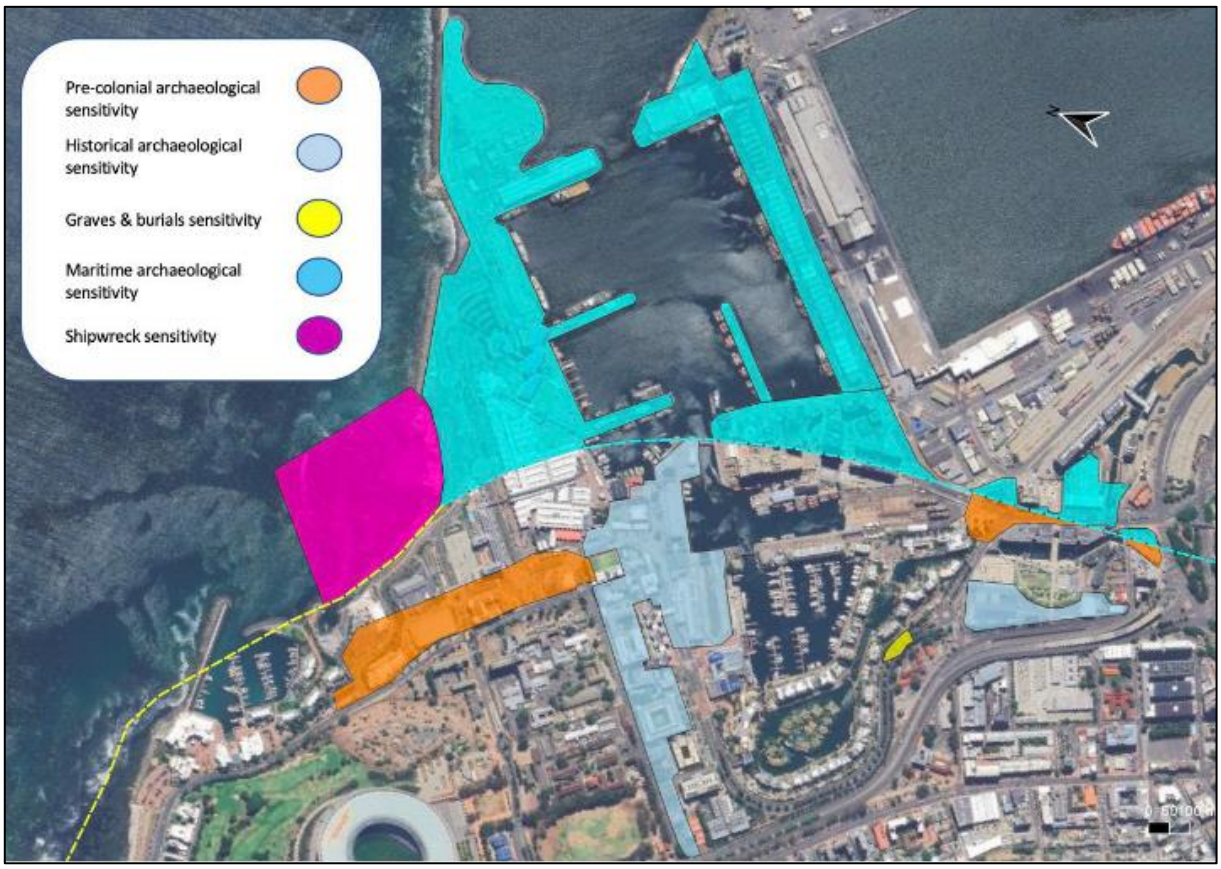

Figure 4: General areas of archaeological sensitivity identified within the V&AW (Source: Gribble, 2024).

5.1 Study Area

The study area for this AIA comprises the terrestrial portion of the V&AW bounded by Beach Road, Granger Bay Boulevard and Jetty Street in the south, the Water Club in the west and, on the seaward side by a line drawn between the end of the Granger Bay harbour mole and East Pier on the Breakwater (see Figure 5).

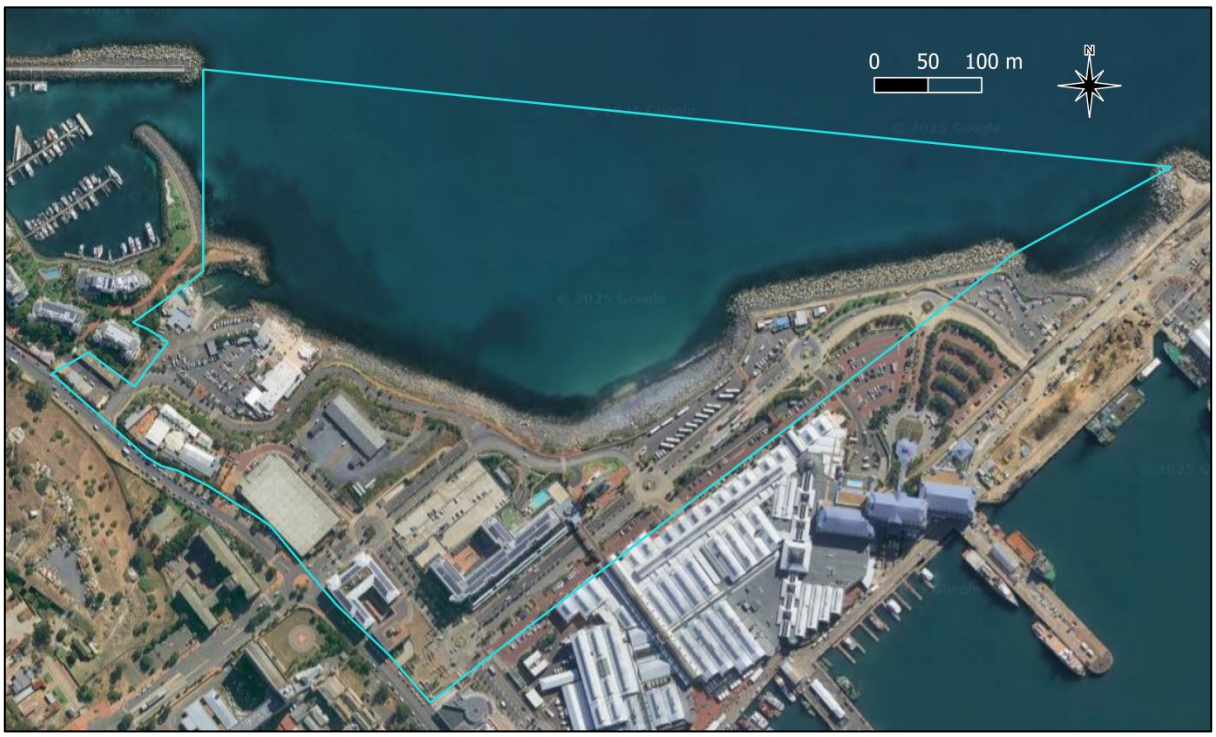

Figure 5: Study Area utilized for this AIA (Source: Google Earth).

5.2 Sources of Information

A survey of available and relevant literature was carried out to assess the archaeological context within which the Granger Bay Land Reclamation project will be set. The two principal documents used were ACO Associate's AIA for the approved Granger Bay Land Reclamation project (Schietecatte and Hart, 2014) and TerraMare Archaeology's AIA for the whole of the overarching V&AW (Gribble, 2024).

Other sources of information used are shown in Table 2 below and include published archaeological papers and reports for the general project area and unpublished archaeological and heritage impact assessments that have been undertaken in the vicinity of the project site, available on the SAHRIS online platform (https://sahris.sahra.org.za/) or sourced from other consultants.

Table 2: Information sources used in this assessment

Data/Information	Source	Date	Type	Description
Maps	Chief Directorate: National Geo-Spatial Information	Various	Spatial	Historical and current 1:50 000 topographic maps of the study area and immediate surrounds
Aerial photographs	Chief Directorate: National Geo-	Various	Spatial	Historical aerial photographyof the study area and immediate surrounds

	Spatial Information			
Satellite imagery	Google Earth	Various	Spatial	Recent and historical satellite imagery of the study area and immediate surrounds
Cadastral data	Chief Directorate: National Geo-Spatial Information	Various	Survey diagrams	Historical and current survey diagrams, property survey and registration dates
Background data	South African Heritage Resources Information System (SAHRIS)	Various	Reports	Previous impact assessments for any developments in the vicinity of the study area
Background data	Books, journals, websites	Various	Books, journals, websites	Historical and current literature describing the study area and any relevant aspects of cultural heritage.

5.3 Archaeological Field Assessments

Given the built-up nature of the terrestrial portion of the study area and its foundation on relatively modern landfill, no archaeological field assessment has been conducted for this AIA.

With respect to the offshore portion of the development site indicated on Figure 5, we have not been able to find evidence of any existing geophysical or other seabed surveys covering the area, and the maritime archaeological assessment is thus also desk-based.

5.4 Restrictions and Assumptions

South Africa's record of maritime and underwater cultural heritage resources is based on a mix of information derived in the main from historical documents and secondary sources and from very limited primary sources such as geophysical data and other field-based observations and site recordings.

While every effort has been made to ensure the accuracy of the information presented below, the reliance on secondary data sources means that there are considerable gaps and inaccuracies in this record and the locations of any wrecks referred to in the following sections and are, for the most part, approximate.

The potential also exists for currently unknown and/or unrecorded maritime heritage sites to be encountered within the Granger Bay Land Reclamation project.

Similarly, direct evidence for submerged pre-colonial archaeological sites and materials on the South African continental shelf is extremely limited. However, submerged archaeological sites and materials found in offshore contexts elsewhere in the world and the known terrestrial archaeology of the South African, are indicative of the potential for such submerged sites and materials around our coast.

6 RECEIVING ENVIRONMENT

The development site is located at the northern end of the V&AW, immediately to the south of Granger Bay and to the north of Fort Wynyard. It is located on the seaward side of Beach Road and to the east of the Water Club. The shoreline and the Oceana Boat Club are located immediately to the north. A public access way to the Oceana Boat Club traverses the site (see

Figure 1 and Figure 5).

The development site is underlain by landfill deposited at various stages between the late 19th and late 20th centuries, related to the development of the harbour. Plate 1 and Plate 2 illustrate the type and depth of the fill on the site, and the existing rock revetment which has been deposited along the coast.

Plate 1: Aerial view looking east across a portion of the land reclamation project site showing the deep fill between Jetty Street and Beach Road on which the parking lot and black-roofed building are constructed (After: Baumann 2015).

Plate 2: Aerial view of a portion of the land reclamation project site looking south and showing the deep fill between Jetty Street and Beach Road, and the existing rock revetment along the coast (After: Baumann 2015).

7 BASELINE DESCRIPTION

7.1 Pre-Colonial Terrestrial Archaeology

In historical descriptions of Table Bay and its surrounds since Dias first rounded the Cape in 1497, many sailors and colonists reported the presence of indigenous people along the Cape coast, and noted the numerous sheep and cattle possessed by some groups (Leibbrandt 1897; Thom 1952, 1954, 1958; Raven-Hart 1967, 1971). Given the abundant coastal and near-coastal resources available in the south-western Cape, precolonial occupation must have resulted in numerous archaeological sites, and Orton et al. (2020: 133), in a paper summarising the state of knowledge of the pre-colonial archaeology of the area between Table Bay and Yzerfontein, quote Laidler (1935: 566) who noted that 'the whole of the Peninsula coast, Hout Bay and Table Bay to Saldanha Bay was thickly covered with shell deposits'.

Orton et al. (2020: 133) stress that while this is an exaggeration for some parts of the coast it is certainly true that there would have been substantial pre-colonial archaeological remains on the Peninsula, and that on the shore of Table Bay much of this record has been lost to development, with only very few sites recorded prior to their destruction before the 1990s.

In the Green Point / City Bowl area, Orton et al. (2020: 135) refer to reports by Peringuey (1911) and Rudner (1968) of “extensive shell middens with associated grindstones, pottery and burials found on the western and south-western shores of Table Bay within the dunes extending from Green Point to the mouth of a stream at the lower end of present-day Adderley Street”.

Orton et al. (2020: 135) also refer to an early French map of the area dated circa 1700 and

reproduced in Boucher and Penn (1992) which records, “the presence of a 'Hottentot' village (village des Hotentots) at the foot of Signal Hill”, while various other late 17th- and early 18th-century maps “recorded the presence of Khoe kraals to the north-west of the present City Bowl” (Glatigny et al., 2008).

In the vicinity of the V&AW, evidence of Later Stone Age (LSA) pre-colonial shell middens has been found during the excavation of the Prestwich Street Burial Ground in Green Point (Malan et al. 2017) and midden material was reported from a development site at the lower end of Buitengracht Street (Alan Morris pers. comm., 2011 quoted in Orton et al., 2020). The Prestwich site also produced a few weathered artefacts of probable Earlier Stone Age origin, and a single Middle Stone Age (MSA) artefact, a bifacial point of Still Bay type, was found at the contact of the dune sand and the underlying weathered shale bedrock. This latter artefact may indicate the presence of MSA people in the area circa 70 000 years ago (Tribolo et al. 2006; Jacobs et al. 2008 cited in Orton et al. 2020: 136).

Among the many historical archaeological burials that have been reported from the Green Point area, (see Morris 1992; Malan et al. 2017) are a few of precolonial age. Orton et al. (2020: 137) reference Sealy and Van der Merwe (1988) and Sealy (1989) who described “two such burials from Beach Road dating close to one thousand years ago and two more graves, each containing the skeletons of two individuals, were found within part of the larger Green Point historic burial ground uncovered at Cobern Street”. Radiocarbon dating indicates these latter burials occurred between 1 300 and 800 BP (Cox 1999).

Although a review of archaeological reports from the V&AW conducted by Gribble (2024) found no indication that pre-colonial archaeological material has been encountered during archaeological activities within the V&AW., it is almost certain that middens and pre-colonial sites were present along this stretch of the Table Bay coast: its rocky shore, with a predictable, high-protein food supply, offering attractive focus for human use and settlement.

More than 350 years of increasingly intensive colonial and industrial utilization and transformation of the area are probably responsible for destroying much of this archaeological record, but as Orton et al. (2020: 150) point out “the scattered LSA burials and LSA occupational debris from Green Point show that some data can be obtained from heavily built-up areas” and that “while LSA sites are likely to be the most common new finds, older sites certainly lie buried beneath cover sands and calcrete strata”.

This is confirmed by the finds of pre-colonial material cited from archaeological excavations within developed urban contexts in the Prestwich and Cobern Street areas, and a recent report of such material from a development site in Somerset Road (Orton, 2023). Together, this suggests that pre-colonial archaeological material could survive under the later landfill along the former coastline within the Granger Bay Land Reclamation project site, in the area indicated on Figure 6.

Given the rarity of such survivals of pre-colonial material in the developed urban context of this part of the city, the archaeological significance and value of any such sites or materials is likely to be high.

7.2 Terrestrial Historical Archaeology

Van Riebeeck’s original landing site at the Cape in 1652 is described in the documents as somewhere on the “Lion's Tayle”, and it has been suggested that it could have been at

Granger Bay, although there is no definitive proof for this contention (Murray, 1964).

What we do know is that Granger Bay was named after a Captain Granger who lived in the Mouille Point area in the mid-19th century, and who rescued the crew and passengers of the *Miner* when it capsized off the bay in 1857 (Murray, 1964). Granger appears to have had a fishery in the area, possibly within Granger Bay itself, and there is also evidence that this small, protected bay was used historically by a whale fishery to haul their catches ashore (Archaeology Contracts Office, 1993).

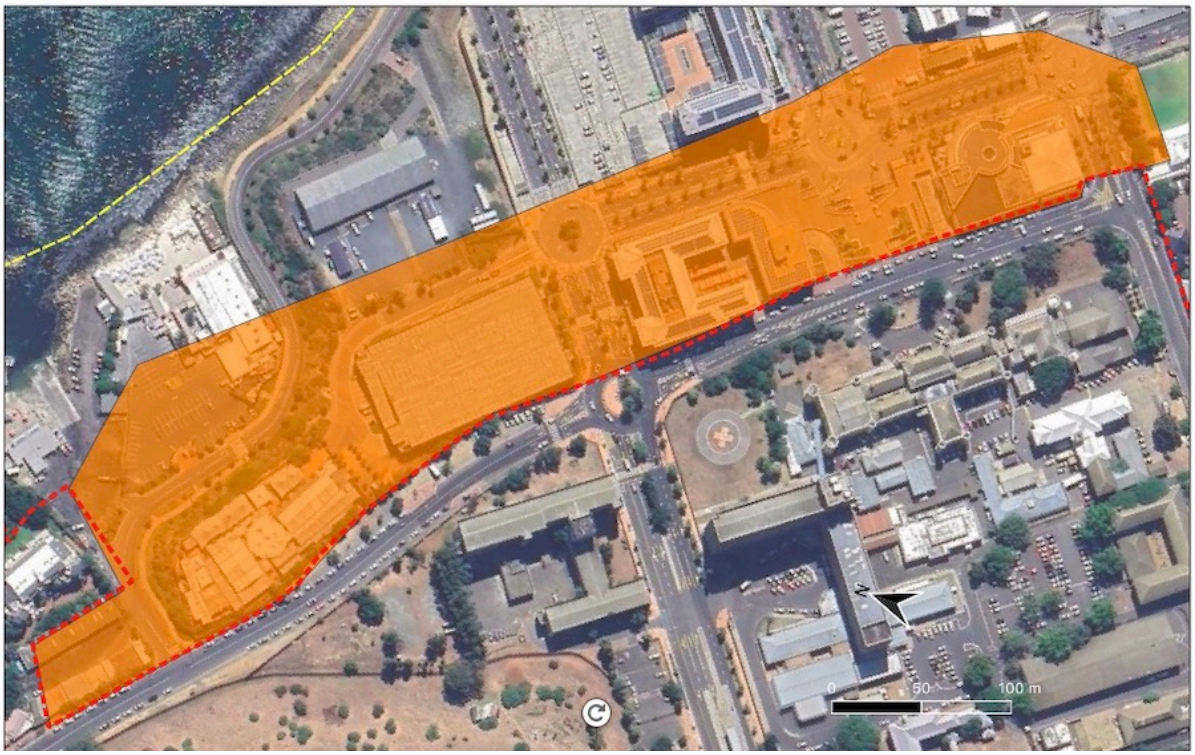

Figure 6: Rough indication of area (orange polygons) of pre-colonial archaeology sensitivity in the Beach Road precincts, which includes a portion of the Granger Bay Land Reclamation project area, where sites or material may survive under later landfill (After: Gribble 2024).

A building indicated as belonging to the Cape Canning Company Limited, which operated out of Granger Bay in the latter half of the 19th century and early years of the 20th century, is shown on maps of the time (Figure 7), although any surviving evidence of this structure is likely to have been lost when the Water Club marina development took place. The site of the fish factory and Granger Bay itself are also both outside of the V&AW landholding.

Similarly, the historic original Dutch breakwater, or mole, for which Mouille Point is named and whose construction started in 1743, was located on the western side of Granger Bay and thus also outside the V&A. Although the sea demolished the structure almost as fast as it could be built and the structure was abandoned in 1747, the remains of the mole still survive close to where the old Mouille Point lighthouse stood (Murray 1964; Archaeology Contracts Office 1993).

Within the V&AW, a comparison of maps of the area between Granger Bay and the Breakwater, drawn in 1896 and 1911 indicates the construction of a 'blockyard' with a branch railway line from docks along the coast here (Figure 7), probably for use in the ongoing lengthening of the breakwater. This rail infrastructure is clearly visible in the 1945 aerial photograph of the area (Figure 8). The remains of this rail/harbour infrastructure seem to have

been removed in 1997 and 1998 and the site cleared before being partially redeveloped. There are no extant features of archaeological significance visible on the site.

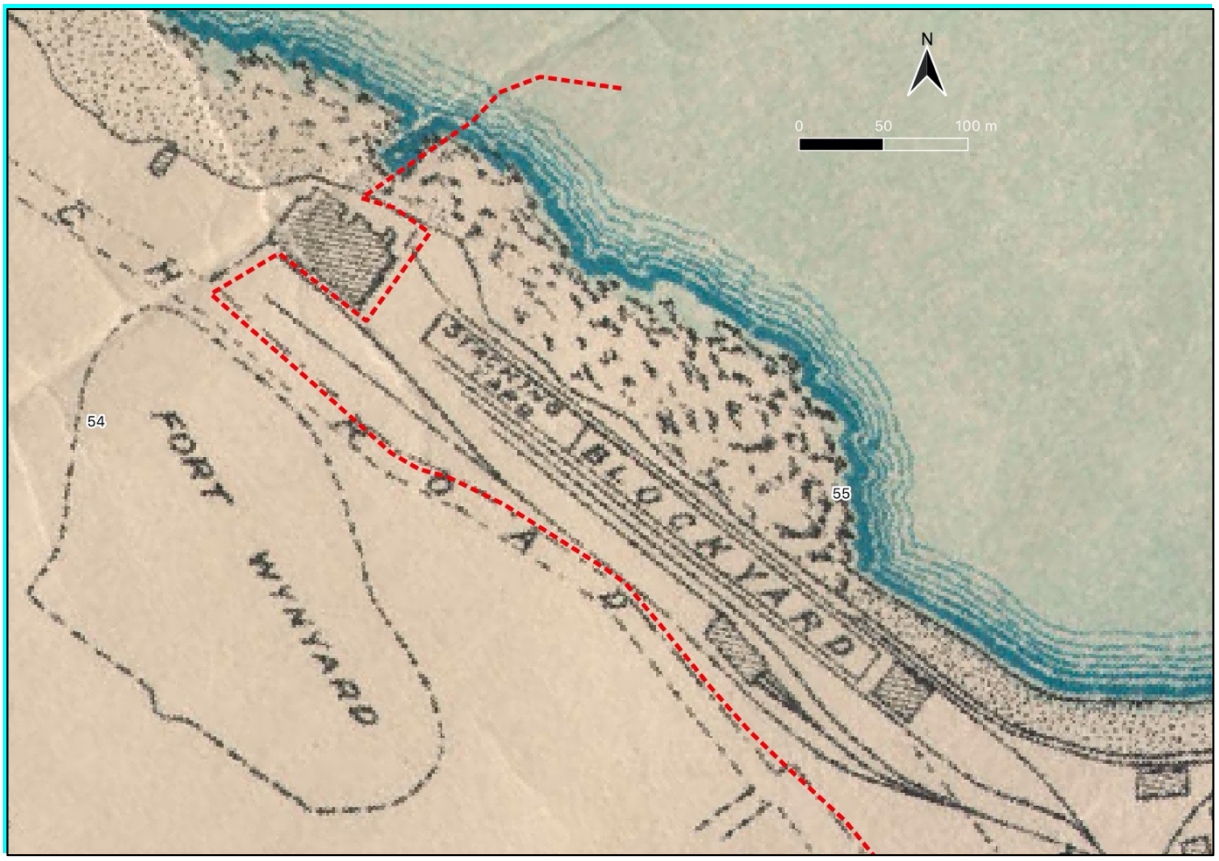

Figure 7: 1911 harbour map showing detail of the area immediately east of Granger Bay. Note the old fishery building outside the V&A boundary on the left of the image and the blockyard, stacking yard and railway line built along the seafront.

Figure 8: 1945 aerial photograph showing the block- and stacking yards on the Granger Bay coastline (Source: http://cdngiportal.co.za/photocentres/OTHER_SCALES_PAN/203A/203A_004_00616.jpg).

7.3 Submerged Prehistory

Since the start of the Quaternary, approximately 2.6 million years ago, the world has been subject to a series of cooling and warming climatic cycles and sea level was mainly lower than it is today. During the last 900,000 years, during which our tool-making ancestors were colonising much of the world, global sea levels have fluctuated substantially on at least three occasions, the result of increased and decreased polar glaciation which cyclically locked up and released huge quantities of seawater from polar ice sheets.

The most extreme recent sea level drop occurred between circa 20,000 and 17,000 years ago when, during Marine Isotope Stage 2 (MIS) at the height of the last glaciation, the sea was more than 120 m lower than it is today (Waelbroeck *et al*, 2002; Rohling *et al*, 2009). Similar sea level low stands occurred during MIS 4 (~70,000 years ago), MIS 6 (~190,000 years ago), MIS 8 (~301,000 years ago) and MIS 12 (~478,000 years ago).

Each of these low stands would have "added a large coastal plain to the South African land mass" (Van Andel, 1989:133) where parts of the continental shelf were exposed as dry land (see Cawthra *et al*, 2016) (Figure 9). The exposure of the continental shelf would have been most pronounced on the wide Agulhas Bank off the southern Cape coast, and it is estimated that a new area of land, as much as 80,000 km^2 in extent, was exposed during the successive glacial maxima (Fisher *et al*, 2010).

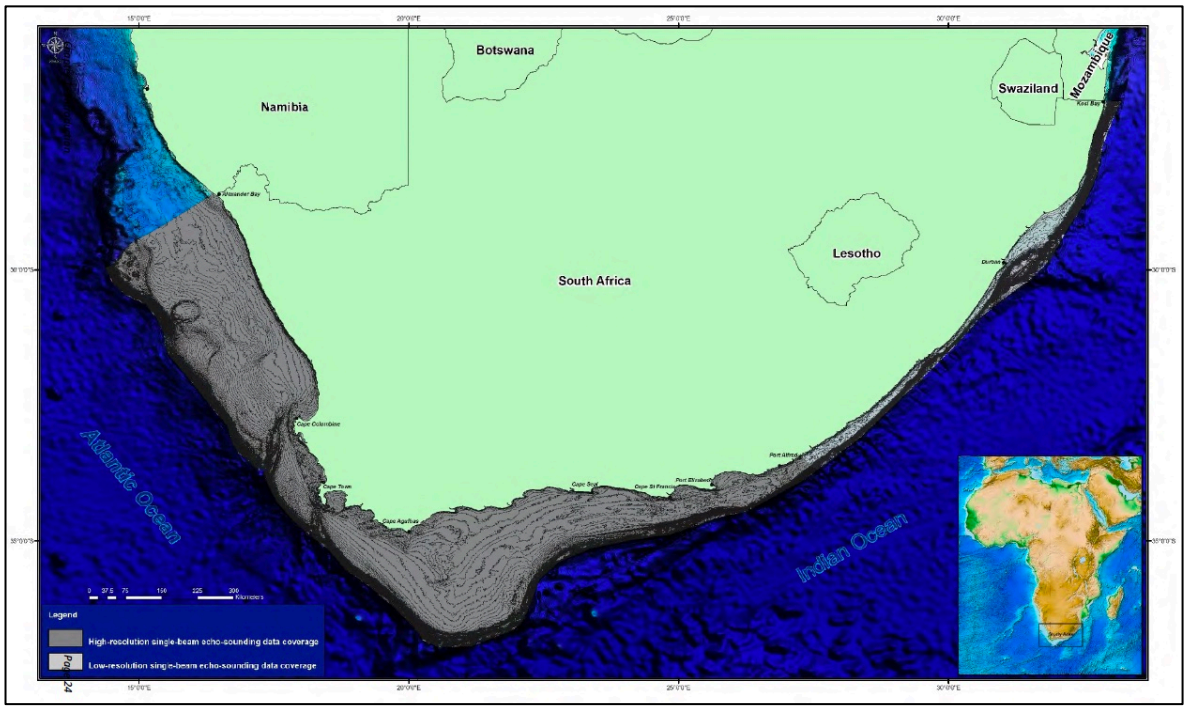

Figure 9: Extent of the South African continental shelf (light and dark grey area) (After De Wet, 2013).

The exposed continental shelf was repeatedly populated by terrestrial flora and fauna, and also by our human ancestors who were dependant on these resources (Compton, 2011), and for periods numbering in the tens of thousands of years, on at least three occasions during the last 500,000 years, covering the latter part of the Earlier Stone Age (ESA), the MSA, and the early LSA, our ancestors inhabited areas of what is now seabed around the South African

coast. This means that a large part of the archaeological record of the later ESA, MSA and early LSA is located on the continental shelf and is now “inundated and for all practical purposes absent from [that] record” (Van Andel, 1989:133-134).

Until relatively recently there was little or no global understanding of the potential for, or access to, submerged prehistoric landscapes and sites on the continental shelf. Increasingly frequent discoveries in various parts of the world of drowned, formerly terrestrial landscapes, often because of development-led seabed surveys and sampling, is, however, providing increasing evidence for the survival of prehistoric archaeological sites on and within the current seabed.

Well-known examples of such evidence include archaeological material and late Pleistocene faunal remains recovered in the nets of fishing trawlers in the North Sea between the United Kingdom and the Netherlands throughout the 20th century (Peeters *et al*, 2009; Peeters, 2011) and the University of Birmingham’s archaeological interpretation of 3D seismic data, collected in the same area by the oil and gas industry, which has revealed well-preserved prehistoric landscape features across the southern North Sea (Fitch *et al*, 2005, Gaffney *et al*, 2010).

Since the University of Birmingham work there have been increasing numbers of reports of submerged archaeological sites and material, for example, Tizzard et al (2011) and Faught and Gusick (2011) in Benjamin et al (2011).

Closer to home, there is archaeological evidence for a prehistoric human presence in Table Bay. In 1995 and 1996 during the excavation of two Dutch East India Company shipwrecks, the *Oosterland* and *Waddinxveen*, divers recovered three ESA handaxes from the seabed under the wrecks (Figure 10).

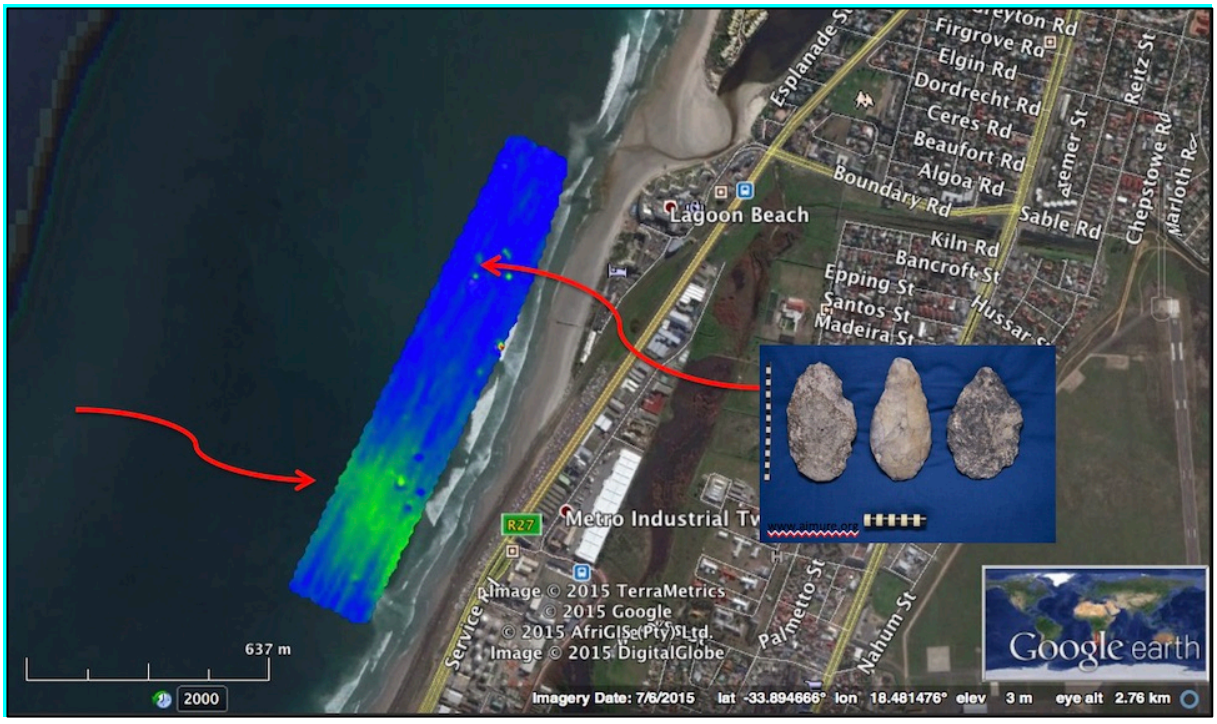

Figure 10: Location of the find of Table Bay ESA handaxes (inset) off Milnerton (top arrow) overlain on magnetometer data which shows the submerged palaeo-channel (green) of the Salt River (bottom arrow) (Sources: Google Earth; http://www.aimure.org/index.php/aimure-projects).

The stone tools, which are between 300,000 and 1.4 million years old, were found at a depth of 7-8 m below mean sea level and were associated with Pleistocene sediments from an

ancient submerged and infilled river channel. Their unrolled and unworn condition indicate that they had not been carried to their current position by the ancient river and suggests that they were found more or less where they were dropped by ESA hominins more than 300,000 years ago (possibly during MIS 8 (~301,000 years ago) or MIS 12 (~478,000 years ago)), when the sea level was at least 10 m lower than it is today and much of Table Bay was an emergent terrestrial landscape (Werz and Flemming, 2001; Werz *et al*, 2014).

During periods of lower sea level our ancestors are likely to have moved out onto the exposed floor of Table Bay and left evidence of their use of that landscape. Where landscape features and formerly sub-aerial sediments have survived subsequent marine transgressions there is, thus, the potential to find pre-colonial archaeological sites and artefacts, and to recover palaeoenvironmental data (pollens, foraminifera and diatoms, for example) from submerged, seabed contexts within Table Bay.

7.4 Maritime Archaeology

In 1498 the Portuguese explorer Vasco da Gama finally pioneered the long-sought sea route around Africa from Europe to the East. Since then, the southern tip of the African continent has played a vital role in global economic and maritime affairs, and until the opening of the Suez Canal in 1869, represented the most viable route between Europe and the markets of the East as shown on Figure 11 (Axelson, 1973; Turner, 1988; Gribble, 2002; Gribble and Sharfman, 2013.

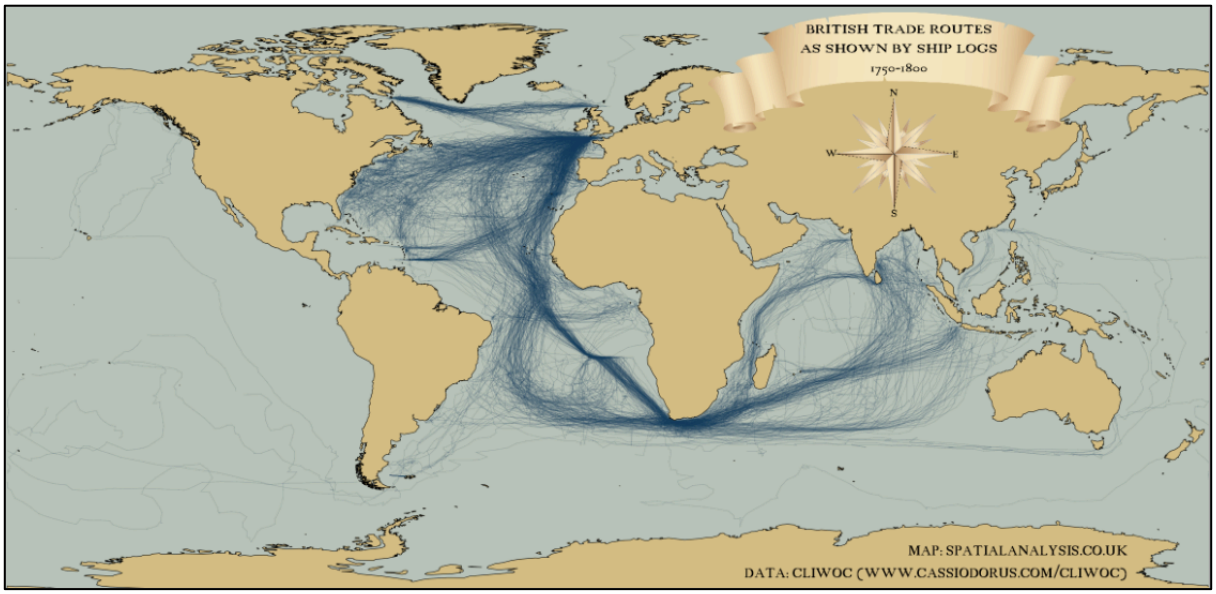

Figure 11: Example of the strategic position of the South African coast in global trade. British trade routes as shown by ship logs – 1750 to 1800 (Source: http://www.theguardian.com/news/datablog/2012/apr/13/shipping-routes-history-map).

The geographical position of the South African coast on the historical route to the East and the physical conditions mariners could expect to encounter in these waters have, in the last five centuries, been responsible for the large number of maritime casualties which today form the bulk of South Africa's maritime and underwater cultural heritage (Gribble, 2002).

At least 2,800 vessels are known to have sunk, or been wrecked, abandoned or scuttled in South African waters since the early 1500s. This list of casualties is not believed to be complete and certainly does not include the yet unproven potential for shipwrecks and other

sites that relate to pre-European, Indian Ocean maritime exploration, trade and interactions along the South African east coast.

For obvious historical reasons, the earliest known South African wrecks are Portuguese, dating to the sixteenth century when that country held sway over the route to the East. Due to the later, more prolonged ascendancy of first the Dutch and then the British in European trade with the East and control at the Cape, most wrecks along the South African coast are Dutch and British. However, at least 36 other nationalities are represented amongst the other wrecks that litter the coast.

South Africa's historical shipwrecks record is, thus, a huge, cosmopolitan repository of information about mainly global maritime trade during the last five centuries and potentially much further back into the past. These sites contain a wealth of cultural material associated with that trade and clues to the political, economic, social and cultural changes that accompanied this trade, and which contributed to the creation of the modern world.

The historical anchorage in Table Bay has the largest concentration of historical wrecks in South African waters (more than 400). This is the result of a combination of factors, including a notorious lee shore to the Western Cape's winter storms, the long history of the bay as busy shipping hub, and indifferent harbour facilities for most of that period (Burman, 1976; Turner, 1988).

Unlike the southern and eastern shores of Table Bay where the bulk of historical shipping casualties occurred, however, the north-western portion of the bay, where the Granger Bay Land Reclamation project will be situated, was relatively protected from the winter north-westerlies, and shipwrecks were less common in this area.

Nevertheless, several texts (see Burman, 1976; Turner, 1988; Durden, 1992) and a shipwreck database maintained by TerraMare Archaeology, indicate that more than 20 shipwrecks or shipping losses occurred in the area between the Green and Mouille Points between the 16th and 19th centuries. Table 3 lists the recorded wrecks around in the Mouille Point area.

Table 3: List of historical wrecks recorded in the vicinity of the project area

Name	Date	Place
Apollo	1823	Ran ashore at Green Point close to the Moulin Battery
Arabia	1858	Struck rocks and wrecked at Mouille Point
Athens	1865	Wrecked on the rocks between Green Point and Mouille Point
Catherine Jamieson	1840	Ran aground on rocks at Mouille Point
Chieftan	1848	Wrecked on Mouille Point
Dido	1853	Wrecked on rocks at Mouille Point
Eliza	1863	Ran aground on rocks at Mouille Point
Ellen Maria	1868	Wrecked on the rocks at Green Point
Enchantress	1849	Wrecked between Green Point and Mouillle Point
Frances	1840	Ran ashore at Mouille Point
Helen / "Glass Wreck"	1842	Ran ashore at Mouille Point
Highfields	1902	Sank after collision with the *Kaiser* just outside the Breakwater
Hoop	1784	Ran ashore close to Mouille Point

Juliana	1839	Ran ashore at Mouille Point
Mary Stewart	1842	Went ashore between the lighthouses
Miner	1857	Capsized off Granger Bay
Mulgrave Castle	1825	Driven onshore and wrecked close to Green Point lighthouse
Olga R	1885	Ran aground on the reef at the point
Palmer	1840	Ran aground on rocks between the lighthouse and Moulin Battery
Piscatatqua	1865	Ran ashore opposite the wreck of the *Athens*
Prince Rupert	1841	Ran ashore at Mouille Point
Reno	1883	Ran aground at Mouille Point
Royal William	1837	Struck rocks at Green Point near Lazar's Fisheries
Sheperd	1874	Foundered on north side of Breakwater
Sincapore	1832	Ran ashore at Mouille Point
Swea	1852	Ran ashore near the "old" lighthouse
Udeny Castle	1840	Ran ashore at Mouille Point
Wasp	1863	Capsized outside the Breakwater

Some of these wrecks – for example the *Athens*, the *Highfields* and the *Helen* (also known as the Glass Wreck) - can confidently be placed outside the study area because their remains have been found on the seabed and their positions are thus accurately known.

The *Wasp* (1863) and *Sheperd* (1874) were lost slightly offshore near the Breakwater, and it seems unlikely that their remains will be within the area proposed for shore protection and associated land reclamation between the existing revetment and Granger Bay.

The records suggest that only one of these casualties took place within Granger Bay itself – the *Miner* which capsized and sank in 1857 - but the vagueness of contemporary historical descriptions and the closeness of Mouille Point to the project area, suggests that it would be wise to consider the possibility that at least some of the vessels listed in Table 3 as having been lost within the project area.

It is worth noting in this regard that the 1926 aerial photograph on the City of Cape Town Map Viewer (https://citymaps.capetown.gov.za/EGISViewer/) shows what appears to be a vessel on the beach in the corner between the Breakwater and Granger, more or less under what is now Breakwater Lane (Figure 12). Although this lies outside the project area, it is a reminder that there is the potential for unknown wrecks to be present in the project area.

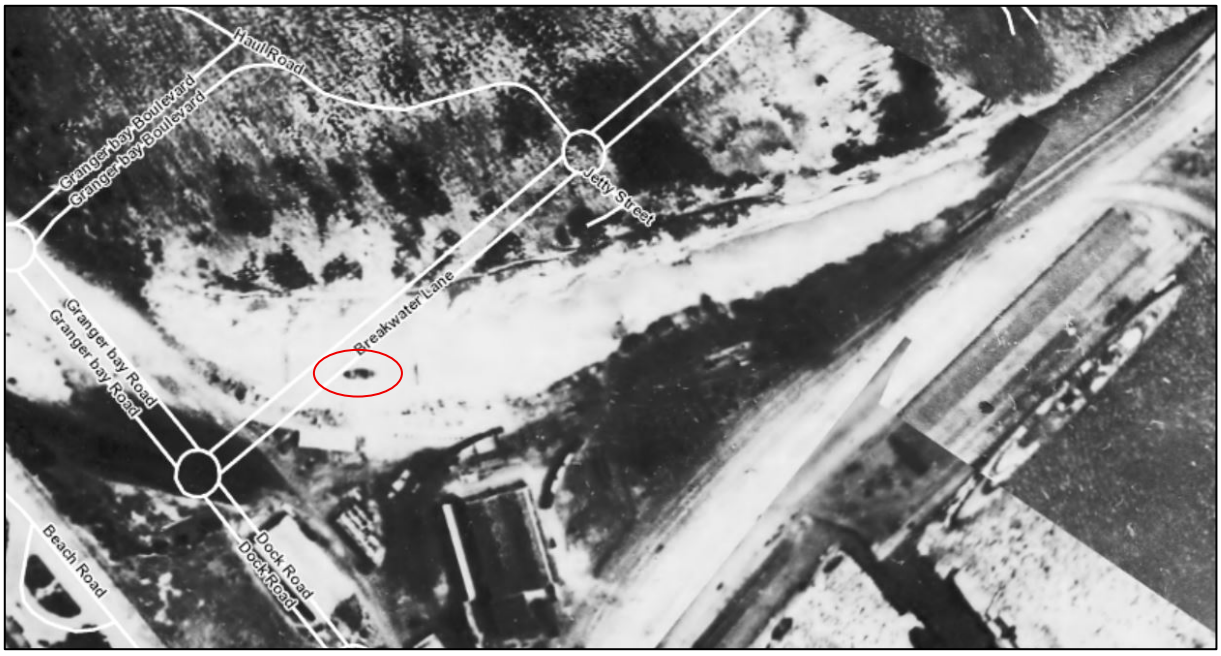

Figure 12: 1926 aerial photograph showing a possible wreck (circled) on the beach between the Breakwater and Granger Bay (Source: (https://citymaps.capetown.gov.za/EGISViewer/).

8 IMPACT ASSESSMENT

Activities associated with the Granger Bay Land Reclamation project have the potential to impact pre-colonial archaeological sites and material and any maritime archaeological resources within the project area.

From the baseline descriptions above, it appears unlikely that terrestrial historical archaeological resources are present on the project site, and this receptor has been scoped out of the impact assessment.

Similarly, although there is the potential for the presence of submerged prehistoric archaeological material within the seabed sediments in the maritime portion of the project area, this is likely to be extremely low. The nature of the proposed work in this area – the depositing of fill on the seabed – also means that the direct interventions into the seabed that might encounter such material will not take place. Submerged prehistoric archaeological material is, therefore, scoped out of this assessment.

8.1 Impact Descriptions

The impacts to pre-colonial archaeological sites and material and maritime archaeological resources may occur as a result of:

- Construction activities associated with the development of the terrestrial portion of the project area; and
- Land reclamation activities.

Where they occur, these impacts will be direct and may result in the damage to, or destruction of archaeological sites and/or artefacts.

Impacts to these two archaeological receptor classes will be local in extent, occurring only within the footprint of development-related activities.

The duration of impacts will be permanent, because archaeological sites and materials are a non-renewable resource and cannot recover if damaged.

8.2 Pre-Colonial Terrestrial Archaeology

The main impacts to undisturbed pre-colonial archaeological material which survives under later landfill or development will occur during construction activities related Granger Bay Land Reclamation project and may arise where construction activities reach and disturb the original land surface.

These impacts will be direct impacts which will result in the damage to, or destruction of archaeological sites and/or artefacts. Impacts will be site specific in extent, occurring only within the footprint of development-related activities, but their duration will be permanent, because archaeological sites and materials are a non-renewable resource and cannot recover if damaged

Given the rarity of surviving pre-colonial archaeological material in the developed urban context of this part of the city, the significance of impacts is likely to be medium, but with the implementation of suitable mitigation measures would be reduced to low.

Potential impacts on pre-colonial archaeological material arising from the construction activities related Granger Bay Land Reclamation project are assessed as follows:

Table 4: Assessment of impact of loss of or damage to pre-colonial archaeological resources

	Without Mitigation	**With mitigation**	**Essential mitigation measures**
Extent	Site specific	Site specific	• Where new development or earthworks which have the potential to reach the depth of the former, historical land surface are undertaken in the areas indicated in Figure 6 of the AIA, the work is archaeologically monitored. • Should pre-colonial archaeological material be encountered, this will need to be archaeologically assessed by a suitably qualified archaeologist. Archaeological material is the property of the state and may require excavation and curation in an approved institution. If found, such material may not be removed or disturbed until inspected and, if required, mitigated by an archaeologist.
Intensity	Medium	Medium	
Duration	Permanent	Permanent	
Reversibility	Non-reversible	Non-reversible	
Irreplaceability	High irreplaceability	High irreplaceability	
Probability	Improbable	Improbable	
Significance	Medium	Low	
Status	-ve	-ve	
Confidence	Low	Low	

8.3 Maritime Archaeology

The nature of the activities proposed in the maritime portion of the project area – fill and reclamation – mean that although any wreck material present in the area is unlikely to be physically destroyed, it will be heavily impacted and effectively made inaccessible as a heritage resource.

Impacts to historical shipwrecks will be site specific in extent, but permanent.

Because no wrecks have been previously reported in the Granger Bay Land Reclamation project, it is difficult to assess the significance of any impacts, which depends to a large degree on the archaeological value of the affected site or material. It is, however, likely that the significance of impacts to a previously undiscovered wreck will be high, which could be reduced to low with the implementation of suitable mitigation measures.

Potential impacts on maritime archaeological resources arising from the construction activities related Granger Bay Land Reclamation project are assessed as follows:

Table 5: Assessment of impact of loss of or damage to maritime archaeological resources

	Without Mitigation	With mitigation	Essential mitigation measures
Extent	Site specific	Site specific	• A geophysical survey of the seabed, (sidescan sonar, multibeam bathymetry and magnetometry), should be conducted in the project area prior to any land reclamation activities, to confirm whether there are shipwreck or other heritage sites present. • The results of the geophysical survey should be reviewed by a suitably qualified archaeologist. • If a wrecks or wrecks are present in the area SAHRA must be notified immediately, and the site/material must be assessed by a suitably qualified archaeologist, after which a decision can be made about the need for any mitigation measures, which may include site recording, sampling/excavation, and potentially removal and recovery. • It is also recommended that any future excavations within the Granger Bay Land Reclamation precinct through existing landfill, seaward of the historical alignment of the shoreline, to levels that may intersect with the former seabed must be subject to archaeological monitoring, with the necessary contingencies in place to allow the mitigation of shipwreck remains, should they be encountered.
Intensity	Medium	Medium	
Duration	Permanent	Permanent	
Reversibility	Non-reversible	Non-reversible	
Irreplaceability	High irreplaceability	High irreplaceability	
Probability	Probable	Probable	
Significance	High	Low	
Status	-ve	-ve	
Confidence	Medium	Medium	

8.4 Comparative Impacts

The comparative assessment of impacts of the proposed development on pre-colonial and maritime archaeological resources arising from the No-Go Alternative, from the Proposed 2019 mixed-use development and from the current, 2025 proposed mixed-use development is provided in Table 6 and Table 7 below:

Table 6: Comparative assessment of impacts of the No-Go, 2019 and current development proposals on pre-colonial archaeological resources.

Criteria	Scoring	No -Go Alternative	Proposed 2019 mixed-use development **	Proposed 2025 mixed-use development
Impact	**Potential Impacts of Construction Activities on impact of loss of or damage to pre-colonial archaeological resources**			
Extent	• Site Specific • Local (<2km) • Regional (within 30km) • National • International	No construction, no impact	Site specific	Site specific
Intensity	• High (severe alteration) • Medium (notable alteration) • Low (Negligible alteration)	No construction, no impact	Medium - High	Medium
Duration	• Temporary (<1year) • Short term (1-6 years) • Medium term (6-15 years) • Long term (cease after operational life) • Permanent	No construction, no impact	Medium – Long Term	Permanent
Reversibility	• High reversibility • Moderate • Low • Non reversible (permanent)	No construction, no impact	-	Non-reversible
Irreplaceability	• High • Moderate • Low • Replaceable	No construction, no impact	-	High irreplaceability
Probability	• Improbable • Probable (<50%) • Highly probable (50% - 90%) • Definite (>90%)	No construction, no impact	Probable	Improbable
Significance before mitigation	• Low - very low • Medium • High	No construction, no impact	Medium - High	Medium
Status	• Positive • Negative • Neutral	No construction, no impact	Negative	Negative
Confidence	• Low • Medium • High	High	Medium	Low
Significance after mitigation		No construction, no impact	-	Low

** *The impact rating provided in the 2015 AIA and Phase II HIA did not address the full range of assessment criteria. These gaps are reflected in this table.*

Table 7: Comparative assessment of impacts of the No-Go, 2019 and current development proposals on maritime archaeological resources.

Criteria	Scoring	No -Go Alternative	Proposed 2019 mixed-use development **	Proposed 2025 mixed-use development
Impact	**Potential Impacts of Construction Activities on impact of loss of or damage to pre-colonial archaeological resources**			
Extent	• Site Specific • Local (<2km) • Regional (within 30km) • National • International	No construction, no impact	Site specific	Site specific
Intensity	• High (severe alteration) • Medium (notable alteration) • Low (Negligible alteration)	No construction, no impact	Medium - High	Medium
Duration	• Temporary (<1year) • Short term (1-6 years) • Medium term (6-15 years) • Long term (cease after operational life) • Permanent	No construction, no impact	Medium – Long Term	Permanent
Reversibility	• High reversibility • Moderate • Low • Non reversible (permanent)	No construction, no impact		Non-reversible
Irreplaceability	• High • Moderate • Low • Replaceable	No construction, no impact		High irreplaceability
Probability	• Probable (<50%) • Highly probable (50% - 90%) • Definite (>90%)	No construction, no impact	Probable	Probable
Significance before mitigation	• Low - very low • Medium • High	No construction, no impact	Medium - High	High
Status	• Positive • Negative • Neutral	No construction, no impact	Negative	-ve
Confidence	• Low • Medium • High	High	Medium	Medium
Significance after mitigation		No construction, no impact		Low

** *The impact rating provided in the 2015 Phase II HIA did not address the full range of assessment criteria. This is reflected in this table.*

9 RECOMMENDED MITIGATION MEASURES

9.1 Pre-Colonial Archaeology

Fragmentary survivals of pre-colonial archaeological material (principally coastal shell middens) are possible where undisturbed coastal sediments survive, even where currently buried under later landfill or development.

It is recommended that:

- New development or earthworks which have the potential to reach the depth of the former historical land surface, the work is archaeologically monitored.
- Should pre-colonial archaeological material be encountered, this will need to be archaeologically assessed by a suitably qualified archaeologist. Archaeological material is the property of the state and may require excavation and curation in an approved institution. If found, such material may not be removed or disturbed until inspected and, if required, mitigated by an archaeologist.

9.2 Graves and Burials

No graves or burial grounds have been recorded within the Granger Bay Land Reclamation project, but it is possible that unmarked burials could be present in the same areas of the site that may be archaeologically sensitive. Such, usually pre-colonial graves, are an extremely sensitive and often contested heritage resource, and it is generally impossible to predict their presence in advance of development.

It is, therefore, recommended that:

- In the event of the discovery of human remains, work in the affected area must cease immediately, the find must be made secure but left in situ, and Heritage Western Cape and an archaeologist must be informed so that the find can be assessed and arrangements can be made for its mitigation.

9.3 Terrestrial Historical Archaeology

The historical structures recorded in the Granger Bay Land Reclamation project area appear to have been demolished and removed in 1997/8.

As such, the area is of very low historical archaeological significance, and no specific mitigation is recommended, except that where new development or earthworks have the potential to reach the depth of the former, historical land surface this work is archaeologically monitored.

9.4 Submerged Prehistory

Although there is the potential for the presence of submerged prehistoric archaeological material within the maritime portion of the Granger Bay Land Reclamation project area, this is likely to be extremely low. The nature of the proposed work in this area – depositing fill on the seabed – also means that the direct interventions into the seabed that might encounter such material will not take place.

Mitigation measures in respect of submerged prehistoric archaeology are thus irrelevant, and

none are recommended.

9.5 Maritime Archaeology

No wrecks have been previously reported in the Granger Bay Land Reclamation project and overall, the likelihood of encountering historical wrecks in the area is low.

Because of the uncertainty introduced by the vagueness of contemporary historical descriptions of maritime casualties in the Mouille Point and Granger Bay area, however, it is recommended that:

- A geophysical survey of the seabed, (sidescan sonar, multibeam bathymetry and magnetometry), is conducted in the project area prior to any land reclamation activities, to confirm whether there are shipwreck or other heritage sites present.
- The results of the geophysical survey is reviewed by a suitably qualified archaeologist.
- If a wrecks or wrecks are present in the area the South African Heritage Resources Agency (SAHRA) must be notified immediately, and the site/material must be assessed by a suitably qualified archaeologist, after which a decision can be made about the need for any mitigation measures, which may include site recording, sampling/excavation, and potentially removal and recovery.

It is also recommended that:

- Any future excavations within the Granger Bay Land Reclamation precinct through existing landfill, seaward of the historical alignment of the shoreline, to levels that may intersect with the former seabed must be subject to archaeological monitoring, with the necessary contingencies in place to allow the mitigation of shipwreck remains, should they be encountered.

Lastly, the mitigation measures indicated above should be included in the project Environmental Management Programme.

10 CONCLUSION

This assessment has found that the area identified for the proposed development of the Granger Bay Precinct and associated reclamation of land is a heritage environment of variable sensitivity but that significant impacts on archaeological sites and materials arising from the project are unlikely.

It is our reasoned opinion, therefore, that from a heritage perspective the proposed Granger Bay Land Reclamation project may be authorised, but subject to the implementation of the recommendations contained within this report.

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APPENDIX A: CURRICULUM VITAE – JOHN GRIBBLE

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5 Cannon Road, Plumstead, 7800, Cape Town, South Africa

PERSONAL STATEMENT

More than 30 years of practical professional archaeological and heritage resource management experience in both public sector compliance agency roles and private sector archaeological consulting. Wide range of archaeological, historical built environment and other heritage skills and knowledge. Hardworking and strive to produce quality deliverables.

CORE QUALIFICATIONS

- Archaeological resource management
- Heritage consultancy
- Project management
- Client liaison
- Heritage compliance
- Multitasking abilities
- Archaeological excavation & site management
- Report writing
- Media engagement

EDUCATION

Master of Arts: Archaeology - *Verlorenvlei Vernacular: A Structuralist Analysis of Sandveld Folk Architecture*

University of Cape Town *1990*

Bachelor of Arts (Honours): Archaeology

University of Cape Town *1987*

Bachelor of Arts: Archaeology

University of Cape Town *1986*

WORK EXPERIENCE

Director and Senior Archaeologist | TerraMare Archaeology (Pty) Ltd - Cape Town

09/2023 – Current

- *Left ACO Associates to establish my own archaeological consultancy.*
- *Continue to provide mainly impact assessment services to a range of renewable energy, mining and agricultural clients.*

Senior Archaeologist and Heritage Consultant | ACO Associates – Cape Town

09/2017 - 08/2023

- *Senior archaeologist at South Africa's oldest commercial archaeological.*
- *Carried out both the desk-based and field elements of a wide range of*

terrestrial and maritime archaeological assessments.

- *Clients include terrestrial renewable energy sector, offshore mining sector and offshore oil and gas sector.*

Maritime and Underwater Cultural Heritage Unit: Manager | South African Heritage Resources Agency – Cape Town

2014 - 08/201

- *Re-appointed to my earlier post at SAHRA: Manager of the Maritime and Underwater Cultural Heritage Unit.*
- *In July 2016 appointed to the additional role of Acting Manager of SAHRA's Archaeology, Palaeontology and Meteorites Unit.*

Director | Sea Change Heritage Consultants Limited – United Kingdom & Cape Town

2012 - 2018

- *Established maritime archaeological consultancy Sea Change Heritage Consultants Limited, in August 2012.*
- *Provided archaeological services to a range of UK maritime sectors, including marine aggregates and offshore renewable energy.*
- *Lead author and project co-ordinator in 2013-14 for "The UNESCO Convention on the Protection of the Underwater Cultural Heritage 2001: An Impact Review for the United Kingdom".*
- *Co-author in 2016 of a Historic England / Crown Estate / British Marine Aggregate Producers Association funded review of marine historic environment best practice guidance for the UK offshore aggregate industry.*

Principal Consultant: Maritime Archaeology | TUV SUD PMSS - Romsey, United Kingdom

2011 – 2012

- *Spent a year at international renewable energy consultancy, TUV SUD PMSS, an where I provided maritime archaeological consultancy services to principally the offshore renewable and marine aggregate industries.*

Principal Consultant: Maritime Archaeology | EMU Limited - Southampton, United Kingdom

2009 – 2011

- *Joined marine geosurvey company Fugro EMU Limited to set up an in-house maritime archaeological section.*
- *Provided maritime archaeological consultancy services to principally the offshore renewable and marine aggregate industries.*
- *Lead author of "Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector" (2010) for COWRIE.*

Project Manager: Coastal and Marine | Wessex Archaeology - Salisbury, United Kingdom

2005– 2009

- *Project manager in what was the largest commercial maritime archaeological unit in the United Kingdom.*
- *Managed a number of maritime impact assessments for the UK offshore renewable energy and marine aggregate sectors, strategic maritime archaeological projects commissioned by English Heritage and the Aggregate Levy Sustainability Fund.*
- *Manager and lead author in the development of the archaeological elements of the first Regional Environmental Assessments for the South Coast and Thames Estuary Dredging Associations, and in UK Continental Shelf Offshore Oil and Gas and Wind Energy Strategic Environmental Assessment for Department of Energy and Climate Change.*
- *Lead author of "Historical Environment Guidance for the Offshore Renewable Energy Sector", industry guidance commissioned by COWRIE (Collaborative Offshore Wind Research into the Environment), an independent body set up by The Crown Estate, and the UK renewable energy sector.*

Maritime Archaeologist | National Monuments Council / South African Heritage Resources Agency – Cape Town

1996 – 2005

- *First full-time maritime archaeologist employed by the National Monuments Council.*
- *Responsible for nationwide management and protection of underwater cultural under the National Monuments Act, and subsequently under the National Heritage Resources Act.*
- *Oversaw the establishment of the SAHRA Maritime & Underwater Heritage Unit.*

Professional Officer: Boland and West Coast, Western Cape Office | National Monuments Council – Cape Town

1994 – 1996

- *Responsible for the implementation of the National Monuments Act in respect of the historical built environment in the Boland region of the Western Cape.*

PROFESSIONAL EXPERIENCE

Archaeological experience includes:

- Historical sites:
  - Survey and recording of traditional mudbrick vernacular houses at Verlorenvlei, West Coast for Honours and Masters dissertations
  - Cobern Street historical burial ground, Cape Town
  - Sayers Lane VOC burial ground, Simons Town
  - Sea Point Battery
  - 66 Wale Street, Cape Town
  - YMCA Building, Queen Victoria Street
  - Van Riebeeck's Fort, Grand Parade, Cape Town
  - 90 Bree Street, Cape Town
  - F Block, Castle of Good Hope, Cape Town
  - Huntley Street town dump, Grahamstown (Makhanda)
  - Piggots Park settler homestead, Eastern Cape

    - Fort Double Drift, Fish River, Eastern Cape
    - Morgenhof, Stellenbosch
    - Paradise, Newlands Forest
- Pre-colonial sites:
    - De Aar 2 South Wind Energy Facility Transmission Line site mitigation
    - Elandsfontein Phosphate Mine site mitigation
    - Vredenburg Peninsula Archaeological Survey 1990-1991
    - Leentjiesklip, Langebaan
    - Doorspring, Lamberts Bay
    - Mauritz Bay, Vredenburg Peninsula
    - Spoeg River Cave, Namaqualand
    - Kasteelberg E Rock Shelter, Vredenburg Peninsula
    - Kasteelberg B, Vredenburg Peninsula
    - Witklip Shelter, Vredenburg;
    - Driebos Shelter, Tulbagh
    - Posberg Peninsula, Langebaan (6 sites)
    - Diepkloof Cave, Elands Bay
    - Hailstorm Midden, Elands Bay
    - Putslaagte Rock Shelters, Northern Cedarberg,Clanwilliam
- Middle East:
    - Chalcolithic and Roman / Byzantine excavations at Gilat and Bet Shean
- Maritime Surveys:
    - Diver on the 1999 HMS *Pandora* field season, Great Barrier Reef, Queensland, Australia
    - *Santa Maria Madre de Deus* (Nahoon Wreck), East London
    - *Sao Goncalo*, Plettenberg Bay
    - *Colebrooke* (1778), Kogel Bay
    - *Brunswick* (1805), Simon's Bay
    - *Bato* (1805), Simon's Bay
    - *Britannia* (1826), Britannia Bay
    - *Philia* (1880), Mossel Bay
    - *Clan Stuart* (1914), Simons Bay
    - "Simon's Bay Rudder" site
    - "Cannon & Ballast Wreck" - Simon's Bay
    - "Swemgat" Wreck - Yzerfontein, West Coast
    - *Het Huis te Craaiesteyn* (1698), Oudekraal, Cape Town
    - "British Musket" wreck, "Sternpost" wreck, "Sunset Beach" wreck, "Milnerton Lighthouse" wreck, "Barrel" wreck, *Oosterland* (1697), *Hermes* (1901) and *Winton* (1934), Table Bay
    - *Oakburn* (1906), Maori Bay
    - "Coopers Light" wreck, Durban

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PROFESSIONAL AFFILIATIONS

- Association of Southern African Professional Archaeologists (Membership No. 043)

CERTIFICATIONS / ACCREDITATIONS

- ASAPA Cultural Resources Management Section:
- Principal Investigator: Maritime and Colonial Archaeology
- Field Director: Stone Age Archaeology
- Class III Diver (Surface Supply), Department of Labour (South Africa) / UK (HSE III)

MEMBERSHIPS

- ICOMOS International Committee for Underwater Cultural Heritage *(2000 - present)*
- Joint Nautical Archaeology Policy Committee, United Kingdom (*2010 - present*)
- Advisory Board: Southern African Slave Wrecks Project
- Heritage Western Cape: Archaeology, Palaeontology and Meteorites Committee (*2014-2022*)

APPENDIX B: SPECIALIST DECLARATION – J GRIBBLE

(See separate pdf file)

APPENDIX C: IMPACT ASSESSMENT METHODOLOGY

As per the DEAT Guideline 5: Assessment of Alternatives and Impacts the following methodology is applied to the prediction and assessment of impacts. Potential impacts are rates in terms of their:

Spatial Extent – The size of the area that will be affected by the impact:

- Site specific
- Local (<2km from site)
- Regional (within 30 km of site)
- National
- International.

Intensity – The anticipated severity of the impact:

- High (severe alteration of natural systems, patterns or processes)
- Medium (notable alteration of natural systems, patterns or processes)
- Low (negligible alteration of natural systems, patterns or processes).

Duration – The timeframe during which the impact will be experienced:

- Temporary (less than 1 year)
- Short term (1 to 6 years)
- Medium term (6 to 15 years)
- Long term (the impact will cease after the operational life of the activity)
- Permanent (mitigation will not occur in such a way or in such a time span that the impact can be considered transient).

Reversibility of the Impacts – The extent to which the impacts are reversible assuming that the project has reached the end of its life cycle (decommissioning phase):

- High reversibility of impacts (impact is highly reversible at the end of project life)
- Moderate reversibility of impacts
- Low reversibility of impacts
- Impacts are non-reversible (impact is permanent).

Irreplaceability of Resource Loss Caused by Impacts – The degree to which the impact causes irreplaceable loss of resource, assuming that the project has reached the end of its life cycle (decommissioning phase):

- High irreplaceability of resources (project will destroy unique resources that cannot be replaced)
- Moderate irreplaceability of resources
- Low irreplaceability of resources
- Resources are replaceable (the affected resource is easy to replace / rehabilitate).

Using the criteria above the impacts are further assessed in terms of the following:

Probability – The probability of the impact occurring:

- Improbable (little or no chance of occurring)
- Probable (<50% chance of occurring)
- Highly probable (50-90% chance of occurring)
- Definite (>90% chance of occurring).

Significance – Will the impact cause a notable alteration of the environment:

- Low to very low (the impact may result in minor alteration of the environment and can be easily avoided by implementing appropriate mitigation measures and will not have an influence on decision-making)
- Medium (the impact will result in moderate alteration of the environment and can be reduced or avoided by implementing appropriate mitigation measures and will only have an influence on decision-making if not mitigated)
- High (the impacts will result in major alteration of the environment even with the implementation of the appropriate mitigation measures and will have an influence on decision-making).

Status – Whether the impact on the overall environment will be:

- Positive (environment overall will benefit from the impact)
- Negative (environment overall will adversely affected by the impact)
- Neutral (environment overall will not be affected).

Confidence – The degree of confidence in predictions, based on available information and specialist knowledge:

- Low
- Medium
- High.

Impact mitigation measures will be proposed in line with the mitigation hierarchy: **avoid,**

minimise, restore, offset.

Other aspects to be taken into consideration in the assessment of impact significance are:

- Impacts will be evaluated for the construction and operation phases of the development. The assessment of impacts for the decommissioning phase will be brief, as there is limited understanding at this stage of what this might entail. The relevant rehabilitation guidelines and legal requirements applicable at the time will need to be applied;
- Impacts will be evaluated with and without mitigation in order to determine the effectiveness of mitigation measures on reducing the significance of a particular impact;
- The impact evaluation will, where possible, take into consideration the cumulative effects associated with this and other facilities/projects which are either developed or in the process of being developed in the local area; and
- The impact assessment will attempt to quantify the magnitude of potential impacts (direct and cumulative effects) and outline the rationale used. Where appropriate. National standards are to be used as a measure of the level of impact.