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THE V.O.C. SHIP ZEEWIJK
LOST IN 1727

A PRELIMINARY REPORT ON THE 1977
SURVEY OF THE SITE

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A PRELIMINARY REPORT ON THE 1977 SURVEY OF THE SITE

Introduction

An account of the loss of the V.O.C. (Verrenigde Oost-Indische Compagnie) ship Zeewijk (1727) and a report on the first season of investigation of the site has already been published (Ingelman-Sundberg, C., 1976, Ingelman-Sundberg, C., 1977).

This paper is a report on the 1977 survey which deals with the hydrographic, land and underwater surveys and excavation work carried out during the 1977 expedition.

A Brief Background Story to the Zeewijk Project

At dawn on 9th June, 1727, the V.O.C. ship of the Chamber of Zeeland, Zeewijk, struck the northern end of Half Moon Reef on the Houtman Abrolhos, which is situated about 64km. from the mainland.

Soon after the disaster, the Zeewijk crew managed to get to a nearby island, known today as Gun Island. Here the survivors found freshwater and from the wreckage of the ship and mangrove trees on nearby islands, they managed to construct a vessel which they sailed to Batavia in the Indies. This vessel took 8 months to build, was called the Sloepie and she carried 82 of the original crew of 208 to safety.

Left behind were the remains of the wreck and the castaways campsites on the island, and the graves of those who did not survive.

The old Zeewijk encampments were first encountered in 1840 and during the guano industry in the 1880's and 1890's a large collection of Zeewijk material was recovered from the island and brought to the Perth Museum (on display today at the Fremantle Maritime Museum). The Zeewijk main wrecksite was located by the author and journalist Hugh Edwards in 1968.

In 1976 the Maritime Archaeology Department of the Western Australian Museum, financed by an Australian Research Grant Council grant, initiated the Zeewijk project. The Zeewijk main site on the outside of Half Moon Reef and main concentrations of wreck debris on the inside reef were plotted. A land survey of Gun Island was made to accurately map the topographical features and areas of archaeological interest.

In addition a series of 89 metre² testholes were dug on the western side of the island in order to try and locate the remains of the Zeewijk survivors' campsites.

Surveys of the inside reef and main wrecksite were made and an artefact collection programme was made in a systematic manner on the inside reef.

The 1977 Zeewijk Expedition

The 1977 Expedition to the site had the following aims:

1. To carry out swimline searches on the inside of Half Moon Reef in order to locate and map wreckage and debris washed over the reef.
2. To record and survey concentrations of wreck material and to determine the extent and pattern of this material on the inside reef.
3. To continue the mapping and plotting of the Zeewijk mainsite started in the first season.
4. To carry out systematic soundings on the western, northern, and eastern sides of the island in order to try and locate the launching place of Sloepie.
5. To dig 1m. square testholes at 10m. intervals on the southern and northern end of the island in order to try and locate Sloepie's shipyard and the Zeewijk survivors' camp sites.
6. To establish a series of profiles of Gun Island in order to get an overall picture of the topography of the island today.
7. To make a geological survey of the island in order to establish the structure of the island, the extent of mined and non-mined areas on the island, and, if possible, to note the possible changes the island has gone through since 1727.
8. To make a biological survey of the flora on the island in order to establish which edible plants were available for the Zeewijk castaways 250 years ago.

Underwater Survey

The 1977 expedition continued the underwater surveys on the outside and inside of Half Moon reef that were initiated in 1976. The techniques used for plotting, recording and recovering were the same as the previous year. (Ingelman-Sundberg, C. 1976).

To enable offshore controls in the new survey areas and of the different concentrations of wreck material on the inside of the reef, 9 reference points were established at sea.

Six of the survey markers (star pickets with bamboo canes and flags) used during the 1976 expedition were re-erected in their original previously plotted positions, and, in addition, three new star pickets (4, 5 and 6) were put up 250m. east and parallel to the first two lines of survey markers, fig. 1. In this way the new line of star pickets formed a rectangle with the second line of survey markers. Using a theodolite the new star pickets were then positioned and plotted in relation to the baseline (Muttonbird Hill - Lunch Point) on Gun Island, fig. 2.

Underwater survey areas and wreck material concentrations situated over $\frac{1}{2}$ km. from the reef could thus be located and plotted by taking two horizontal sextant angles between any three reference points in the new rectangle.

The Mapping of Wreck Debris on the Inside Reef

During the 1976 expedition major wreck material concentrations, a cannon, glass, ceramic and chain plates, were found 800m. from the Zeewijk main site on the inside of Half Moon reef, lying on a sandy bottom at a depth of 1.5-2m., (area C, fig. 3).

In order to establish the extent and pattern of the wreck debris in this area, five 50 x 100m. underwater survey areas were laid out on the bottom according to fig. 1.

The areas were buoyed out and located by taking sextant angles on the star pickets. Swimline teams swam in tracks of 2m. intervals plotting the x and y co-ordinates and type of every artefact found.

Altogether 1,662 fragments of glass, stoneware, porcelain and ivory were raised. A test excavation around the cannon and chainplates did not reveal any further finds.

Swimline Searches on the Inside Reef

The inside of Half Moon Reef between the top of the reef and Gun Island covers an area of 4 sq. km..

Down current from the Zeewijk mainsite, the wreck debris is scattered in roughly a 300m. wide area towards Gun Island.

In order to establish the extent of this material and to

try and locate new major wreck material concentration, systematic swimline searches were carried out from the underwater survey areas down current towards Gun Island.

In addition swimline searches were carried out from star picket 12 to the northern edge of and parallel to the reef. The searches were 30m. wide with a diver positioned along the line at every 3m. A boat on the surface mapped the course of the swimline by dropping buoys with sinkers at regular time intervals, when the course of the swimline changed, and when any finds of significance were encountered.

These buoys were later positioned by taking two horizontal sextant angles from the star pickets and/or the nearby islands.

Result of the Swimline Searches

From 30m. south to 30m. north of star picket 5, a 60m. wide and 1300m. long area was covered by swimline searches down current towards Gun Island, fig. 1.

An approximate 40m. wide area in the middle yielded a rich amount of glass and ceramic material, mainly onion and case bottle fragments, wine glasses, tumblers, porcelain and sherds from stoneware jugs.

800m. from star picket 2, a timber area, 45m. north of area D, fig. 3., was encountered. The timbers consisted of

a 7 x 10m. wide area of outer planking. So far it is not known whether more timbers may be covered by sand. Nearby there are more timbers and finds of chainplates and a rudder pintle, area D, fig. 3.

East of the timber areas the wreck debris ceases altogether. No finds were encountered and $\frac{1}{2}$ km. east of the timber area the swimline search was halted.

The material recovered between the outer line of star pickets (4, 5, and 6) and the timber area indicates that part of the stern has been washed over the reef. A further investigation of this area is planned for a forthcoming expedition in order to establish the extent and identity of the parts of the ship which have come to settle here.

Survey of the Zeewijk Main Site

As during the 1976 expedition, the rough seas on the outside reef made any work on the Zeewijk mainsite an extremely difficult task.

It was only possible to dive on the wreck site on two days during the whole expedition.

In order to reach the wreck when the rough seas prevented swimming from the inside reef through the breakers onto the main site, an agreement was made with one of the fishermen to drop equipment and the divers on the wrecksite from a jet boat.

A set of buoys attached to a main rope with weights dropped from the jet boat formed a buoy bank which enabled the divers to buoy out the different cannon and anchors on the main wrecksite.

A 1.5 x 2m. wide area was investigated with geopicks and hammers to establish the depth and extent of wreck material in the coral and limestone bottom. Due to the strong rip and the breakers, it was impossible to carry out any photomosaics of the wreck site.

Result of the Survey of the Main Site

During the 1977 expedition, 17 cannon and 7 anchors were located. Seven other cannon were located during the 1976 expedition and 9 cannon have previously been located on the inside reef (5 of them raised in the 1950's and 1960's).

Altogether 31 out of the Zeewijk's 36 iron and bronze guns have been located.

The test excavation carried out to a depth of 35cm. revealed a large number of artefacts; wineglass stems, buttons, coins and bottle fragments.

This indicates that there might be a great amount of wreckage buried on the bottom. It is planned to improve the access to the wreck by using a jet boat, which can drop the divers directly onto the wrecksite. In this way it is hoped to carry out further excavation work on the site in a forthcoming expedition.

Land Survey

During the 1976 expedition, Gun Island was mapped and topographical features and areas of archaeological interest were noted.

During the 1977 Zeewijk expedition, a series of 15 profiles were established over the island, fig. 4. The lines ran West-East at 50m. intervals and an average of 316 readings were taken.

The aim was to get an illustrative outline of the island in order, if possible, to establish the location of mined and non-mined areas on the island and give an indication of sheltered spots which could have been used as campsites by the Zeewijk survivors.

The profiles also served as baselines for the geological and biological survey of the island.

Land Excavation

The 1977 Zeewijk expedition continued the test holes excavation initiated the season before (Ingelman-Sundberg, C. 1976, p.29). This year a series of 1m. square test holes were dug at ten metre intervals at the northern, eastern and southwestern end of the island.

The first series of testholes ran from Lunch Point to Point Happy. Out of 195 holes dug, 45 were fertile containing

glass, bone, ceramic and metal. These fertile holes were concentrated in three main areas with sterile ground in between. At the south-western end of the island a series of 46 holes were dug from Muttonbird Hill to George Point and in addition, on the eastern side of the island a series of 12 x 20-50cm. deep testholes were excavated. The holes were all sterile, except for two at the south-western end which contained seal bones.

A 1 x 5m. test trench was dug at Muttonbird Hill where the sand went deeper than the average of 60-80cm. reached in testholes in other areas. Guano and/or rock was encountered at a depth of 1.70m. but the area proved to be sterile.

The "Sloepie" Project

One of the aims in the Zeewijk project is to try and locate the Sloepie's launching place and if possible remains of the shipyard.

Previous researchers have suggested different places, Stokes (1846, 150) indicates it to be on a nearby islet ESE of Gun Island; O'Loughlin (1969, 11) believes that it is on the western side of Gun Island, whereas Edwards (1970) reports it to be on the eastern side. Preliminary investigation carried out during the 1976 Zeewijk expedition suggests that the spot in fact was on the north western side of the Island.

During the 1977 expedition two suggested alternatives were investigated: the eastern and north western end of the

island -

Theory I

According to Edwards (1970), Sloepie's launching place was on the eastern end of the island where a portion of the cliff has fallen down into the sea forming a natural and convenient slope into the water. The arguments for this place are:

1. It is noted on the Zeewijk survivor's map as the location for Sloepie's launching.
2. Where the cliff has fallen down the break has been filled in with packing (stones).
3. Iron nails have been found in the area.

However, closer examination has shown that the skipper, Jan Steyn's and second mate, van der Graeff's maps do not, it would appear always have the location written at the exact spot indicated on the map. For example, the ship's journal relates how part of the Zeewijk crew found wreckage from another ship on the western end of Pelsart Island. Yet, nowhere on the maps are there any indications of wreckage found on the western side. Instead the text on the maps mentions wreckage on the eastern side of the island. This could indicate that the texts on the maps are not reliable to indicate the exact location of an event or feature.

During the course of the Zeewijk expedition, the packing on the eastern side was dug out. Underneath the area of packing about 1.6m high and 2.4m wide, 19th century artefacts were

found. It is not likely that this 19th century glass and iron material had fallen through the comprehensive stone packing, thus indicating that the packing might originate from the guano diggers activities in the 19th century. A surface investigation of the area revealed 19th century glass, nails, and iron fragments. In addition to the land investigation a 90m. wide and 400m. long swimline search was carried out in the shallows outside the assumed launching place. The only finds were 19th century bottle fragments.

In the ship's journal it is mentioned how the castaways warped their boat in shallow water. Firstly, they place the boat in 4 feet of water (0.28m), then in 6 feet of water, to finally, a quarter of a mile off the island, they anchor her in 9 feet of water.

On the basis of the information in the ship's journal a series of soundings were made on the north western, northern and eastern end of the island. Eleven sounding tracks were established from the baselines on the island out at sea. Reading of the depths were taken every ten metres to 800m. (half a mile) from the shore.

A tide gauge was established and related to the national mapping survey mark station NMF/635. Readings were taken three times a day during the whole expedition. Soundings were then related to the mean value and soundings were plotted to mean sea level as well as to low and high water mark.

Three lines of soundings were carried out at the eastern end of the island in order to compare the depths at the assumed launching place with the depths given in the ship's journal, fig. 5.

The sounding profiles shows that there is no slope from 4 ft. to 6 ft. and then to 9 ft. of water. 280m. off shore the depth already exceeds 9 feet. This suggests that according to the ship's journal the eastern side of the island was not the place for the launching of Sloepie.

Theory II

The north-western corner of the island has been suggested as Sloepie's launching place for several reasons:

1. The spot is closest to the Zeewijk wreck site, convenient for the loading and unloading of timbers from the wreck.
2. It is sheltered from the prevailing winds in the area.
3. The spot is convenient for launching a vessel on rollers and then into deeper water (van der Graeff, 26th March 1728, p. 93).
4. The ship's journal (3rd March 1728) relates how the ship was taken around the NW corner of Gun Island to avoid a small reef which extends westward of the NW corner of the island.

On the basis of these reasons test excavation, soundings and swimline searches were carried out.

Test Excavation

A 1 x 60m. long test trench was dug along the beach at the north-western corner of the island and the test hole excavation from Lunch Point to Point Happy covered the area further up on land.

Along the shoreline 269 fragments of nails and iron fragments were encountered. In addition 3 18th century glass fragments were found.

In many cases it is difficult to establish the age of the nails and iron fragments and it is likely that some of the material might be from the guano period or more recent wreckage in the area.

Further inland, the testhole excavation revealed 18th century glass and ceramic pieces as well as nails and iron fragments, found in context with datable 18th century material. In test hole no. 188, pitch was found at a depth of 20cm. in context with iron nails, barrel hoops, 18th century bottle fragments and fragments of a wine glass.

Swimline Searches

Swimline searches were carried out parallel to the base line from Lunch Point to Point Happy. Altogether a 45,000m². long area was covered outside the north-western side of the island. Opposite the test excavation area and 80m. from shore, 2 mast caps and an 18th century stoneware sherd were found.

Soundings

Five lines of soundings were carried out every 100m. from Lunch Point to Point Happy running from the shoreline 800m. out at sea, fig. 5. The sounding profiles show a depth curve corresponding to the information given in the ship's journal.

At this stage of investigation it is too early to state where Sloepie was launched until all the suggested alternatives have been checked and Sloepie's shipyard has been found.

However, from the information gained so far it seems that the spot indicated on the map is not the actual place for Sloepie's launching but instead the north-western end of the island.

It is hoped that further land excavation will indicate whether the fertile areas on the north-western end of the island are remains from the Zeewijk survivors' campsites and/or Sloepie's shipyard.

Geological Survey

The geology and geomorphology of Gun Island were investigated by mapping along lines 50 metres apart and perpendicular to a base line from point E (1976 surveying) to Point Happy.

This work was carried out along the 15 survey lines used

for the cross section profiles of the island. In addition the wells on the island were inspected and the water tested.

A more detailed report will be published separately by J.S. Moncrieff.

Here it serves to say that the island is a consolidated coral limestone island partly covered with sand, guano, soil and a thin crust of shelly limestone. The water in well number 20 (the only one filled with water during the course of the Zeewijk expedition) contained water of 4000 mg/l total dissolved solids. Drinkable water is 3000 mg/l total dissolved solids.

Biological Survey

During the biological survey a total of 21 quadrats of 5m x 5m were taken revealing a total of 23 different species. Samples were taken covering the flora of the whole island. Of the species found 4-5 are suspected to be introduced after the Zeewijk survivors occupation on the island, probably by the guano diggers. The majority of species are indigenous and were on the island at the time of the Zeewijk disaster. One of these species frequent on the southern and western end of the island has been proved to be edible. A more detailed report on the biological aspects on the island will be published separately (M. Staniford).

Conclusion

As a result of the 1977 Zeewijk expedition it was possible to further map and plot the scattered Zeewijk wreck. On the outside reef 17 cannon and 7 anchors were located on the main-site. On the inside reef, between the outer line of star pickets and Gun Island and around the island itself 162.000 m² were covered by swimline searches. As a result of the swimline searches part of the Zeewijk structure was encountered in the timber area near Area D. It is believed that this area might contain material from the stern section of the ship. An area of 50.000m² around Area C was surveyed and the artefacts found raised and plotted with their x and y co-ordinates. Altogether 1,739 finds were registered from the underwater survey.

On land 162 x 1m. square testholes were dug at 10m. intervals on the northern, eastern and south-western end of the island indicating 3 areas previously occupied by the Zeewijk survivors.

An investigation to locate the Sloepie's launching place was initiated and two of the suggested alternatives were examined - the eastern and north western end of the island.

The present plan is to continue the project as follows:

1. Continue the mapping of the mainsite.
2. Continue the inside reef survey and (a) excavate a 50 x 50m wide area around the timbers encountered in the vicinity

- of Area D, (b) try to gain further information about the distribution of wreck material.
3. Start a full scale land excavation in the fertile test hole areas in order to establish whether the finds originate from actual campsites or 19th century spoil areas from the guano industry.
 4. Carry out land surveys on the nearby islands in order to establish the Zeewijk survivors activities in these areas.
 5. Continue the investigation of areas of possible Sloepie's launching place.
 6. With the help of 18th and 19th century archival material, to try to establish the Zeewijk survivors and guano diggers' activities on the island.

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•MAIN SITE

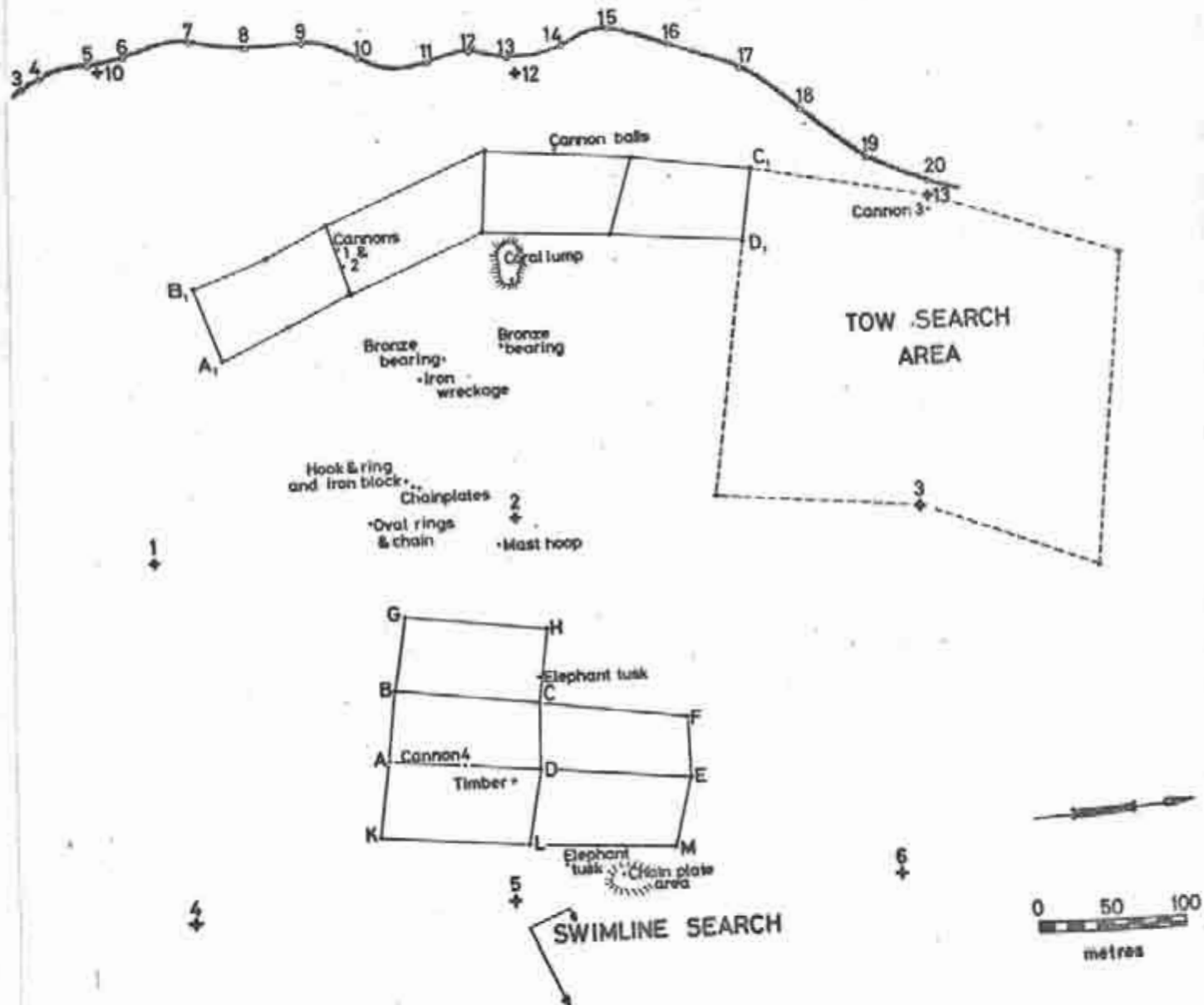


Fig. 1. Underwater survey areas on the inside reef. Area A1-D1 was surveyed during the 1976 Zeeuwijk Expedition, area A-M in 1977. The numbers show the position of the star pickets.

GUN ISLAND

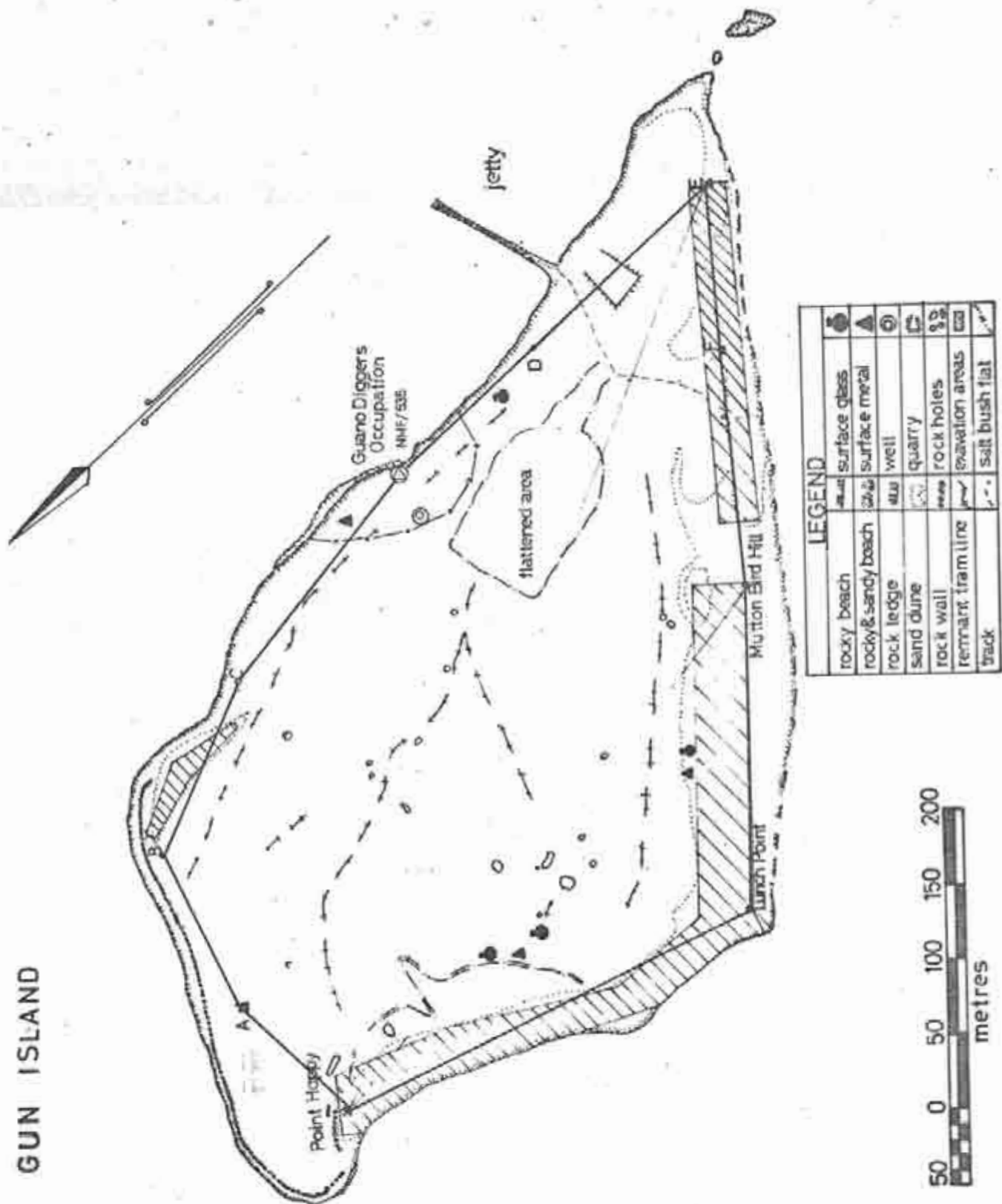


Fig. 2. Map of Gun Island showing topographical features, testhole excavation areas, the national mapping survey station NMF/635 and the baseline reference points Muttonbird Hill - Lunch Point.

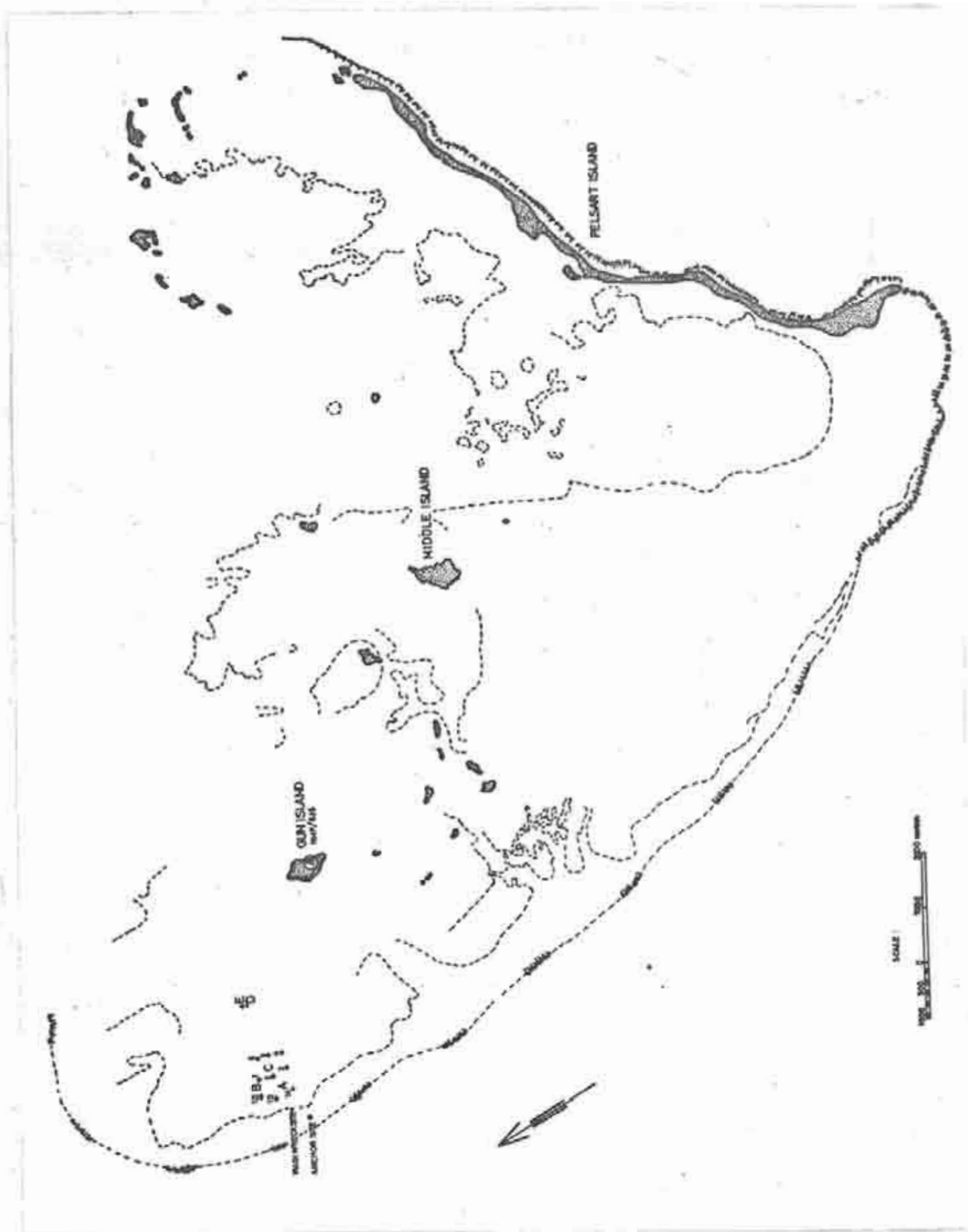
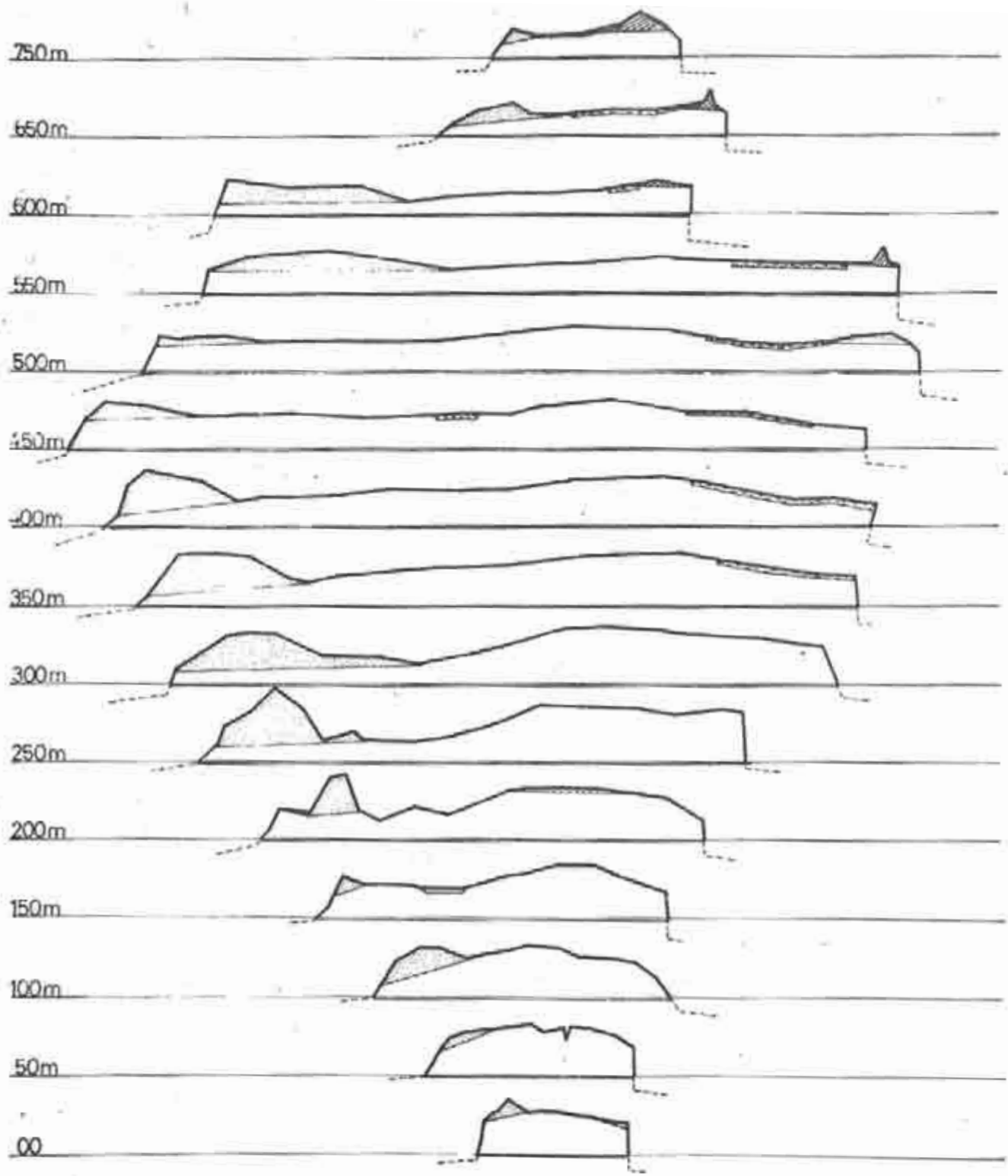





Fig. 3. The Zeewijk site and Gun Island mapped on the Australian Admiralty Chart. The wreck material concentrations are marked A-E, whereas the numbers show the position of the star pickets.



GUN ISLAND SURVEY
1977

limestone 
 rock 
 sand 

scale 1:1000
1:100

Fig. 4. A series of 15 profiles of the island showing geological and topographical features.
 Scale 1:1000 Horizontal
 1:100 Vertical

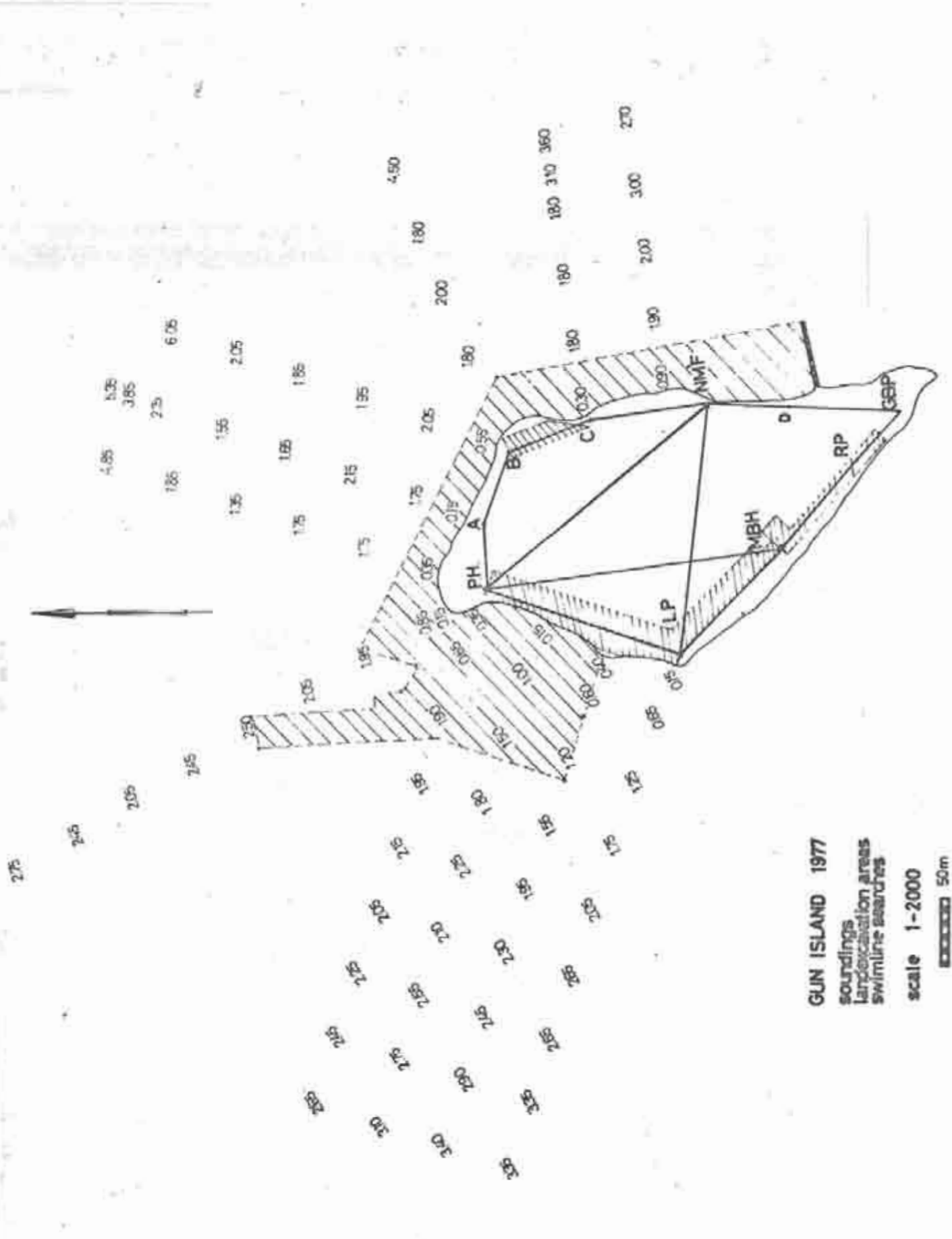


Fig. 5. Map of Gun Island showing testhole excavation areas and the swimline searches and soundings outside the island.