

915001



SANBAR PTY LTD
E.L. 20/89 LLANHERNE SAND PROJECT
REVIEW OF ENVIRONMENTAL ISSUES
NOVEMBER 1993

OPEN FILE

94-3570

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I N T R O D U C T I O N

In October 1993, an agreement was signed between the Exploration Licence holder (Northwest Bay Company Pty Ltd) and Hobart based Sand Miner Sanbar Pty Ltd, whereas Sanbar would manage and operate a resource evaluation and environmental impact study, as a precursor to developing a Sand Mining operation within the area of EL 20/89 (refer fig. 1.).

This paper documents environmental , economic and lifestyle issues which are likely to be impacted by the proposed sand mine in the Llanherne area. As a cursory assessment subjects are briefly dealt with to identify aspects for further analysis in the process of the project feasibility study.

The directors and shareholders of Sanbar Pty Ltd are common with the company RNB Trading Pty Ltd which has been the dominant supplier of building sand in the Southern Tasmania area for more than twenty (20) years. The Llanherne site is identified from numerous studies (refer sand resources section.) as the last large sand deposit in the Hobart area. RNB Trading Pty Ltd estimate five to seven years remaining resource in the present South Arm site , the operation for which is being subjected to increasing public scrutiny.

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1. SAND SUPPLY

At present the large majority of sand for civil engineering and domestic housing application in Southern Tasmania is sourced from pits at Hope Beach, South Arm. RNB Trading Pty Ltd is the largest producer with an annual output of 85 000 tonnes, which is approximately sixty percent (60%) of the regional demand.

Medium term demand growth estimates range from two percent (2%) to six percent (6%) per year and at that rate RNB Trading Pty Ltd estimates that the South Arm resource, where they operate, will be fully exploited in five to seven (5-7) years.

The Seven Mile Beach peninsular has previously been recognised as the only remaining major onshore alternative sand source in the Hobart Region (Sloane and Weldon 1990, J Smith 1974). Evaluation of considerable sampling previously by Northwest Bay Co. Pty Ltd indicates materials very similar to the South Arm product currently mined. The site offers a significant reduction in the transport task from a location with very little natural flora or fauna and dominated by a pine plantation silviculture.

Construction sand demand is presently in the order of 140 000 tonnes pa with projections of 222 000 tonne by the year 2000 and 267 000 tonnes by the year 2010 (Sloane and Weldon 1990).

Other references

1. *D E Leaman. Seismic Refraction Survey - Randall's Bay - Garden Island Report 1978/37*
2. *Sloane, D J and Weldon, B D. 1990 Sand Resources in the Hobart Area Division of Mines and Mineral Resources Report 1990/91 pg 1-5*
3. *V M Threader. Sand Resources Sandford - South Arm Peninsular*
4. *John Thorold Smith. Sand and Gravel deposits in Hobart Environs 1974*

2. ZONING AND DEVELOPMENT

The Clarence Council have determined that areas within the 20 NEF Noise Forecast Contour is unsuitable for housing.

Major residential, tourist and Recreational Developments such as The Island State Resort have been approved in principle for unrestricted areas on the Seven Mile Beach Peninsular (refer Fig 2, 3a & 3b).

Current waste water Treatment Plan proposals include a site adjacent to EL 20/89 with apparent consideration of such issues as ground water and Bird life (Ref fig.4, Site "A")

Current development prospects include high profile residential sites based on canals for waterfrontage and private boat parking (refer Fig 5). The feasibility of this project assumes a staged program of Dry Pit and Dredge mining integrated with the Civil works associated with the development of housing, tourist accommodation and recreational facilities. A marina and associated facilities are prospects for developers, providing sheltered access for small and large cruising craft to Norfolk Bay/ Dunalley Canal and the East Coast which is considered a major increase in the dimension of Maritime Tourism opportunities. The potential for the area to become a major recreational and sporting centre is considerable.

The integration of mining works has the potential of realising a significant advancement in the time frames in which such a development could be financially feasible.

The department of Tourism, Sport and Recreation has identified the whole of Pittwater and the Seven Mile Beach spit as a significant tourism area. Any development on the large scale indicated will require civil works in the area over a long period of time. Mining operations of the type envisaged can be as exposed or as discrete as necessary according to a staged process of development with the potential of significantly enhancing a chosen outcome.

Clearly expert advice will be necessary to assess the sensitivity of existing channels and sand spits and design the new watercourses accordingly.

By integrating sand extraction with a suitable canal development dredge mining may be deferred for a number of years and the mine life extended accordingly. Whilst considerably beyond the involvement envisaged by Sanbar Pty Ltd, excavations indicated by the Island State Resort project is an example of the sand resource to be recovered from such a development. (Refer Fig. 3b)

BIRD LIFE

The expanses of sheltered beaches and foreshore in the Pittwater area generally is vast with a very small population of seabirds apparent in the Seven Mile Beach area. Canal and Marina development as a proportion of the total habitat will add minimally to the area.

3. GROUNDWATER

A resource of potable groundwater was defined by the Department of Mines drilling between 1973 and 1975 (Cromer and Sloane 1976) and this water is currently used by the following enterprises:

- Royal Hobart Golf Club
- Llanherne Golf Club
- Tasmanian Golf Club
- Westlands
- Horse Riding

The Mines Department exploration showed that the water table is slightly convex-upwards to sea level with a maximum height of 2.5 metres above sea level. The shape and position of the fresh water-salt-water boundary requires further study, however, a tubular body of 10-12 metres thick confined to the sands under exploration and evaluation, has been demonstrated (refer Fig. 11 & 12). A safe yield of 1360 million litres per year was predicted.

The location and shape of the least saline position of the ground water resource, as contoured by the Mines Department, suggests some scope for siting the mining operation to have minimal impact on the ground water.

There are however, indications that water quality could readily deteriorate and that over exploitation may risk the long term viability of the resource. (Refer Seven Mile Beach Protected Area - Outcome Development Plan, September 1982)

Both the present level of septic sewerage and the proposed Waste Water Treatment Plant site and process will have a bearing on ground water quality.

A comprehensive ground water study will be conducted during the feasibility study phase of the project, at which point we will evaluate a more recent study under the following reference:

Phillip Roberts Thesis - 1988 Groundwater Salinity at Seven Mile Beach.

Other References:

Cromer, W C and Sloane, D J 1976 - The Hydrology of Seven Mile Beach - Department of Mines unpublished report 1976/10.

4. PINE PRODUCTION

A N M Forest Management (Paul Hingston) advises that the remaining plantation in the Western end of the EL area will be logged progressively up to the year 2010. The area has benefits for winter time logging when other areas are difficult to access. There are no plans to replant the Eastern end of the peninsular which has been clear felled and now has sporadic self seeded regrowth pine trees up to 3 metres in height. Ref. Fig.6

This program tends to support a staged operation commencing in the Unrestricted Noise Zone.

5. AQUACULTURE - COASTAL MANAGEMENT

By November 1991, eight (8) applications for a total of ten (10) sites (Refer Fig.7) for the intertidal farming of Pacific Oysters had been lodged with the Division of Sea Fisheries. There has been increasing public concern over the expansion of marine farms in the area due to activities on the water and along the shore in the area. There is also concern that the food availability will not support additional farms.

A Moratorium on the issue of new leases has been implemented, with June 1994 reported as the deadline for the completion of coastal management plans addressing all the issues in the locality. Should integrated civil works appear to be a favourable approach to staged mining then prospects involving excavated access to the water channels of Pittwater will be referred to representatives of agencies involved in Coastal Management Planning. This will be part of more detailed examination of the environmental impact issues.

Whilst consideration of development works integration with mining is at a very preliminary stage, there is no reason to believe any outcomes considered will be in conflict with aquaculture.

6. RECREATIONAL USAGE

Presently the Eastern major proportion of the Seven Mile Beach spit land area gives the appearance of the aftermath of an environmental disaster. The majority of the felled plantation area is quite inhospitable with the exception of Beaches, riding tracks and walking tracks on the Southern side.

Assuming that a stand alone dredge mining operation was to eventuate, it is envisaged that the site would not be visible from the ground until nearing maturity nor would it impact on existing usage. The actual pond area would increase by 7 600 square metres annually assuming 160 000 tonnes pa dredged to a depth of 15 metres. Fig. 8 is an approximate scale of the pond area after fifty (50) years of mining after which a clear purpose for public utilisation would be planned.

Additional heavy traffic would be confined along the Pittwater road from the Tasman Highway to the present logging road where logging operations have established the ongoing presence and activity of heavy vehicles.

A site improvement proposal will be detailed once the preferred development type is established which will identify options for future land use benefits as a result of a mining operation.

7. NOISE

Apart from the prospect of a period of civil works in a residential development, mining activities would be sited within the 20 NEF restricted zone. Additional noise on site would be primarily generated by a bucket loading tractor. Electrically driven dredging and processing machinery is unlikely to transmit sound beyond the mine boundary.

8. TRAFFIC AND DUST

Present traffic regulations do not require tarping of loads provided materials are damp or loads can be wetted down. Mr John Reeves of Roads and Transport, Mornington advised that the requirement to tarp has been tested in law and is by outcome, not enforceable. RNB Trading Pty Ltd Code of Practice for Sand Pit Operations requires all loads to be tarped as a condition of supply. Sanbar Pty Ltd would adopt this same condition, thereby removing the public concern in this regard.

Dust on the site would be limited to road surface in dry conditions and as with the present logging operations, well removed from the proximity of frequented areas.

Based on a 35 km lead distance from South Arm to the Hobart GPO at an annual production of 140 000 tonnes, the heavy vehicle traffic task is now 188 461 Tonne Kilometres (TK) pa.

Operating from Llanherne with two major users, The Readymix Group (Mornington) and Pioneer Concrete (Flagstaff Gully) with-in a 10 km lead distance and Hobart GPO 17 kms the freight task is (av. 14 km) 75 384 TK's, which is a sixty percent (60%) reduction in the Task.

Traffic on the South Arm road has been the subject of public concern for a long time. The road conditions are not good and the surface is continuously in demand of repair. Compared to the new double lane connection to the Hobart Airport (ref. Fig.9), which has been constructed to National Highway standard, the heavy transport task efficiency would be improved dramatically by supply from Llanherne.

9. REHABILITATION OPTIONS AND CONSIDERATIONS

Consultation with public and Government agencies will be necessary in depth before any degree of conclusive proposal can be detailed. At this point the project has been kept at a low level of exposure with a view to achieving the most comprehensive proposal before close public scrutiny occurs.

Rehabilitation is more to do with the denigration of the entire Seven Mile Beach Peninsular due to past land use, than the implications of a sand mine, sited inobtrusively in a small fraction of the total area.

Sanbar Pty Ltd is taking the view that it will explore all opportunities of utilising any level of mining and associated operating capacity in the conduct of viable projects in the area to the widest outcome in the public interest.

Other references:

Extract 4.8 of the Eastern Shore (area 2) Planning Scheme 1986 represents the scope of and restrictions to development in the area (refer attachment 1).

10. ARCHAEOLOGY

Parks and Wildlife Services Acting Senior Investigation Officer Penny Wells advises, there are no scheduled sites or specific identifications in the area. Aboriginal Middens are known to exist in this coastal area and a systematic survey is recommended by Penny Wells.

Sanbar Pty Ltd is alerted to the importance of Aboriginal relics or artefacts and undertakes to educate all operatives on the protective procedures required, should such items be found.

An archaeological inspection will be undertaken in the later EIS composition.

11. MINE SITING, LAND USE AND DEVELOPMENT CO-EXISTENCE

A program of drilling and sample sieving to determine grain size distribution of sand within the prospect is underway and will be completed in March 1994. A plan of the proposed drilling of seventeen (17) holes in December 1993 (refer Fig.17) has been submitted for approval of the Mineral Exploration Working Group.

The exploration sampling work will enable the optimum location of the proposed pit to be chosen to maximise the economic viability of the sand and minimises impact on the highest ranking environmental factors.

Clearly the prime mine site, with a potential fifty (50) year resource life, should be located in residential restricted noise zoning and in the closest proximity to Pittwater Road causing the least possible impact on groundwater, public access and/ or development potential of the more Easterly aspects of the seven Mile Beach Peninsular. (Refer Fig. 8 for example).

The ranking of these factors will be determined during the Environmental Impact Study and will give emphasis to preservation of the groundwater resource, the visual impact of the operation, preservation of access to recreational interests and all activities legitimately conducted in the area including pine forest logging.

Any development considerations not directly related to the sand mine prospect will be measured against the foregoing prime considerations and with a view to the expansion of rehabilitation beyond mine site implications.

12. PUBLIC SAFETY AND SECURITY

Security fencing will be erected at the boundary of deep water dredging operations with authorised access only as exists in current operations incorporating restricted hours of operation to avoid unnecessary public disturbance. The feasibility of a land line security alert with appropriate triggering device to detect unauthorised entry will be assessed. An on site occupied residence is another alternative to be considered.

It is envisaged that authorised access will be by magnetised key card through an automatic weigh-bridge and security gate which qualifies every entry and accurately measures material quantities.

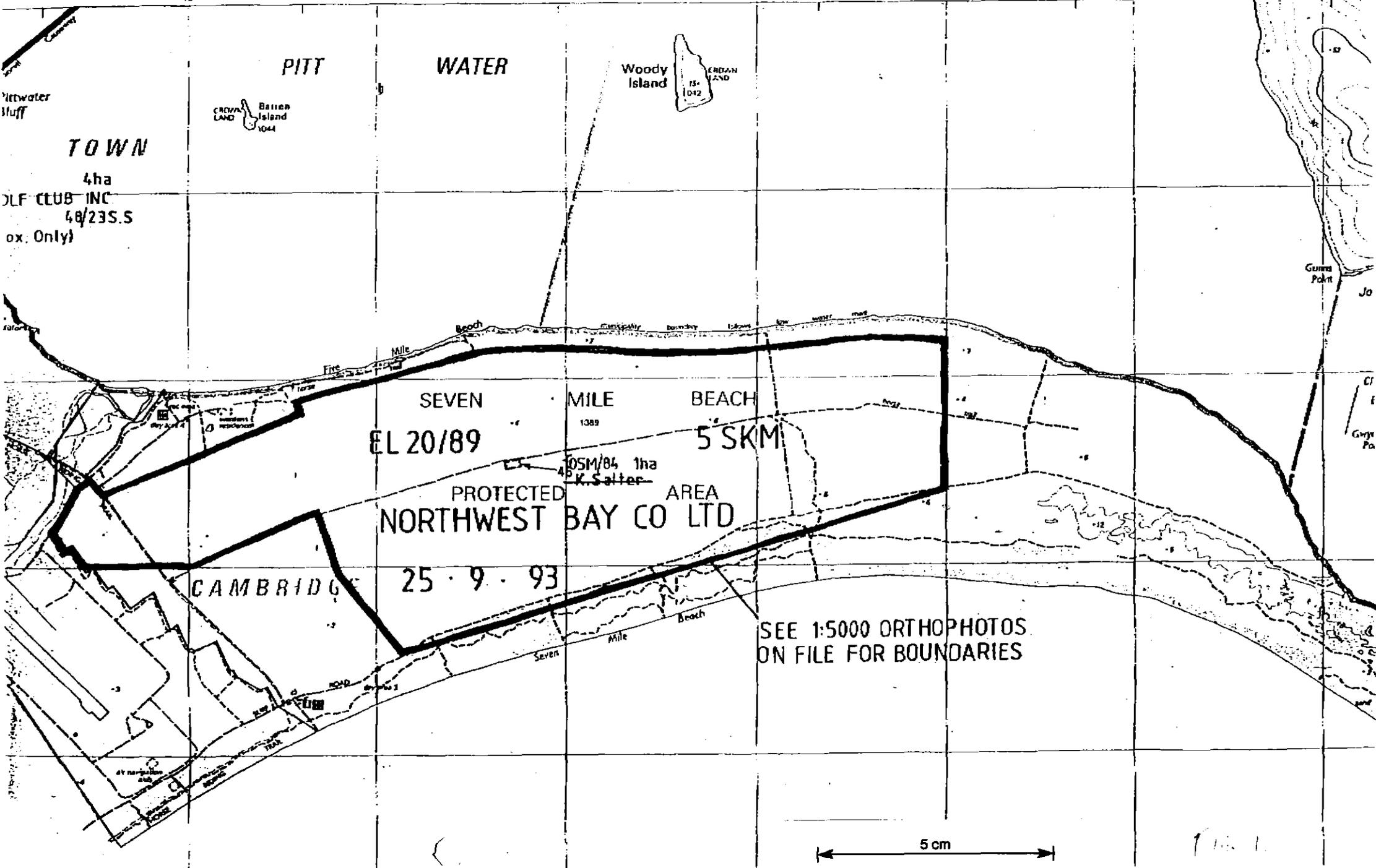
A full safety audit will be conducted once operating parameters and relevant machinery is finalised to be included in a documented code of practice.

Quality assurance accreditation prior to commencement of operations and ongoing audits will qualify all aspects of key quality issues including occupational health and safety.

B H Palmer
MANAGING DIRECTOR
SANBAR Pty Ltd

8 December 1993

43 44 SUREL 45 46 47 48 49



TOWN

4ha
OLF CLUB INC
48/235.5
ox. Only)

PITT WATER

Woody Island
13-1042
ERDAN LAND

Baller Island
1044
CROWN LAND

SEVEN MILE BEACH
EL 20/89
1389
5 SKM

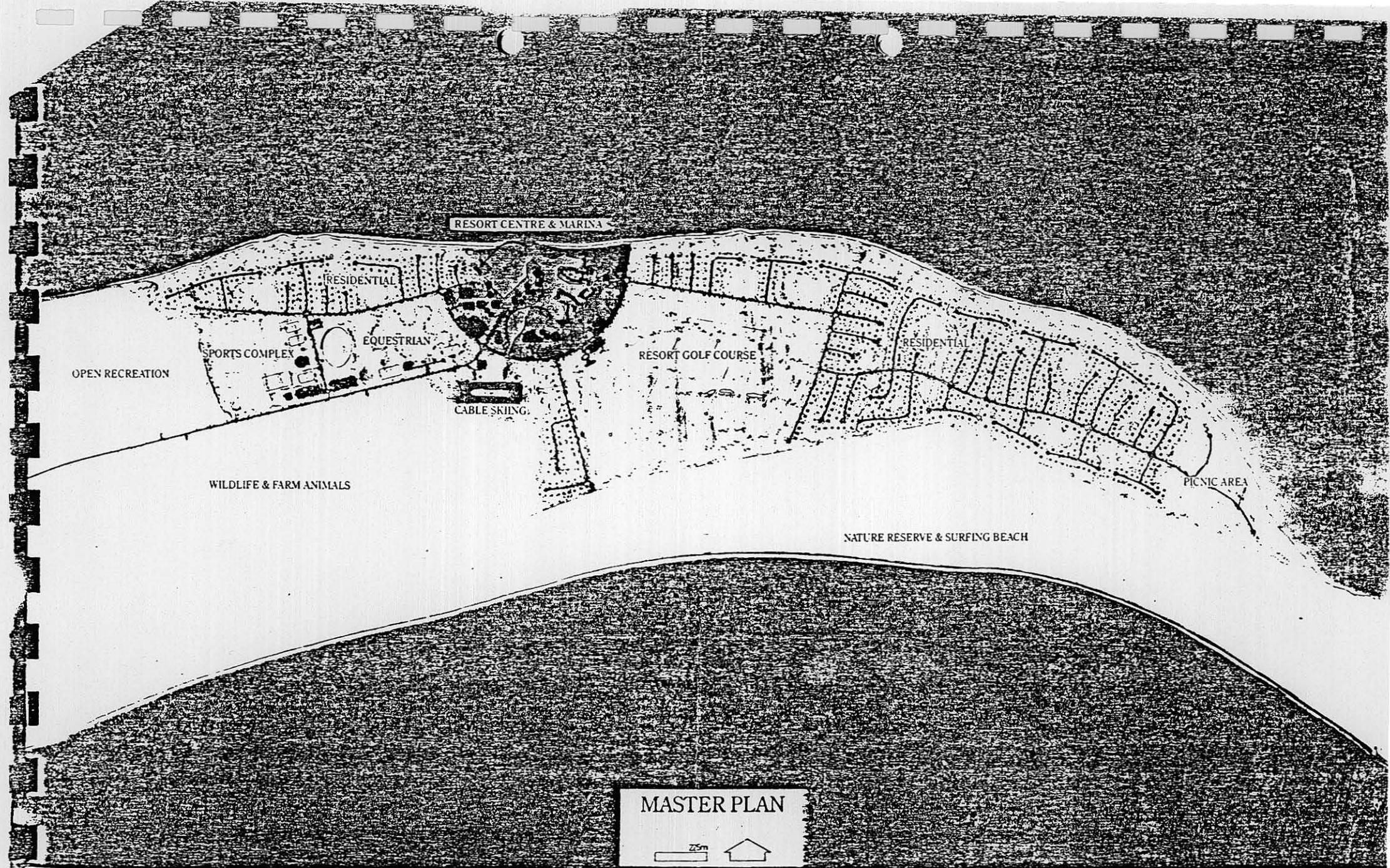
PROTECTED AREA
NORTHWEST BAY CO LTD
105M/84 1ha
K. Salter

CAMBRIDGE 25.9.93

SEE 1:5000 ORTHOPHOTOS
ON FILE FOR BOUNDARIES

5 cm

File 1



RESORT CENTRE & MARINA

RESIDENTIAL

OPEN RECREATION

SPORTS COMPLEX

EQUESTRIAN

RESORT GOLF COURSE

RESIDENTIAL

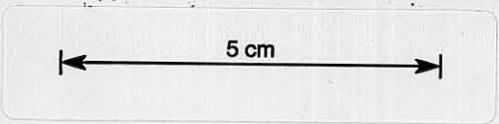
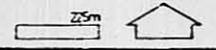
CABLE SKIING

WILDLIFE & FARM ANIMALS

PICNIC AREA

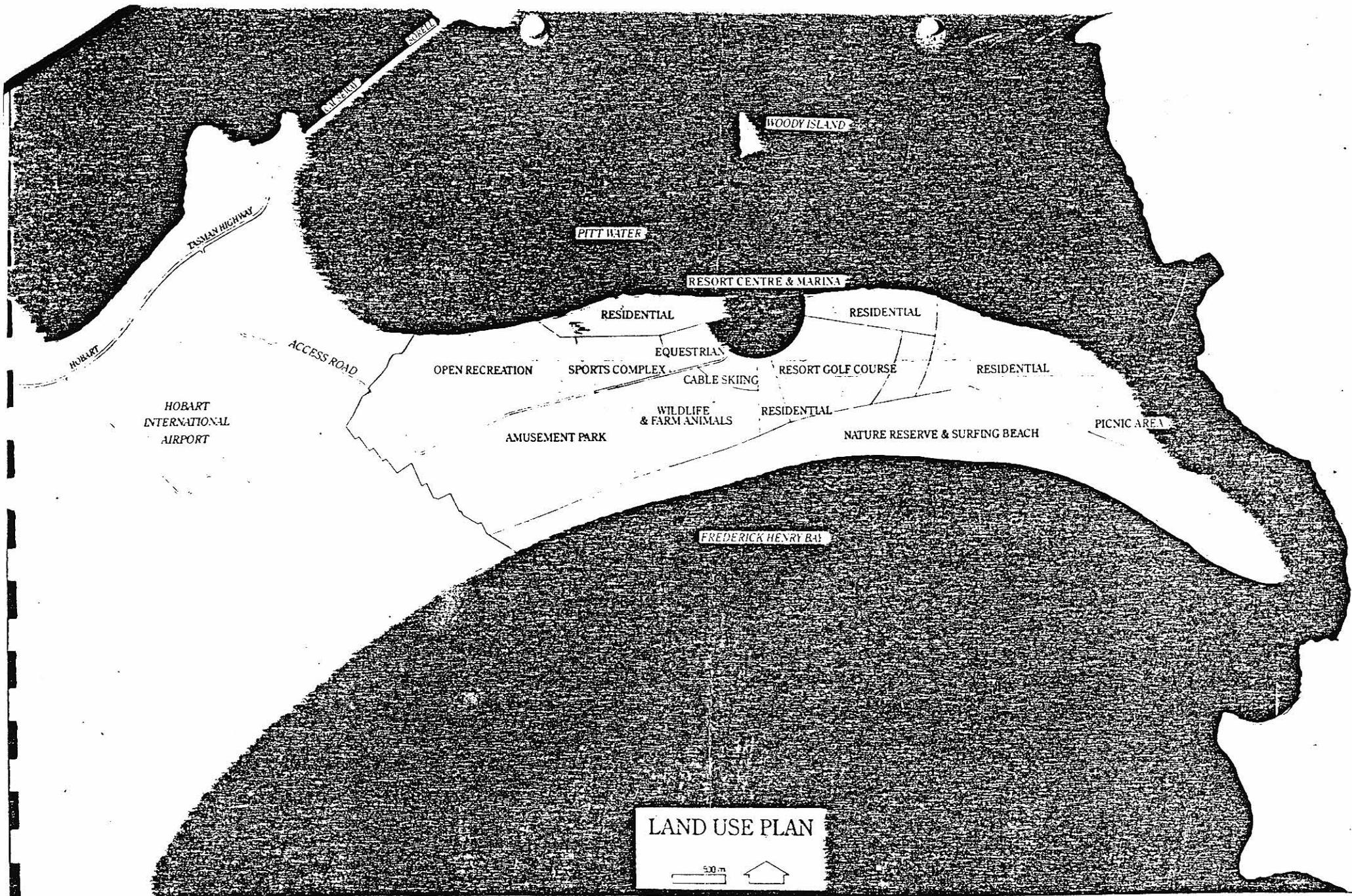
NATURE RESERVE & SURFING BEACH

MASTER PLAN



The Island State Resort - Tasmania.

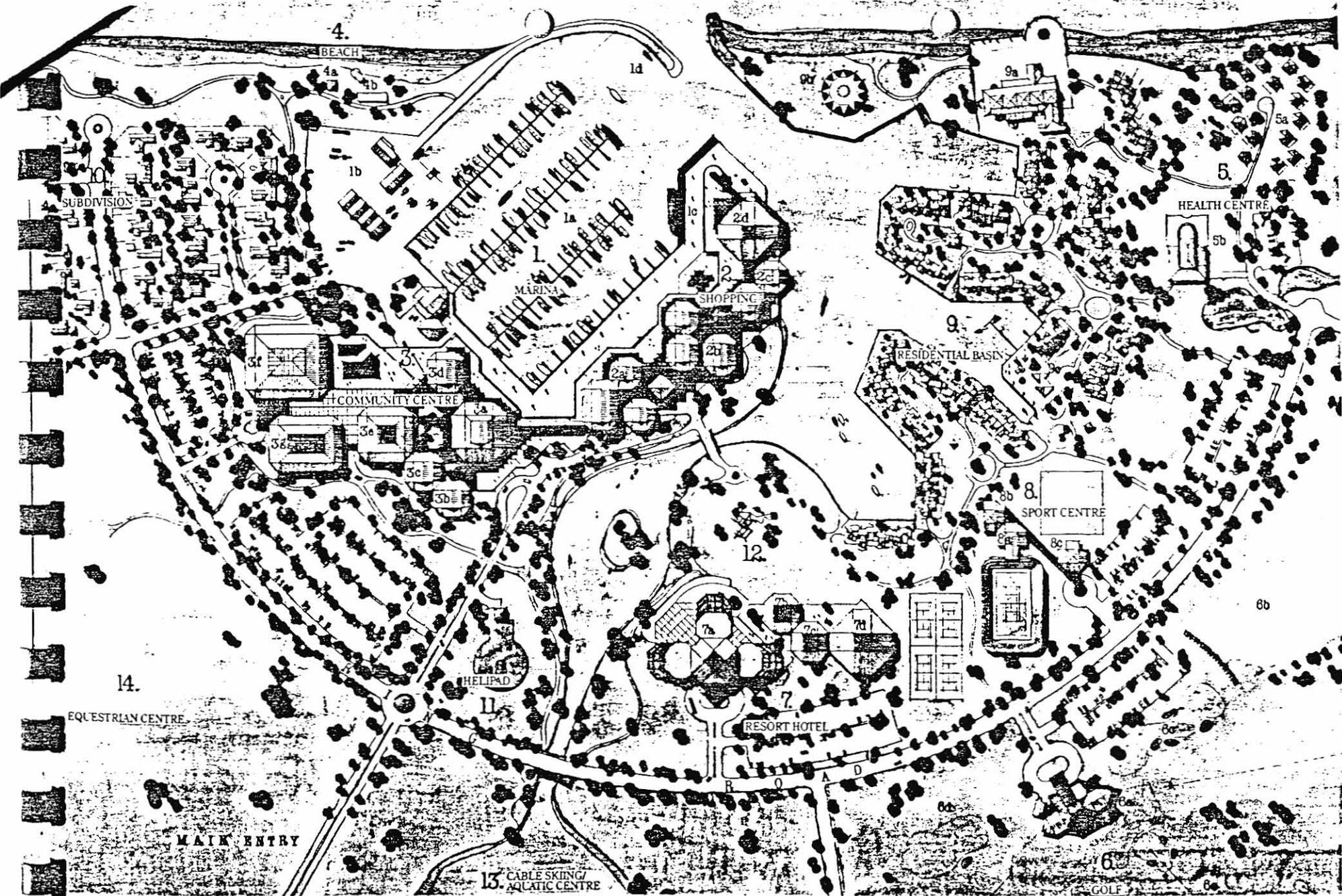
915014 FIG. 2.



The Island State Resort-Tasmania. 915015

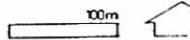
by
T A S A R C

FIG 2a



- b Service/Maintenance
- c Ferries
- d Fuel
- 2 SHOPPING**
 - a Convenience
 - b Speciality
 - c Restaurants
 - d Tavern/Nightclub
- 3 COMMUNITY CENTRE**
 - a Administration
 - b Child Minding
 - c Medical
 - d Boat Hire/Supplies
 - e Minor Hall
 - f Main Hall
 - g Swimming Centre
- 4 BEACH**
 - a Kiosk
 - b Change
- 5 HEALTH CENTRE**
 - a Chalets
 - b Centre
- 6 GOLF**
 - a Clubhouse
 - b Driving Range
 - c Chip and Putt
 - d Warm Up
 - e Course
- 7 RESORT HOTEL**
 - a Hotel
 - b Conventions
 - c Gymnasium
 - d Indoor Tennis
- 8 SPORT CENTRE**
 - a Tennis
 - b Squash
 - c Lawn Bowls
- 9 RESIDENTIAL BASIN**
 - a Condominium
 - b Pleasure Dome
 - c Provdore/Cafe
- 10 SUBDIVISION**
- 11 HELIPAD**
- 12 ADVENTURE PLAY**
- 13 CABLE SKIING/ AQUATIC CENTRE**
- 14 EQUESTRIAN CEN**

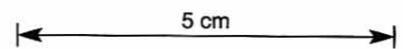
RESORT CENTRE & MARINA PLAN



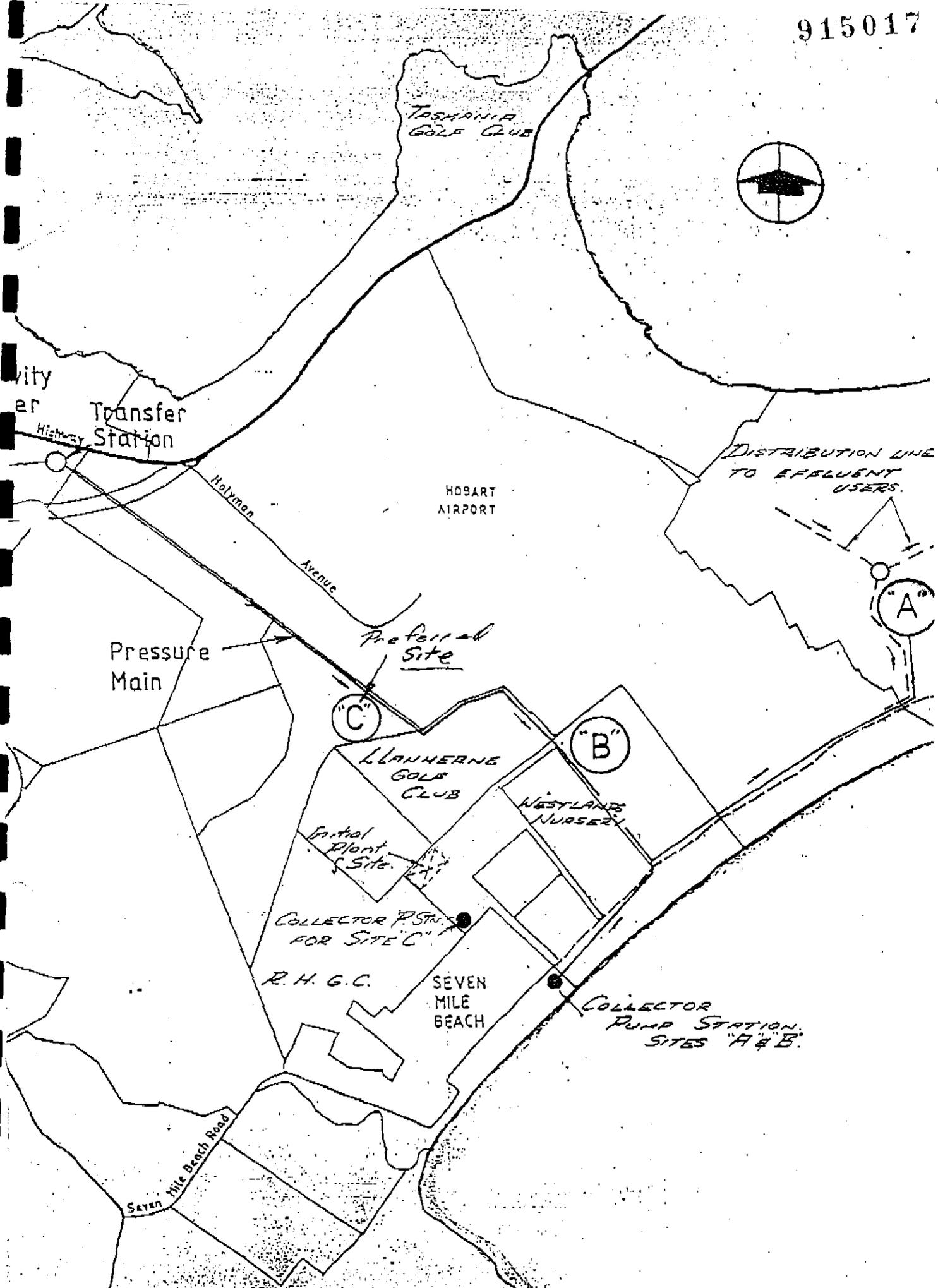
The Island State Resort-Tasmania. 915016

by T A S A R C

FIG 26



1054



WASTEWATER TREATMENT PLANT
SITE ALTERNATIVES

20 DB NOISE CONTOUR

43 44 45 46 47 48 49

PITT WATER

Woody Island
CREAM SAND

Barren Island
1044

TOWN

4ha
OLF CLUB INC.
48/235.
(ox. Only)

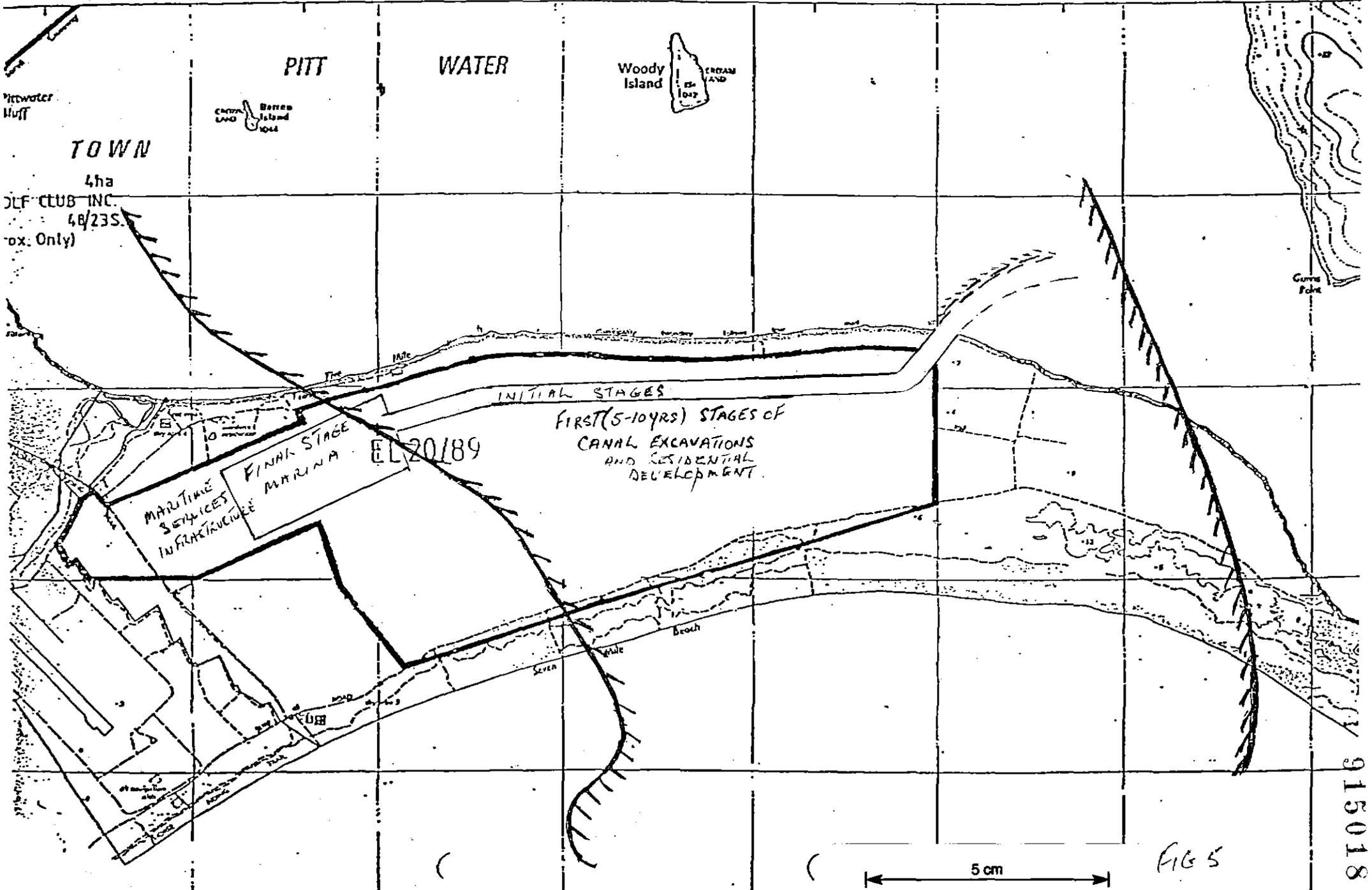
INITIAL STAGES
FIRST (5-10YRS) STAGES OF
CANAL EXCAVATIONS
AND RESIDENTIAL
DEVELOPMENT.

MARITIME SERVICES INFRASTRUCTURE
FINAL STAGE MARINA
EL 20/89

5 cm

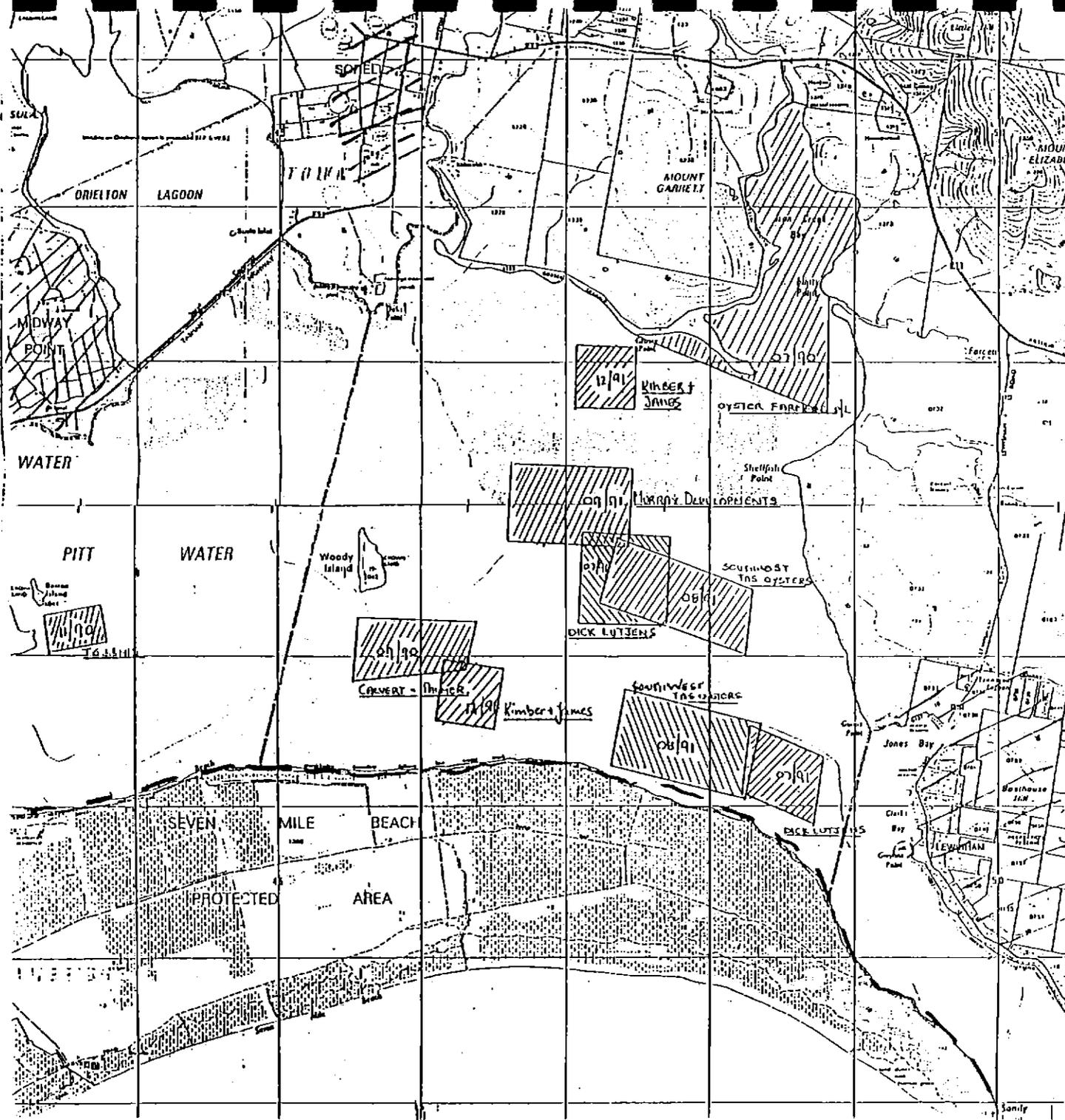
FIG 5

915018



applications
not to scale

4



Marine farm Applications
January 1992

915020

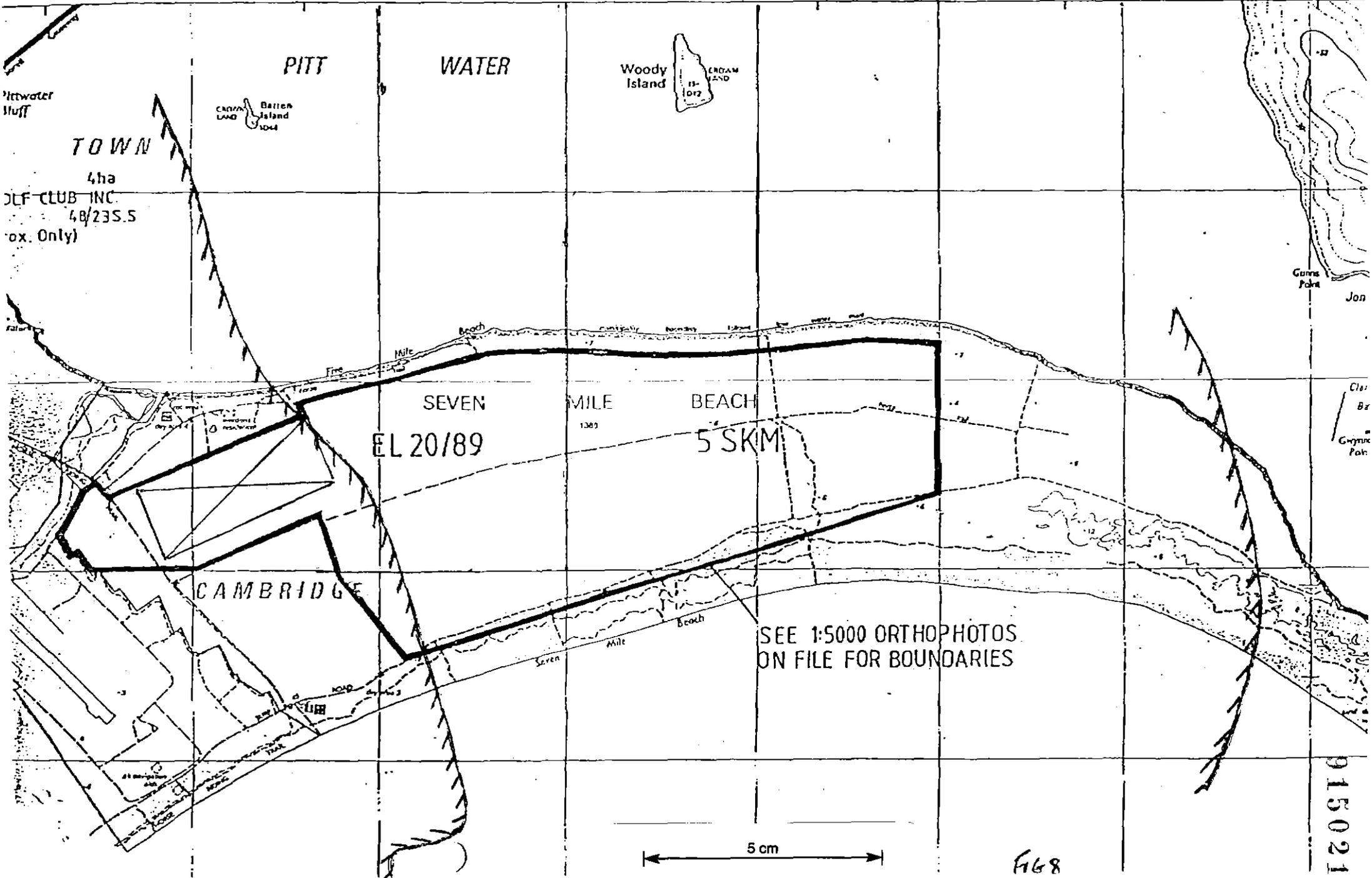
FIG.7.



= 50 YEAR PRODUCTION - DREDGING SITE DIMENSION 2 15m DEPTH

----- NOISE ZONE CONTOUR

43 44 SURG 45 46 47 48 49



Pittwater Sluff
TOWN
4ha
OLF CLUB INC
48/235.5
(ox. Only)

PITT
WATER
Barron Island
1044

Woody Island
13-1012
CRAM LAND

SEVEN MILE BEACH
EL 20/89
5 SKM

CAMBRIDGE

SEE 1:5000 ORTHOPHOTOS
ON FILE FOR BOUNDARIES

5 cm

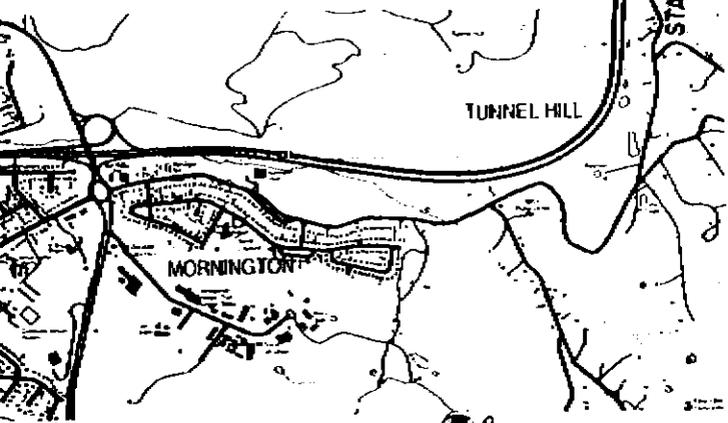
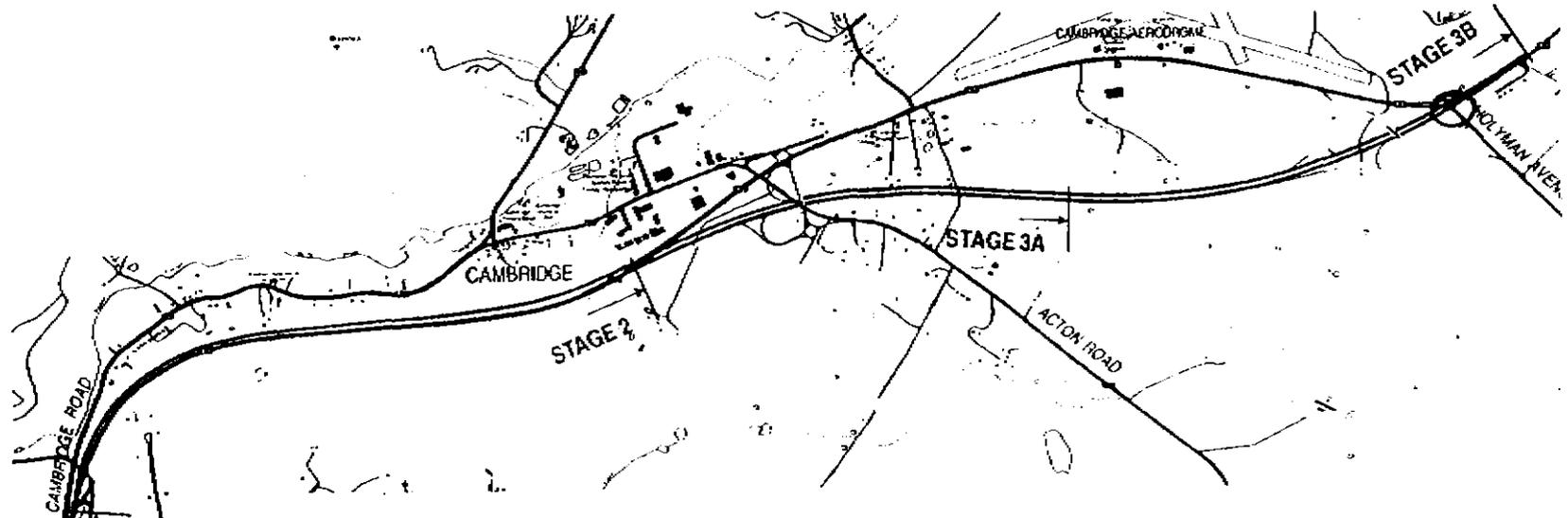
Fig 8

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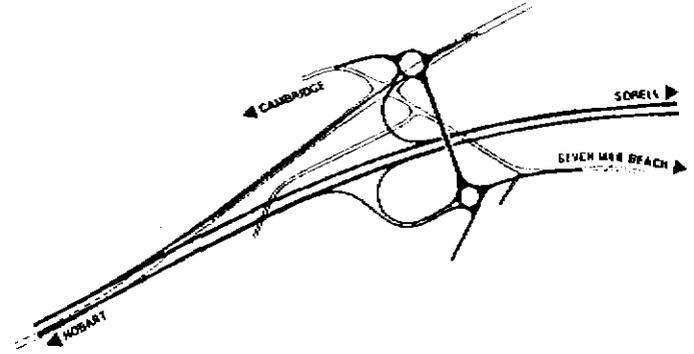


LOOKING NORTH FROM TUNNEL HILL

PIONEER

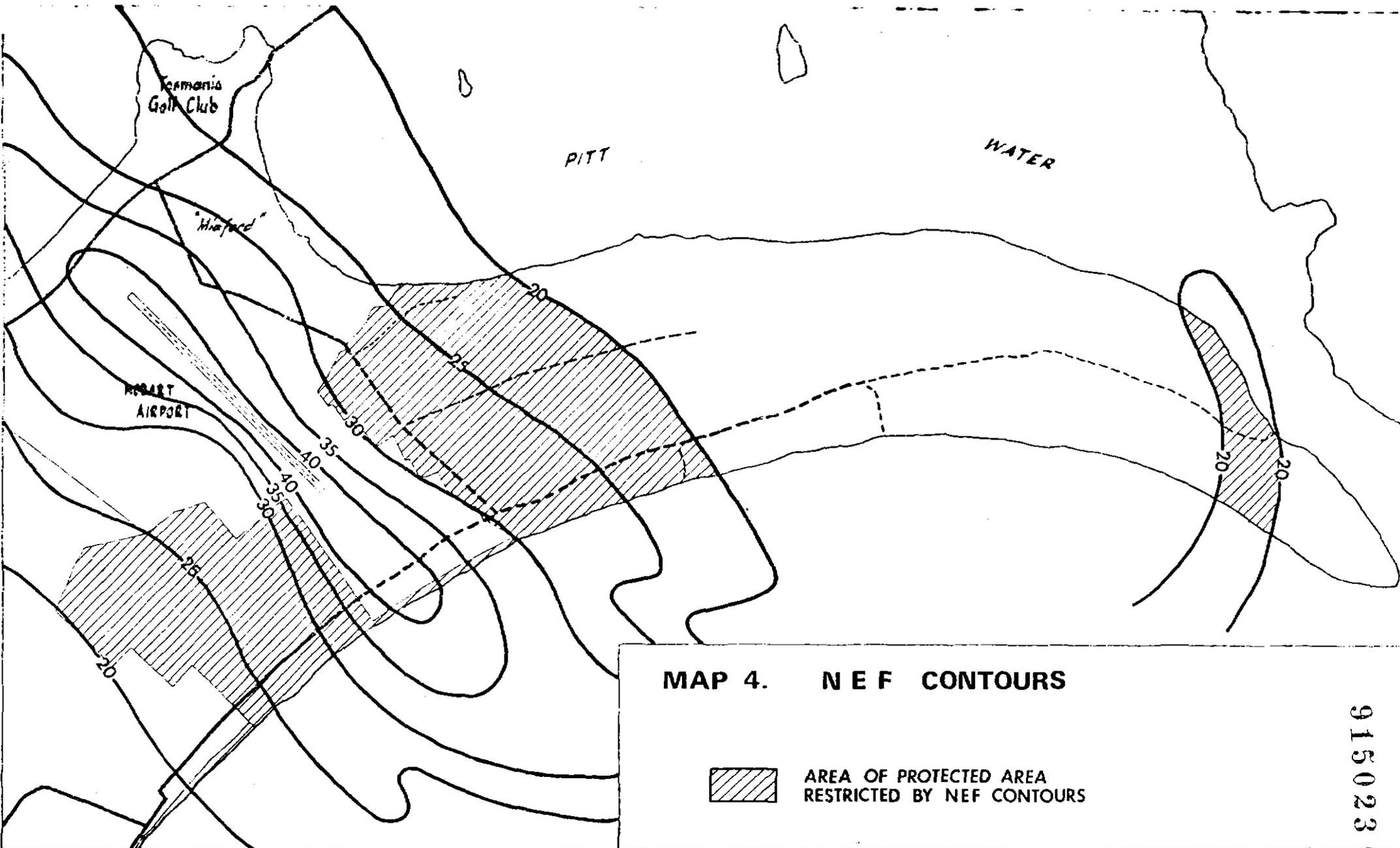


REDDYMAK



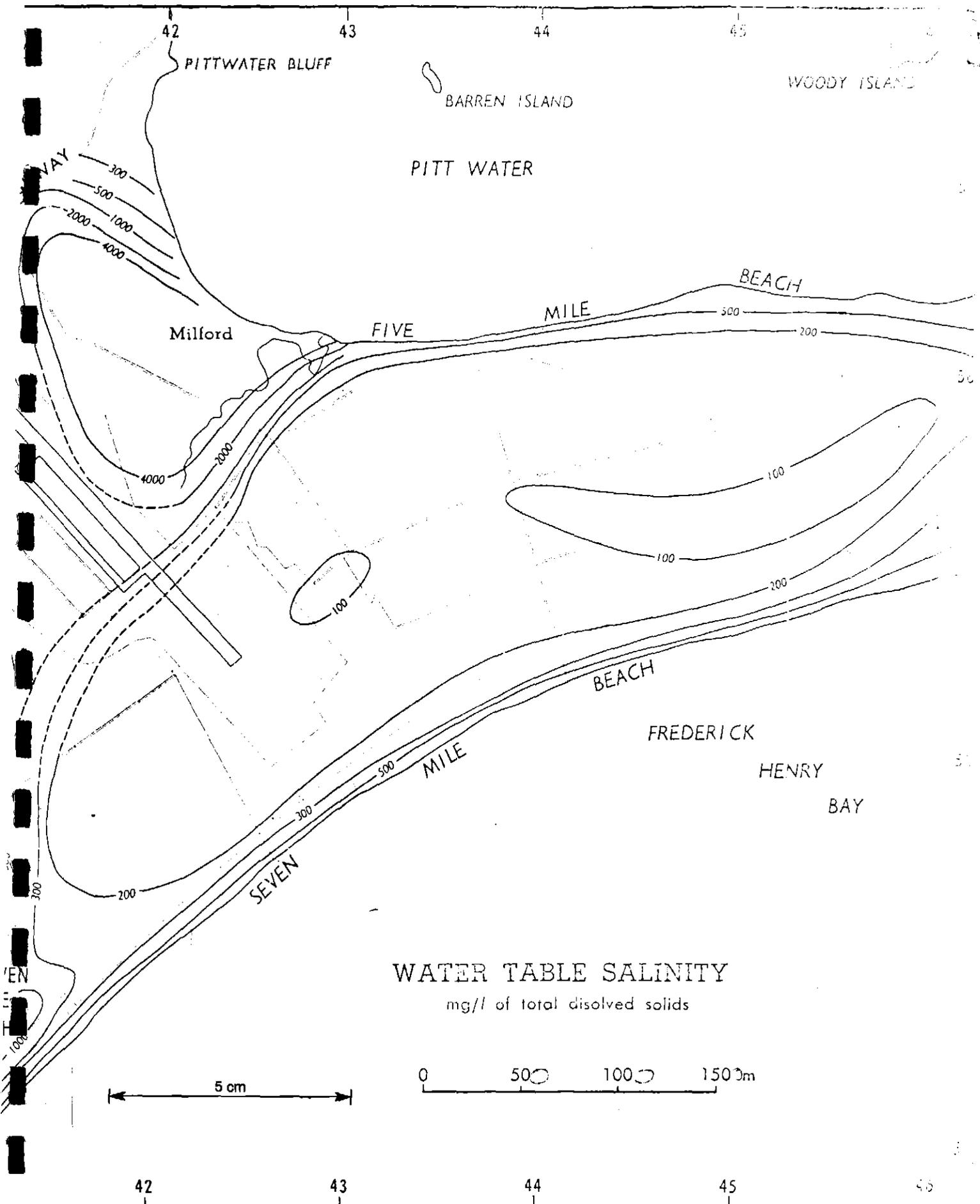
ACTON ROAD INTERCHANGE (Stage 3 A)

Fig 9.



MAP 4. NEF CONTOURS

915023

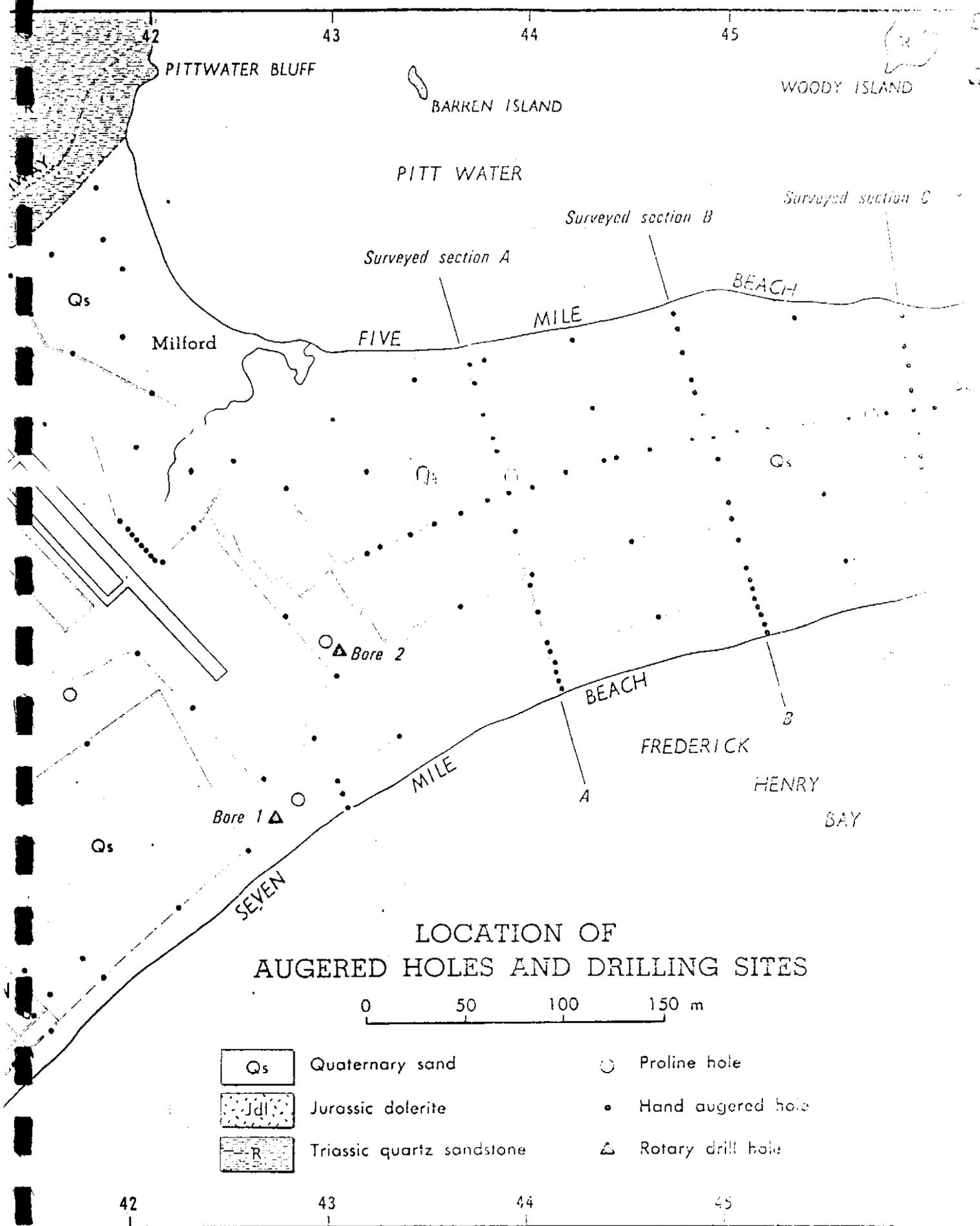


WATER TABLE SALINITY
mg/l of total dissolved solids

5 cm

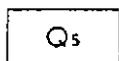
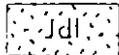
0 50 100 150m

42 43 44 45 46



LOCATION OF AUGERED HOLES AND DRILLING SITES

0 50 100 150 m

- | | | | |
|---|---------------------------|---|-------------------|
|  | Quaternary sand |  | Proline hole |
|  | Jurassic dolerite |  | Hand augered hole |
|  | Triassic quartz sandstone |  | Rotary drill hole |

42 43 44 45

5 cm

915027

4.8 SEVEN MILE BEACH PENINSULA

The purpose of this special area is to enable Council, notwithstanding any other requirement of the Scheme, to approve, subject to the provisions of Clause 2.2.4, a comprehensive and integrated tourism/residential development subject to the following principles:-

(i) The principle activity is to be:

firstly, tourist related land use including the provision of visitor accommodation, active and passive recreation, shops, and educational facilities; and

secondly, as and adjunct to tourist related activities, the development of residential land use.

(ii) Subdivision of lots is to be in accordance with the requirements detailed in (i) above.

(iii) The provision of sewerage treatment and the disposal of effluent to the satisfaction of the Department of Environment.

(iv) The provision of adequate potable water supply.

- (v) No housing within the 20NEE Contour of the Airport and no buildings or structures which would affect the operational safety of the Airport.
- (vi) The adequate protection of housing from any sea level rises and storm damage.
- (vii) The minimisation of any disturbance of active dune systems.
- (viii) The undertaking of works in Pittwater and any marina development including creation of navigable channels and boat harbour to the satisfaction of the Marine Board of Hobart, the Department of Lands, Parks and Wildlife and Department of Sea Fisheries.
- (ix) The upgrading and improvement of the road system from the intersection of the Tasman Highway and Holyman Drive to the satisfaction of the responsible road authorities.

The application of the above principles to any project to be submitted to Council for approval shall be described in a report in accordance with Clause 5.3.8 detailing economic and environmental impacts and benefits of the project.