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<b>MINES</b>	
File Ref. <b>EL1/86</b>	
<b>10 SEP 1987</b>	
Doc. Ref.	
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<b>LETTER</b>	
<b>A. G. '87</b>	
<b>REFERS</b>	
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ANNUAL REPORT OF DEPARTMENT OF MINES

Exploration Licence EL/86

Ocean Beach, Strahan, Tasmania

**OPEN FILE**

0095S/pa

**MINES**

ANNUAL REPORT OF DEPARTMENT OF MINES

PERIOD: 29th May, 1986 to 28th May, 1987.

TENEMENT: Exploration Licence E1/86, Ocean Beach Strahan.

TENEMENT HOLDER: Aztec Exploration Limited, 99 Shepperton Road  
VICTORIA PARK WA 6100.

LAND DISTRICT: Montague.

MAP SHEETS: SK 55-5 Queenstown 1:250,000  
7913N Strahan 1: 50,000

AUTHOR: Peter Woods

DATE: July 1987

0095S/ljp

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## PLANS ENCLOSED WITH REPORT

<u>Plan No</u>	<u>Title</u>	<u>Scale</u>
113-4	Ocean Beach Project EL1/86 Geological Interpretation	1:25,000
113-8	Ocean Beach Project EL1/86 Target Areas	1:50,000

## 1. TENEMENT

An application for an Exploration Licence covering 122 km<sup>2</sup> over Ocean Beach near Strahan was lodged on 17th October, 1985. The application was approved on 29th May, 1986. The Exploration Licence is located on the west coast of Tasmania and covers approximately 25km of Ocean Beach on the north side of Macquarie Harbour. It also includes the town of Strahan which is approximately 200 km WNW of Hobart

## 2. PREVIOUS EXPLORATION

2.1 The most recent exploration was carried out by Newmont Holdings Pty Ltd in 1984 and 1985 on E4/84. From a limited sampling programme they inferred a resource of 2.14 MT grading 1.1% rutile, 2.1% zircon, 0.005% cassiterite, 2.4% chromite and 0.016g/t gold.

2.2 Consolidated Goldfields (Aust) Pty Ltd assessed the geomorphology of the area in 1983 and concluded that the characteristics were different to those at Eneabba in WA and downgraded the potential for significant deposits in paleo-strand lines.

2.3 CRA drilling for coal on E4/84 in 1981 intersected "significant" quantities of heavy minerals near Strahan airport.

2.4 Electrolytic Zinc Co Ltd explored the area for heavy minerals in 1970 and outlined a potential for a combined tonnage of 1.45 MT containing 9.8% heavy minerals from five different areas grading 0.5% rutile and leucoxene, 0.5% zircon, 0.03% cassiterite, 0.5% chromite and 0.8% ilmenite.

2.5 Australian Titan Products Pty Ltd explored the area in the late 1960's and calculated grades of 0.9% rutile and leucoxene, 2.7% zircon, 0.8% chromite and 0.8% ilmenite.

2.6 Conclusion: The previous work highlights the presence of significant concentration of HM along the beach. However, no systematic effort appears to have been made regarding the possibility of HM deposits further inland and near the Henty River. In addition the scattered drilling, much of which only went to the water table, and analysis of small samples (1-2 kg) has not resulted in a clear assessment of the area's HM resource and especially the area's potential for credit minerals such as gold.

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### 3. WORK CARRIED OUT TO DATE BY AZTEC

Data held by the Mines Department and previous lease holders in the area have been requested. Not all reports have been provided, however, a review of those that have been received has been carried out. In addition preliminary interpretation of air photos has been carried out in an attempt to define target areas for HM concentrations. Discussions have been held with Ashley Geophysical Consultants with a view to utilising, Mines Department aeromagnetism and radiometric data which covers the tenements.

A local geological contractor Mr R Poltock has been appointed to supervise a bulk sampling program commencing in Spring, 1987.

### 4. REAPPRAISAL OF AREA

The interpreted geology of the area is shown on plan No: 113-4 the area contains a local basement of Tertiary sediments comprising amongst other things cobble beds interpreted to be terminal moraines or outwash gravels. Superimposed on this surface is a series of "beach ridges" and younger parabolic dunes. The surface of the basement outcrops around the airstrip - elsewhere it is largely covered by the younger dunes.

The gross morphology of the area is open to debate. The gravel terraces are variously interpreted as raised shorelines or outwash aprons.

The origin of the peninsula, that all but isolates Macquarie Harbour from the ocean, is also problematical. As littoral drift is undoubtedly to the south, the peninsula could be interpreted as a spit formed by littoral drift. The presence, however, of cobble beds appears to preclude this. It could, however, be a terminal moraine left by a glacier previously occupying Macquarie Harbour. If this is the case it is difficult to agree with the findings of Summons (on behalf of Newmont) that the King River once flowed west near the airstrip by one of 3 routes as the method by which the river "jumps" Macquarie Harbour is not made clear. A third alternative is that the Peninsula is the remains of a more widespread sheet of gravel that was dissected by the King and other rivers that flow into Macquarie Harbour. Obviously the method of formation of these gross features has a bearing on the likelihood and position of any HM deposits in the area.

What do seem clear from the airphotos at this time are the following:

a) The local basement surface, which extends beneath the younger Holocene dunes is characterized by parallel "beach ridges". This implies that the basement has been reworked by a retreating sea. In terms of HM concentrations, this surface is therefore a target.

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b) The most elevated "beach ridges" indicate that at some time in the past a smoothly curved shoreline lay along the alignment of the airstrip - further to the north the shore was more irregular with older basement (eg Devonian - Tertiary) forming headlands. Probably the coast lay along the alignment of the Fabritong River before curving sharply west around a prominent high of Devonian material (Pt Ashwood). In places along this alignment the basement plain is exposed - these areas should be tested for HM concentrations, as it is possible that pocket beaches with HM concentrates were formed between the headlands.

c) The path of the Henty River, once it leaves the hinterland, appears to have meandered across the basement plain leaving a series of point bars and dunes. Previous work confirms the presence of HM in the sand bars of the river though previous drilling which ceased at the water table did not reach, and consequently did not test, the river bed gravels etc for HM and especially gold content. On the presumption that HM and gold derived from the hinterland through rivers, the Henty River bar system is certainly worth testing (note gold is reported in the King River).

d) South of Henty River there is a large dune complex made up of superimposed parabolic dunes that have traversed the full width of the local basement plain - the most inland dunes overlie the Devonian basement high that forms Pt Ashwood. Previous work by EZ indicates that the HM content in these dunes is low (less than 0.5%). The large deflation area is, however, probably worth testing on the assumption that HM would be wind concentrated there. The phases of dune activity may be related to migrations of the Henty River mouth which periodically would disrupt stabilising primary dune vegetation. The area should therefore be tested for both wind concentrated lag and river bed concentrates.

e) Previous work by EZ shows that HM content in the Holocene dunes increases to greater than 1% to the south. Though this grade is low it does suggest that HM content through the dune profile would be worth checking as it is likely to increase wherever reworking has occurred. The abundant parabolic dunes suggest that there will be lag concentrates at the bases of the dunes (eg on or near the basement surface).

f) The HM content of the modern beach is relatively well documented and is probably related to reworking of the low-grade dune deposits as a result of slow retreat of the coast. As this sort of reworking has possibly occurred in the past, it would be worth drilling some holes into the basement plane to determine whether bands of HM, which predate the latest layer of outwash gravel, are present. Because there is no evidence, in the Holocene dune sequence of old shorelines, and because the scale of gravel deposits was probably significant during the latest ice age, this should be a low priority target.

Thus, apart from the deposit of HM along the modern beach, there appear to be several other target areas worth checking.

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5. PROPOSED EXPLORATION PROGRAM

The source of the HM and gold can be either or both the rivers that drain the hinterland or the "morainic" material that forms local basement to the Holocene dunes. Thus there are two sorts of targets to test: the riverine system of the Henty River and the adjacent deflation basin (ie river derived HM); and the oceanic system which includes the modern beach and dunes, and the "beach ridges" and old shoreline deposits (ie reworked and remobilised basement). Apart from the HM deposit on the modern beach, the other targets have not been tested adequately though work by EZ and Newmont confirm the presence of HM in the Holocene dunes and the Henty River sand bars. Previous work does, however, indicate that hand augers will not penetrate cobble beds or the water table. Though power augering can penetrate these barriers such techniques yield small samples. It is clear from the results to date that bulk sampling must be carried out and that other sampling must extend in many cases to below the water table. Consequently use of a backhoe is considered essential.

The major thrust of the Exploration Program will therefore be to:

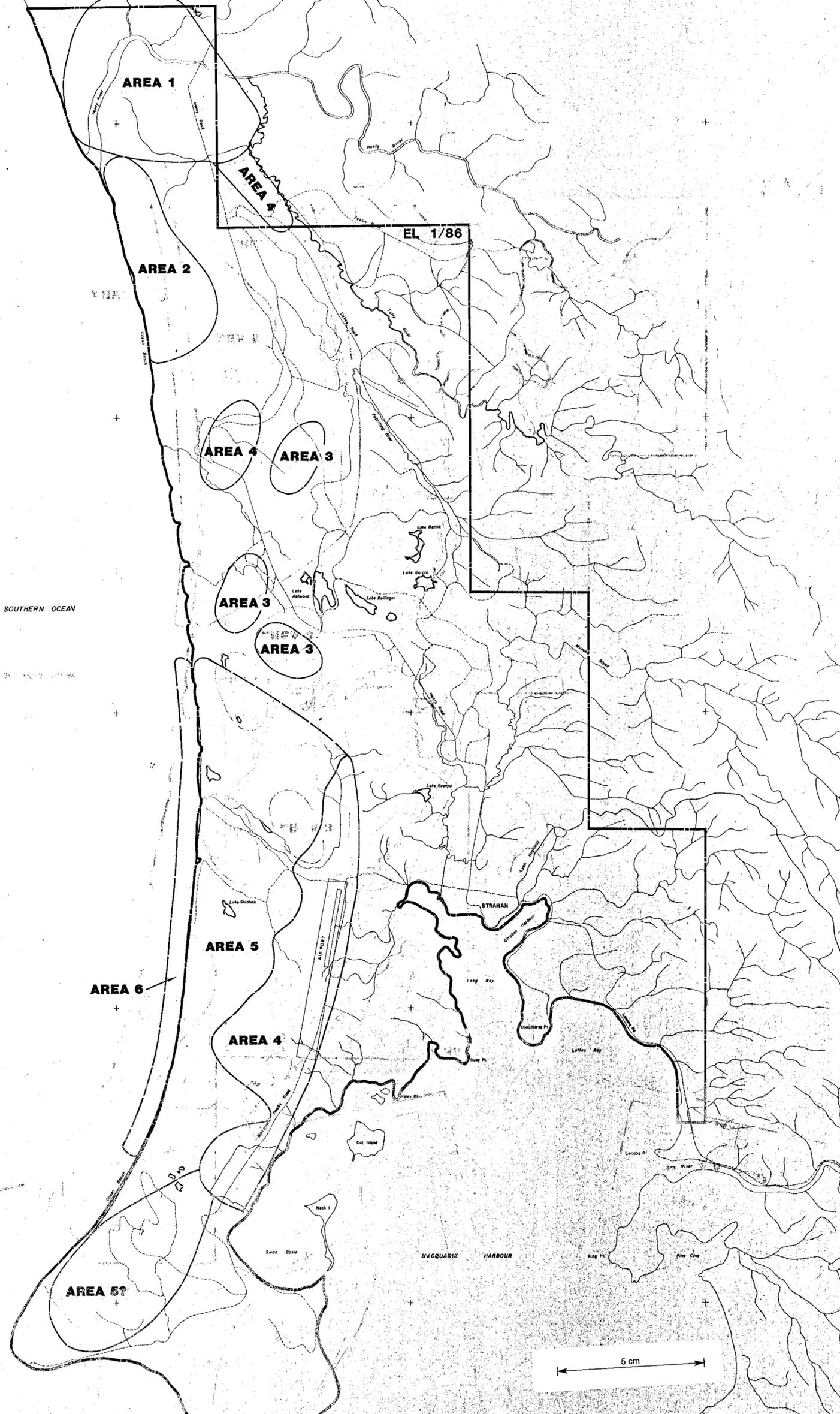
- 1) test the Henty River point bar system to at least the depth of the river bed gravels (AREA 1 shown on Plan No:113-8).
- 2) test the deflation area where the Henty River mouth meanders for both wind and river concentrated deposits (AREA 2).
- 3) test the "old shorelines" in front of the older basement highs (especially north of Pt Ashwood) where pocket beaches may have developed (AREA 3).
- 4) test the "beach ridges" on the basement plain around the airstrip and elsewhere where the plain remains uncovered by younger dune deposits (AREA 4).
- 5) test the modern dune system especially west of Strahan where previous work suggests HM content is highest (AREA 5).
- 6) test the modern beach (AREA 6).

The program will have the twin effect of clarifying the shallow stratigraphy of the area and the relationship of the basement to the "beach ridges" and younger dunes as well as providing information on HM content and the presence or otherwise of gold and other credit minerals.

6. EXPENDITURE

The expenditure incurred during the reporting period was:-

	\$
Tenement - Application and rental	1599
Draughting and plans	738
Air photography	250
Travel expenses	90
Vehicle expenses and hire fees	589
Salaries - Geologists	3776
Consultants - Geology	1100
Office Charges (15%)	<u>1436</u>
TOTAL	<u>\$9578</u>



SOUTHERN OCEAN

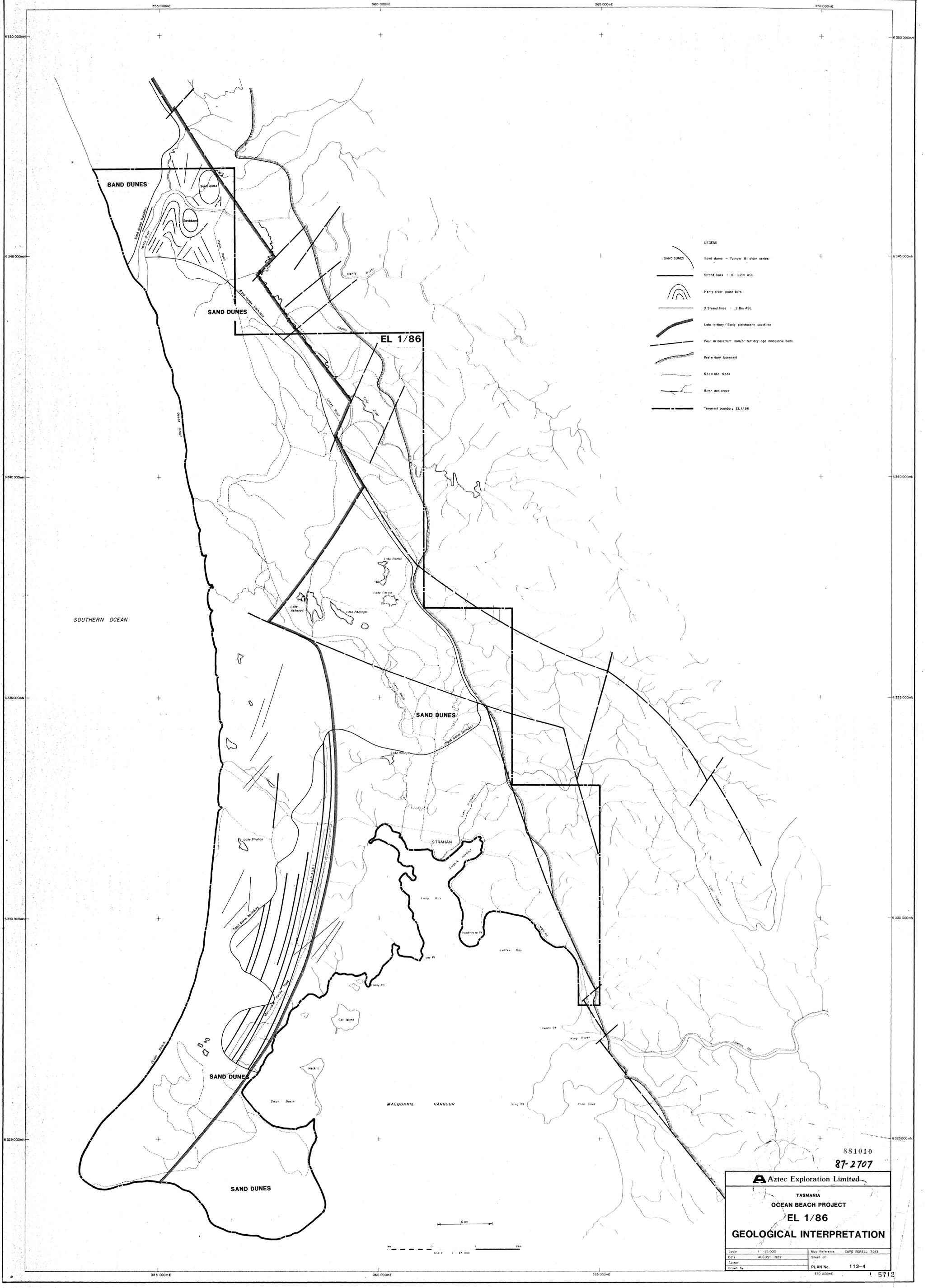
EL 1/86

87-2707

<b>Aztec Exploration Limited</b> TASMANIA <b>OCEAN BEACH PROJECT</b> <b>EL 1/86</b> <b>TARGET AREAS</b>	
Scale: 1:50,000	Map Reference: CAPE WHEEL TERN
Date: AUGUST 1987	Sheet of: 1/3-8
Author:	Drawn by:

5 cm

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- LEGEND
- SAND DUNES
  - Strand lines - 8 - 22 m ASL
  - Point bars
  - ? Strand lines - < 8m ASL
  - Late tertiary / Early pleistocene coastline
  - Fault in basement and/or tertiary age macquarie beds
  - Pretertiary basement
  - Road and track
  - River and creek
  - Tenement boundary EL 1/86

881010  
87-2707

**Aztec Exploration Limited**

TASMANIA  
OCEAN BEACH PROJECT  
EL 1/86  
GEOLOGICAL INTERPRETATION

Scale	1:25,000	Map Reference	CAPE SORELL 7913
Date	AUGUST 1987	Sheet of	
Author		PLAN No.	113-4
Drawn by			

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