APPENDIX C

HYDROGRAPHIC SURVEY OF SWANSEA HEADS AND CHANNEL (NSW MARITIME, 2006)

6,340,500 N
372,500 E
373,000 E
373,500 E

LAKE MACQUARIE

COON ISLAND

SWANSEA

SOLDIERS ROAD

LAKEVIEW

PELICAN

PARADE

PELICAN INLET

CHANNEL

SWANSEA

LITTLE PELICAN

HIGHWAY

PACIFIC

SWANSEA BRIDGE

WALLARAH STREET

LAKESIDE DRIVE

KAHIBAH STREET

PELICAN STREET

FORBES STREET

GALGABBA STREET

RAWSON STREET

BELMONT STREET

LOCALITY SKETCH

LAKE MACQUARIE

TASMAN SEA

SWANSEA

6,340,000 N
6,339,500 N
6,339,000 N
6,338,500 N

NAVIGATION AIDS

- Lit stbd. beacon no top mark
- Lit port beacon no top mark
- Yellow light beacon
- Special Mark Aqua Buoy
- Pink Beehive Public Mooring
- Lit Stbd Buoy No Top Mark
- Lit Stbd Buoy with Top Mark
- Lit Port Buoy No Top Mark
- Lit Port Buoy with Top Mark
- Lit Port Aqua Buoy
- Lit Spec. Mark Aqua Buoy

DEPTH OF WATER

- 1 to 2 metres
- 2 to 3 metres
- 3 to 4 metres
- 4 to 5 metres
- 5 to 6 metres
- 6 to 7 metres
- 7 to 8 metres
- 8 to 9 metres
- 9 to 10 metres
- 10 to 11 metres
- 11 to 12 metres
- 12 to 13 metres
- Greater than 13 metres

Land
Sand
Nat.Pk.
Park
Mangroves

NSW MARITIME

HYDROGRAPHIC SURVEY

SWANSEA CHANNEL

24/5/2006

SCALE 1 : 2000

0 20 40 60 80 100m

DATUM: Soundings are reduced to 0.511 metres below PM 22684 and 13.613 metres below SSM 23824 being Australian Height Datum.

The decimal point denotes the position of each sounding.

This plan is produced on the Geocentric Datum of Australia 1994 (GDA94)
Map projection is MGA zone 56

SURVEY INFORMATION:

Sounded by Echo Sounder: ODOM DVX-3
Completed: 23/5/2006
Navigation & Processing System: HYPACK
DGPS Position System: OMNISTAR SUB METRE

JSB OPERATOR — HYDROGRAPHIC SURVEYOR
SPATIAL INFORMATION MANAGER — SURVEY MANAGER

NOTE: This plan may not be true to scale.
Measurements should be taken from the scale bar.

The mean sea level and tidal range are displayed in Table 1. These levels may be influenced by meteorological effects such as atmospheric pressure, wind, temperature, and rainfall, the hydrological effects of floodwater runoff and groundwater discharges, and the oceanographic effects such as waves, currents, salinity, water temperature and El Nino. Water levels in estuaries can also be affected by morphological changes caused by infilling and erosion of sediment near the entrance.

Table 1. Mean sea level and tidal range - Lake Macquarie

	Approximate level in m AHD	
	Swansea Heads Breakwater (Entrance)	Swansea Channel (Swan Bay)
Range (MHW - MLW)	1.66	0.20
Mean Sea Level	0.00	0.08

Manly Hydraulics Laboratory, on behalf of NSW Maritime, provides this information to the public with the understanding that the levels were determined using a limited data set and are provided as estimates only.

Previous Plan: NSW735/22

NSW735/24

372,500 E
373,000 E
373,500 E
6,342,000 N
6,341,500 N
6,341,000 N
6,340,500 N
6,340,000 N

MARKS POINT
MARKS POINT ROAD
MARKS POINT

ELIZABETH ISLAND

LAKE MACQUARIE

SWAN BAY

PELICAN ISLAND

SPECTACLE ISLAND

PELICAN MARINA

SOLDIERS ROAD

LAKEVIEW PARADE

PELICAN

The mean sea level and tidal range are displayed in Table 1. These levels may be influenced by meteorological effects such as atmospheric pressure, wind, temperature, and rainfall, the hydrological effects of floodwater runoff and groundwater discharges, and the oceanographic effects such as waves, currents, salinity, water temperature and El Nino. Water levels in estuaries can also be affected by morphological changes caused by infilling and erosion of sediment near the entrance.

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NSW MARITIME

HYDROGRAPHIC SURVEY

OF SWANSEA CHANNEL

SCALE 1 : 2000

0 20 40 60 80 100m

DATUM: Soundings are reduced to 0.511 metres below PM 22684 and 15.613 metres below SSM 23824 being Australian Height Datum.

The decimal point denotes the position of each sounding.

This plan is produced on the Geocentric Datum of Australia 1994 (GDA94) Map projection is MGA zone 56

SURVEY INFORMATION

Sounded by Echo Sounders: ODOM DVX-3

Completed: 17/10/2006

Navigation & Processing System: HYPACK

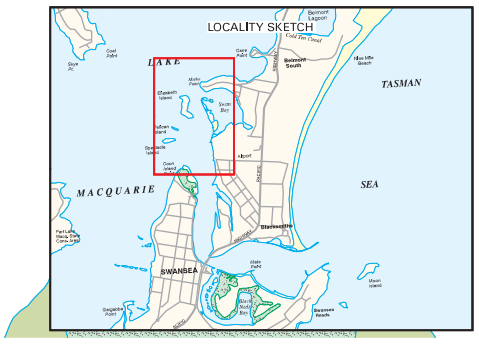
DGPS Position System: OMNISTAR SUB METRE

OIC OPERATOR	HYDROGRAPHIC SURVEYOR
SPATIAL INFORMATION MANAGER	SURVEY MANAGER

NOTE : This plan may not be true to scale. Measurements should be taken from the scale bar.

DISCLAIMER
This plan has been produced by NSW Maritime for the purpose of an Estuary Monitoring Study. No warranty or representation, express or implied is made to any party not associated with that Study regarding the accuracy or otherwise of the plan. This plan should not be relied upon for any other purpose or used by any party not associated with the Study as the plan may not contain sufficient information for that purpose or use.

LOCALITY SKETCH



NAVIGATION AIDS

- Lit stbd. beacon no top mark
- Starboard Aqua Buoy
- Port Aqua Buoy
- West Cardinal Aqua Buoy
- Special Mark Pillar Buoy
- Nth.Cardinal Conical Buoy
- Special Mark Aqua Buoy
- Blue Beehive Emerg Police
- Lit Stbd Buoy No Top Mark
- Lit Starboard Aqua Buoy
- Lit starboard steel buoy
- Lit Port Buoy No Top Mark
- Lit Port Aqua Buoy
- Lit Port Steel Buoy
- Lit Spec. Mark Aqua Buoy
- Lit Special Mark Pillar Buoy

DEPTH OF WATER

- 1 to 2 metres
- 2 to 3 metres
- 3 to 4 metres
- 4 to 5 metres
- 5 to 6 metres
- 6 to 7 metres
- 7 to 8 metres
- 8 to 9 metres
- 9 to 10 metres
- Greater than 10 metres

Land
Sand
Nat.Pk.
Park
Mangroves

Previous Plan: NSW735/23

NSW735/25

\data\data1\hydro_data\swansea\ss2006\ss2006.ai4

374,500 E

375,000 E

375,500 E

ROAD

UNGALA

BLACKSMITHS BEACH

RESERVE

BLACKSMITHS POINT

TRAINING WALL

TASMAN

ENTRANCE LEADS

6,338,500 N

SWANSEA HEADS

CROSS-OVER LEADS

WALL

REIDS RESERVE

REIDS MISTAKE HEAD

SEA

LUCYS

LAMBTON PDE

DATUM DIAGRAM

Australian Height Datum

0.925m

Port Datum (Approx ISLW)

Depth

Port Bed

NAVIGATION AIDS

- Blue light beacon
- Lit front lead triangle beacon
- Lit rear lead triangle beacon
- Lit Port Buoy No Top Mark

DEPTH OF WATER

- 1 to 2 metres
- 2 to 3 metres
- 3 to 4 metres
- 4 to 5 metres
- 5 to 6 metres
- 6 to 7 metres
- 7 to 8 metres
- 8 to 9 metres
- 9 to 10 metres
- Greater than 10 metres

Land
Sand
Nat.Pk.
Park
Mangroves

LOCALITY SKETCH

Belmont Lagoon
Cold Fire Creek
Coal Point
Cams Point
Belmont South
Nine Mile Beach
LAKE MACQUARIE
Marks Point
Elizabeth Island
Swans Bay
Pelican Island
Spectacle Island
Coom Island Point
Airport
TASMAN
SEA
Blacksmiths
SWANSEA
Mitts Point
Moon Island
Galgabba Point
Swansea Heads

NSW MARITIME

HYDROGRAPHIC SURVEY

SWANSEA HEADS

SCALE 1 : 2000

0 20 40 60 80 100m

DATUM: Soundings are in metres reduced to zero on the Fort Denison Tide Gauge being approximately the level of Lowest Astronomical Tide.
This zero is 0.925 metres below Australian Height Datum.
The decimal point denotes the position of each sounding.
Soundings above zero are shown thus: -0.2
This plan is produced on the Geocentric Datum of Australia 1994 (GDA94)
Map projection is MGA zone 56

SURVEY INFORMATION:

Sounded by Echo Sounder: ODOM CV-3
Completed: 24/5/2006
Navigation & Processing System: HYPACK
DGPS Position System: OMNISTAR SUB METRE

F.B. Delamonica — GIS OPERATOR
D. Marino — HYDROGRAPHIC SURVEYOR
A. Nabom — SPATIAL INFORMATION MANAGER
J. Stelland — SURVEY MANAGER

NOTE : This plan may not be true to scale.
Measurements should be taken from the scale bar.

Previous Plan: NSW737

NSW737/1

\\data1\data1\hydro_data\swansea\swansea_heads\may2006\may2006.aml