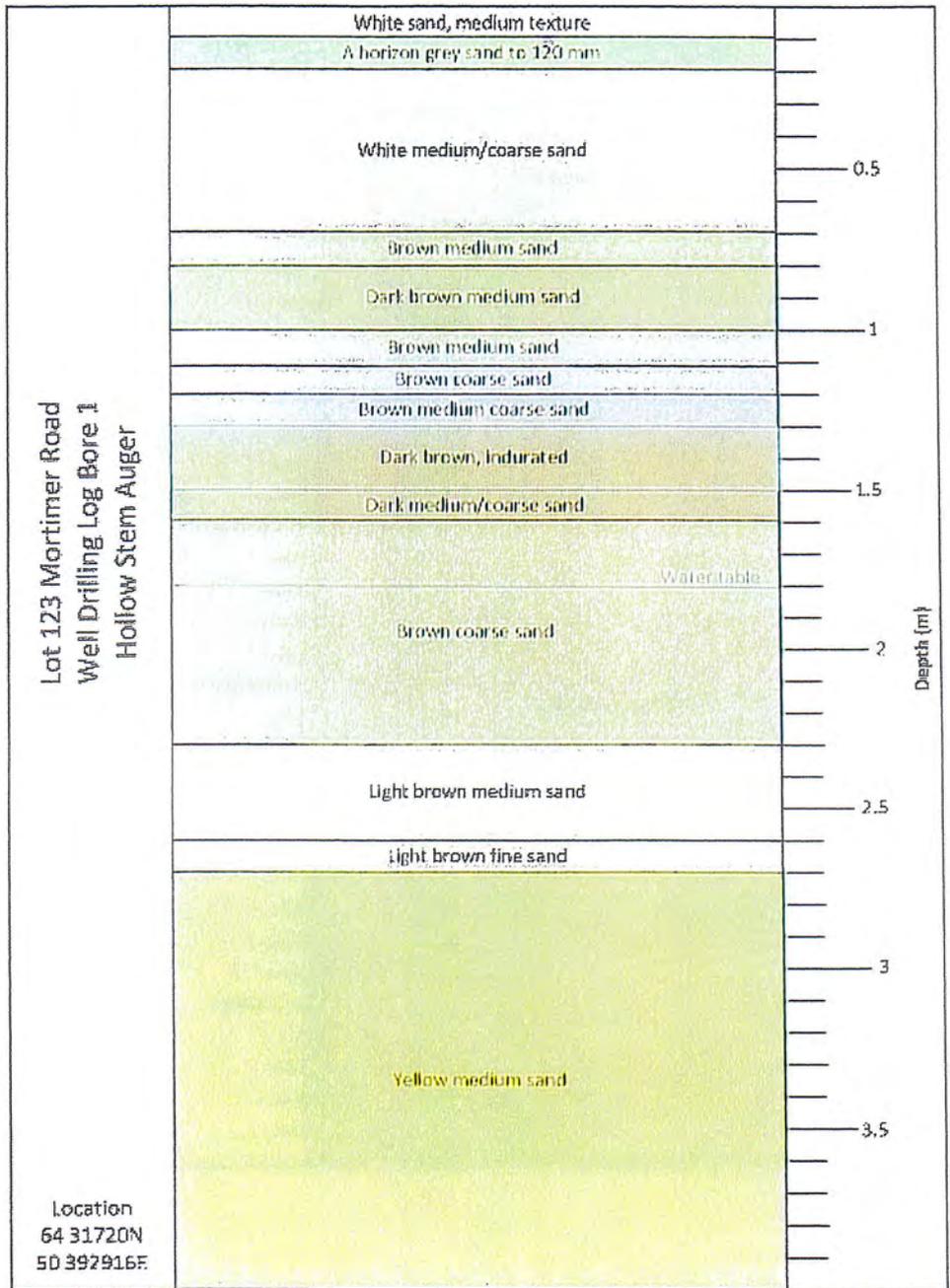


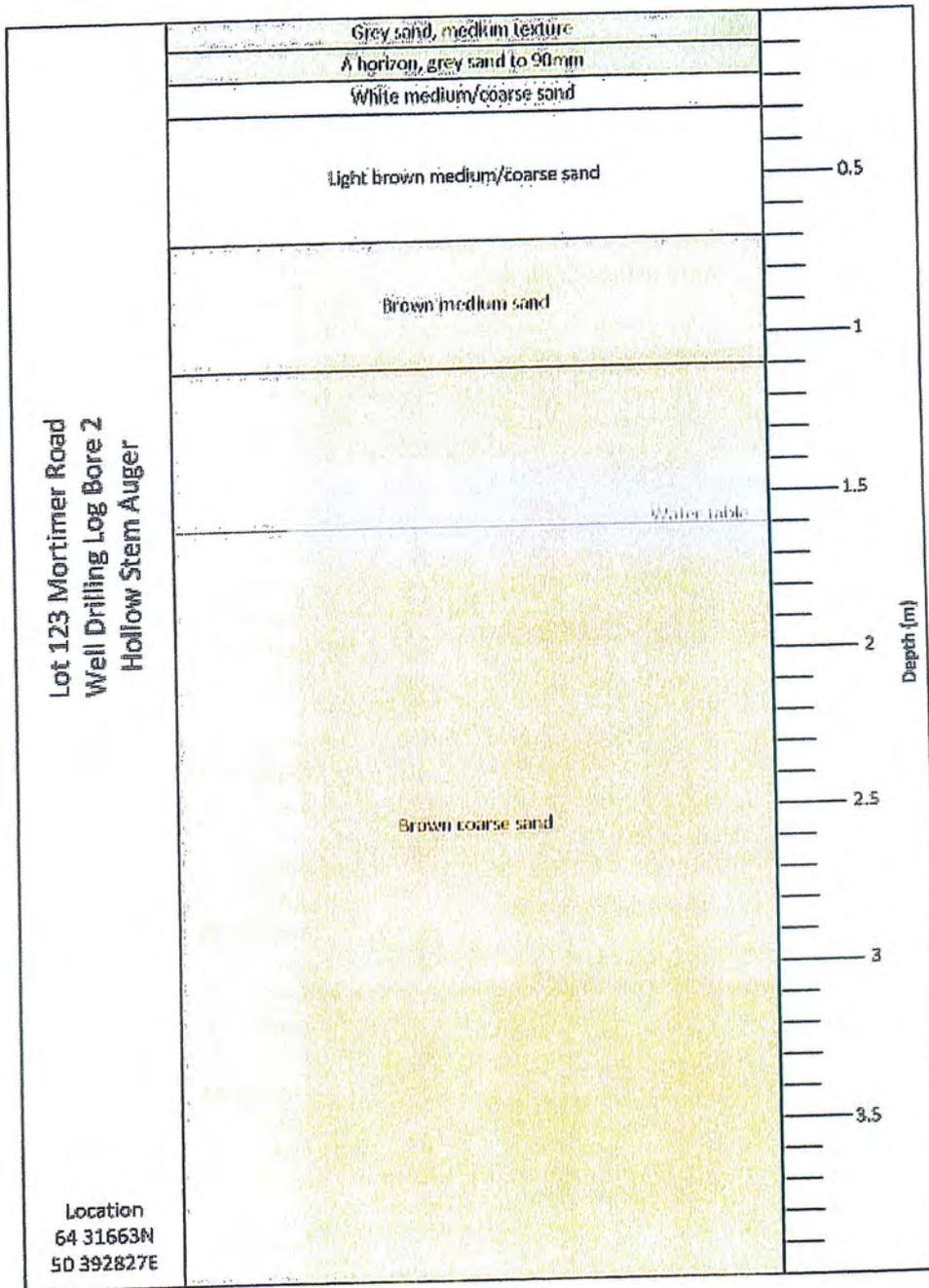


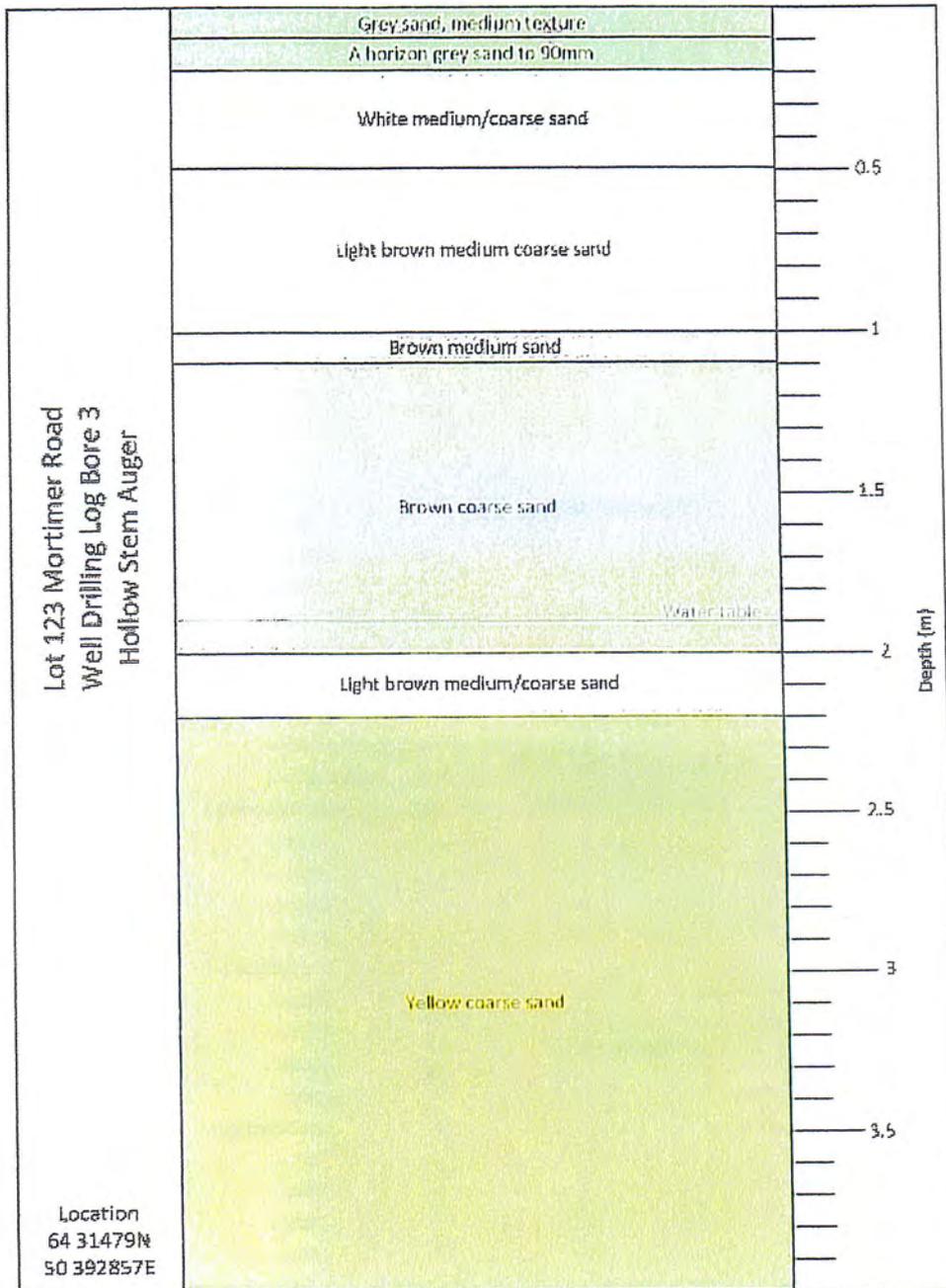
## REFERENCES

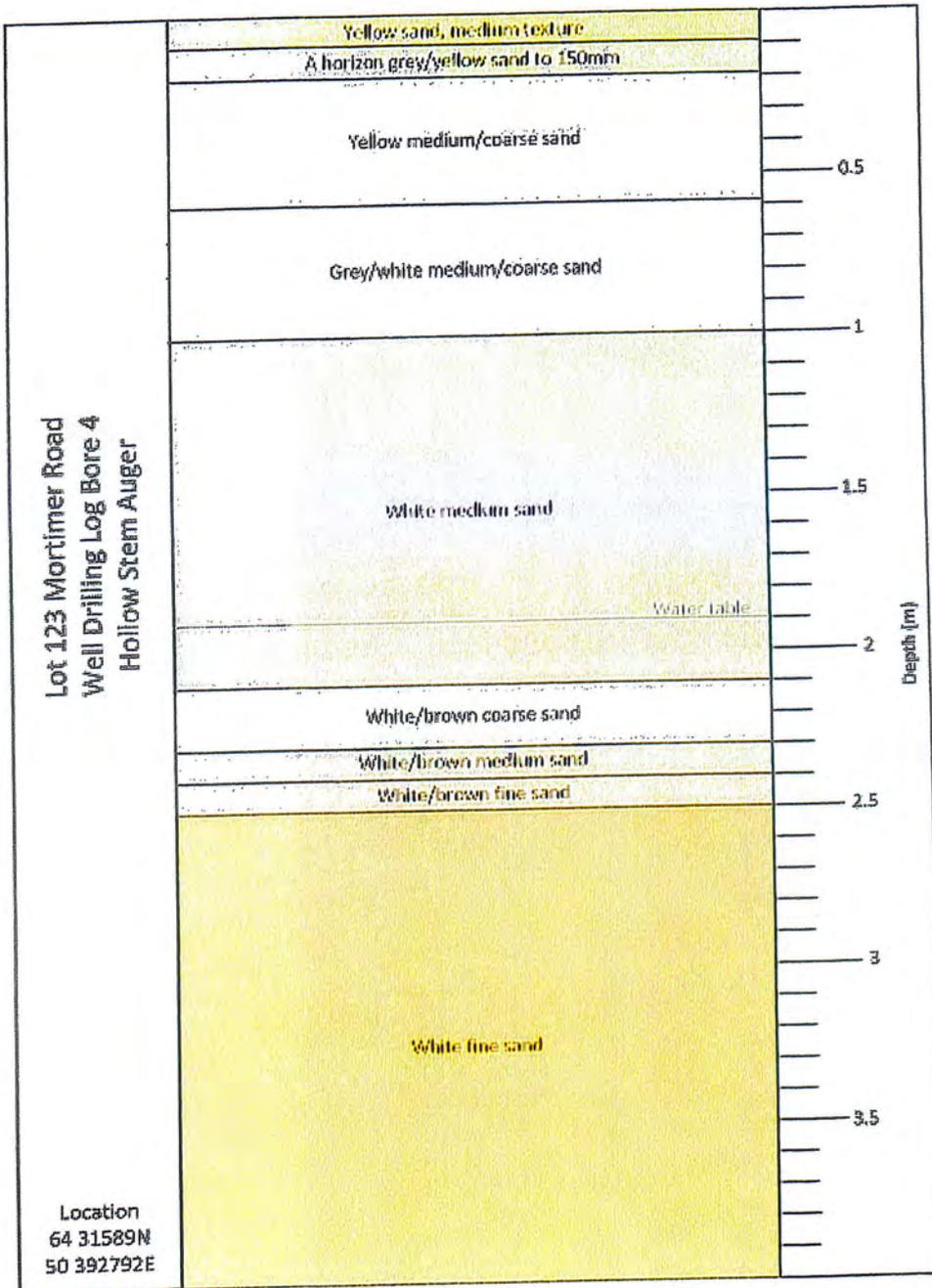
- BOM (2011) *Climate statistics for Australian Locations*. Bureau of Meteorology  
Information retrieved: [http://www.bom.gov.au/climate/averages/tables/cw\\_009172.shtml](http://www.bom.gov.au/climate/averages/tables/cw_009172.shtml)  
(Accessed 03/05/2011)
- DAVIDSON W.A. (1995) *Hydrogeology and groundwater resources of the Perth Region, Western Australia*. Western Australia Geological Survey Bulletin 124
- DEP (2000) *Bush Forever: Directory of Bush Forever Sites*. Vol 2. Department of Environmental Protection
- DOW (2009) *Climate change, water demand and water availability scenarios to 2030: Perth-Peel regional water plan*. Department of Water
- GOZZARD J.R. (1986a) *Fremantle Part Sheets 2033 I and 2033 IV Perth Metropolitan Region, Environmental Geology Series*. Geological Survey of Western Australia.
- GOZZARD J.R. (1986b) *Rockingham Part Sheets 2033 III and 2033 II Perth Metropolitan Region, Environmental Geology Series*. Geological Survey of Western Australia.
- SEMENIUK C.A. & SEMENIUK V. (1996) *The geomorphic classification of wetlands*. In HILL A.L, SEMENIUK V, & DEL MARO A. (1996) *Wetlands of the Swan Coastal Plain*. Vol. 2a. WRC and DEP of WA.
- HILL A.L, SEMENIUK V, & DEL MARO A. (1996) *Wetlands of the Swan Coastal Plain*. Vol. 2a. WRC and DEP of WA.
- TINER R.P. (1999) *Wetland indicators: A guide to wetland identification, delineation, classification and mapping*. Lewis Publishers, Boca Raton.
- WAPC (2005) *Guidelines for the determination of wetland buffer distances*. Government of Western Australia.
- THACKWAY, R. & CRESSWELL, I. D. (1995) *An interim biogeographic regionalisation for Australia: a framework for setting priorities in the National Reserves System Cooperative Program*: Version 4.0. Canberra, Australian Nature Conservation Agency.

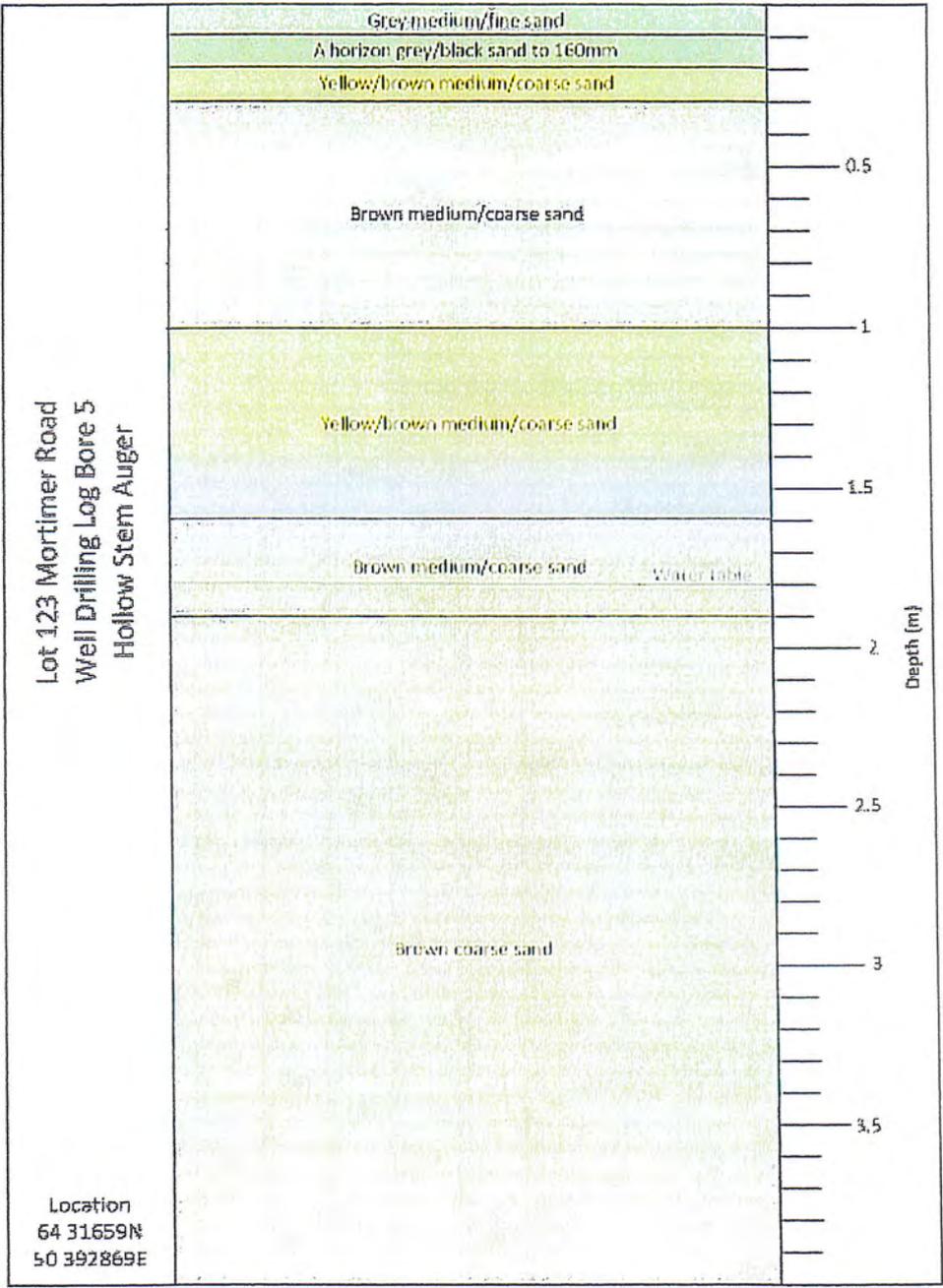
APPENDIX 1: Soil Profiles













**APPENDIX 3: Bulletin 686**

**Bulletin 686 Assessment for Lot 38 Landgren Road, Wellard.**

**Part I - presence of rare species**

Is the wetland a habitat for Gazetted rare species of flora or fauna?

*Answer:* No

**Part IIB: Seasonal and episodic wetlands with poorly defined boundaries**

**Introduction - "zoning" the wetlands**

As described in Section 2.4, these "extensive" wetlands cannot be treated as single units. Zone the wetland as described in Section 4.2, Step 6. Each section should be the subject of a separate assessment using the following questionnaire. Where the word "wetland" is used it should be interpreted to mean "wetland section".

**i Environmental geology classification**

Does the wetland occur on the Quindalup Dunes or on a geological unit confined to a river/estuary floodplain?

*Answer:* No. The property is Bassendean sand at approximately 20m AHD.

**Score|1|**

**ii Adjacent wetlands**

Are there wetlands within a 2km radius?

*Answer:* Yes. The property lies adjacent to Lot 123 Mortimer Road which contains the vast majority of the wetland proper with a better representation of the endemic flora.

**Score|0|**

**iii Habitat diversity**

Is the composition and structure of the vegetation significantly different to that found at nearby wetlands?

*Answer:* No. The adjacent property contains a better representation of the endemic flora and has suffered less disturbance.

**Score|1|**



#### iv Habitat type

Using the list below score one for each habitat type represented (maximum score 10).

a) Vegetation over 0.1 hectare (1000m<sup>2</sup>) in area.

- large paperbarks (>2.5m tall) in dense clumps [-]
- low thickets (ie <2.5m tall). These are often *Melaleuca*, *Astartea* or *Kunzea* spp [-]
- paperbark fringe [-]
- fringing rushes and sedges (often *Baumea*, *Juncea* spp) [-]
- fringing *Typha* (bulrush) [-]
- samphire or salt marsh [-]
- extensive inlake beds of *Typha* or other rushes [-]
- scattered dense clumps of rushes or sedges [-]

b) Other habitats

- flooded grassland in winter/spring [-]
- mud flats or seasonally dry open water [-]
- islands — natural or human made [-]
- fringing woodland or heath (eg eucalyptus nodes or non-wetland species) [1]
- permanent shallow open water < 50cm deep [-]
- permanent deep open water > 50cm deep [-]

Score 1/2 point for

- scattered paperbarks [1]
- scattered rushes [1]

**Score[3]**

*Notes:* The wetland has been previously cleared. Regrowth of native vegetation has occurred at lower elevation mainly consisting of *Pericalymma ellipticum* and sedges, with only occasional *Melaleuca preissii*, *Allocasuarina fraseriana* and *Corymbia calophylla*. The boundary is densely populated with non-native grass species (*Ehrharta calycina* etc.).

#### v Drainage

Are there drains directing water into or out of the wetland?

*Answer: No*

**Score[5]**



**vi Area of wetland modified**

What proportion of the wetland has been modified by clearing of vegetation (including undergrowth) landfill, paving, cultivated gardens/playing fields, irrigated agriculture, grazing, weed invasion, mining etc?

*Answer:* Current owner advised land was cleared for market gardening, but has not been used for this purpose for approximately 10 years. Only lowest elevations have experienced native regrowth.

**Score|1|**

**vii wetland size**

Section of wetland on Lot <10ha.

**Score|1|**

**TOTAL SCORE |11|**

**Part III - Human-use questionnaire**

**i Aesthetics**

Does the wetland possess any of the following attributes? (score appropriately and add score at the end)

Little, if any, artificial noise	Score	2	[2]
Understorey mostly intact	Score	2	[-]
Few, or no, roads or buildings obvious from wetland	Score	2	[2]
Steep ridge visible as part of the scenery	Score	1	[-]
Ridge accessible giving view of wetland	Score	1	[-]
Wetland is a lake and open water easy to view	Score	1	[-]
A section of wetland exists where few people visit	Score	1	[1]

**Score|5|**



**ii Historical and archaeological features**

Does the wetland have any of the following historical or archaeological features?

- registered Aboriginal relics or sacred sites.
- pioneer relics/operations
- National Estate/Trust listings

*Note:* An Aboriginal site is registered on Mortimer Road to the south but does not affect this property.

Score|0|

**iii Security of wetland**

What is the current vesting of the land containing the wetland? Score according to the following table.

*Answer:* Privately owned

Score|1|

**iv Protection groups**

Does the wetland have active community protection groups?

- |             |       |   |
|-------------|-------|---|
| One or more | Score | 5 |
| No groups   | Score | 0 |

Score|0|

**v Passive recreation**

Is the wetland used for any of the following passive recreation activities?

If yes, score 1 for each

- nature study/bird watching [-]
- education (school or other educational interest within 500m) [-]
- picnic and /or barbecue facilities [-]
- conservation of flora (refer to maps) [-]
- conservation of fauna (refer to maps) [-]
- protection and preservation of other attributes [-]
- recognised research site
- biological
- archaeological



— other

[-]

• recognised tourist venue

[-]

**Score|0|**

*Note:* Previous disturbance events have resulted in reduced biodiversity and degraded vegetation. Non-native species are prevalent.

**vi Active recreation**

Is the wetland used for any of the following active recreational activities? If yes, score 1 for each.

• walking/jogging or cycling

[-]

• horse riding

[-]

• trail bike riding

[-]

• playground

[-]

• sports grounds

[-]

• model boats

[-]

• golf course

[-]

• canoeing/rowing

[-]

• power boating/skiing

[-]

• swimming

[-]

**Score|0|**

**vii Other human-uses**

Is the wetland used for any of the following purposes? (Score 1 for each)

• agricultural activities (grazing, horticulture etc)

[-]

• mining (check for mining leases)

[-]

• existing/proposed service corridors (SECWA, roads, etc)

[-]

• water supply

[-]

• proposed urban/housing use

[1]

• private purposes other than described above

[-]

**Score|1|**

*Note:* The wetland is situated at the rear of a property currently classified as 'special rural'.

**TOTAL SCORE |7|**



## Part IV - Supplementary questions

### **i Species rarity**

Are rare (and not gazetted) species of animals or plants present or are there communities represented which have a limited distribution?

*Answer:* No

### **ii Effect on land values**

Does the wetland significantly enhance real estate values and land rates around it? ie, does the wetland add more than 10% to the value of nearby houses?

*Answer:* No. In its current state the wetland has low biodiversity and significant weed infestation.

### **iii Human use**

Do more than 100 people visit the wetland each week?

*Answer:* No

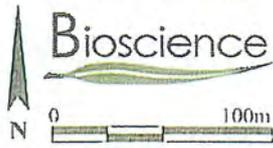
### **iv) private human-use value**

Where there is evidence of private use of the wetland (stock grazing, views of wetland from house or private recreation) ask owner how important the wetland is as a private resource. Does the owner rate it highly?

*Answer:* No

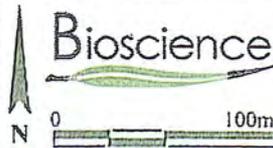
**APPENDIX 4: Historical aerial photographs**





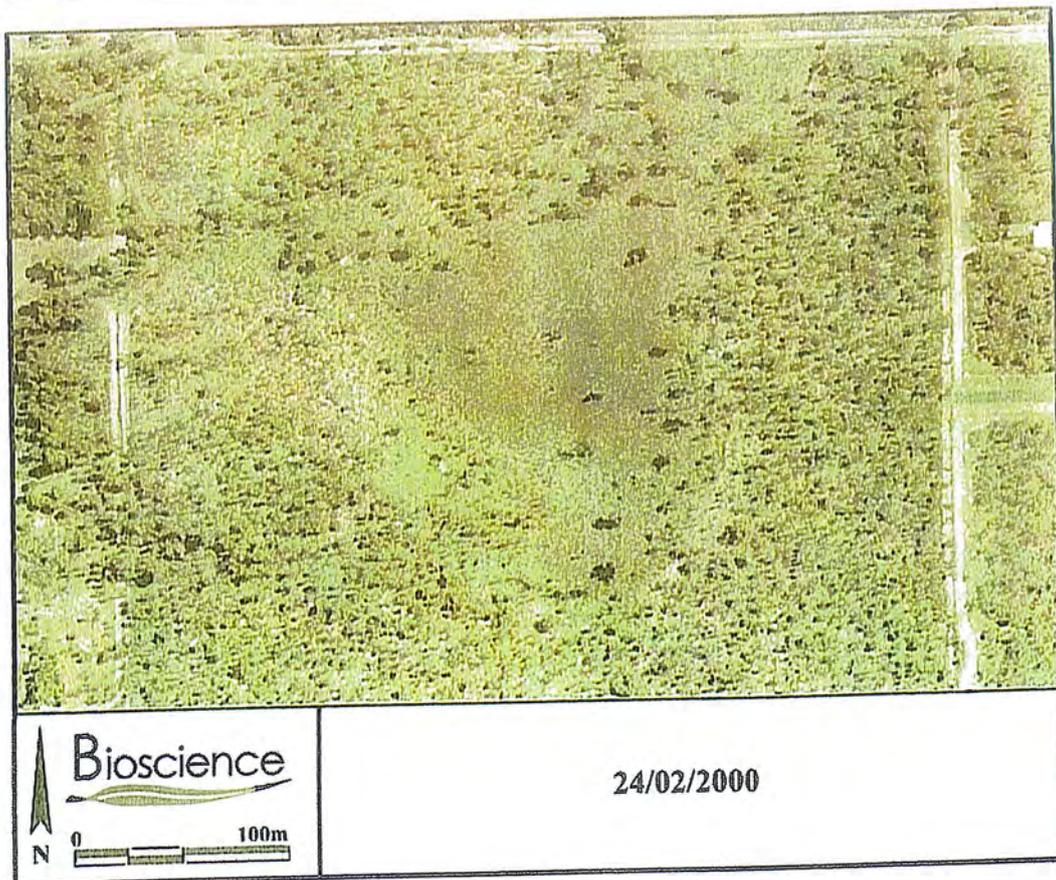
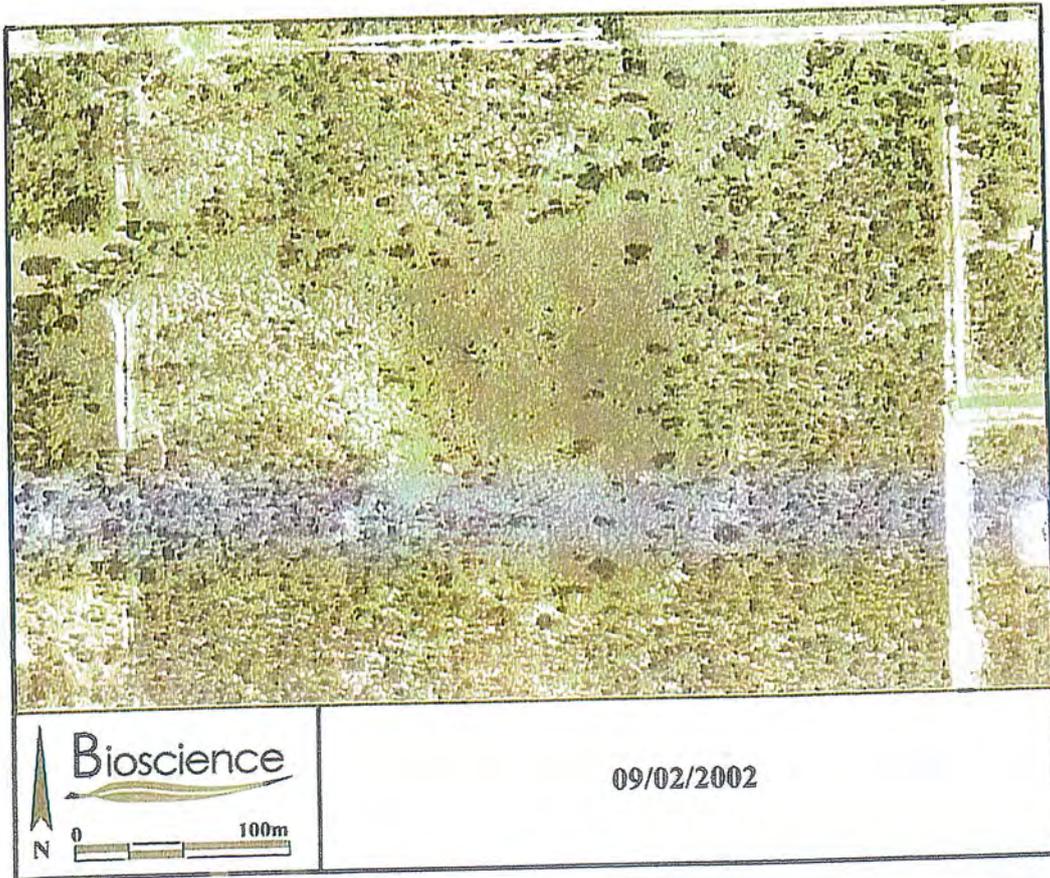
0 100m

24/12/2006



0 100m

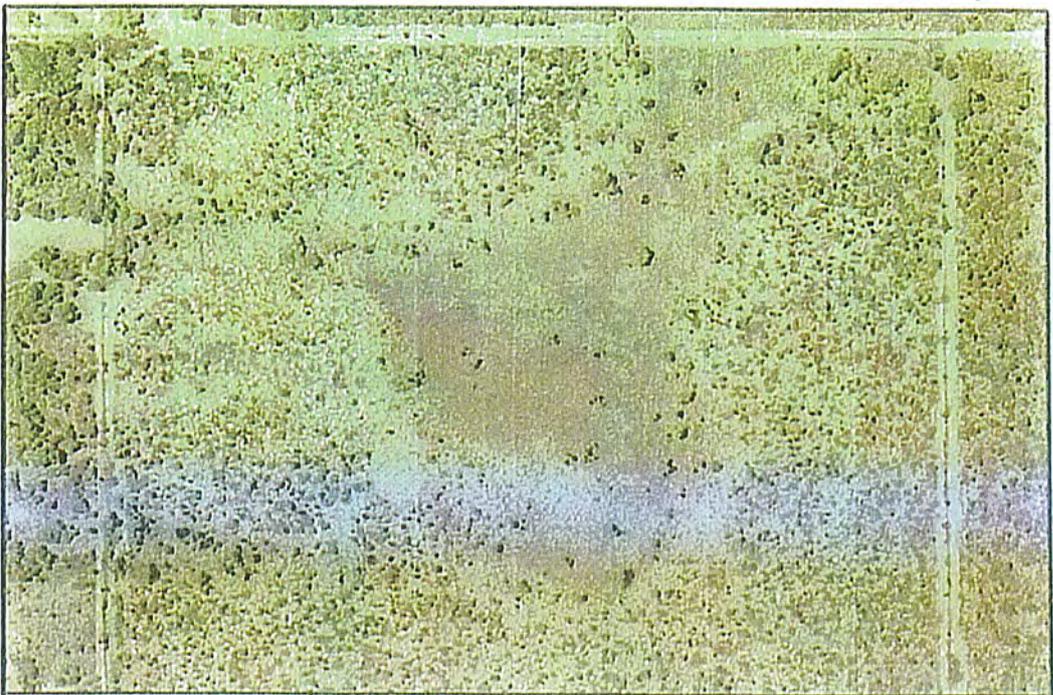
12/12/2004



Tom Gehlert 92739170  
Kand job



Gemba - Rindam  
E. 7533



 <p>N</p> <p>Bioscience</p>  <p>0 100m</p>	<p>06/02/1995</p>
---	-------------------

Kand job



 <p>N</p> <p>Bioscience</p>  <p>0 100m</p>	<p>19/06/1985</p>
--	-------------------