

CARINE SWAMPS, CARINE

Boundary Definition: protected area/bushland/conservation wetland boundary

SECTION 1: LOCATION INFORMATION

Bush Forever Site no. 203

Area (ha): bushland 33.1 (Site also includes open water.)

Map no. 34, 40

Map sheet series ref. no. 2034-II NW

Other Names: not known

Local Authorities (Suburb): City of Stirling (Carine)

System 6 (1983): M37 part System area bushland, only bushland described

SECTION 2: REGIONAL INFORMATION

LANDFORMS AND SOILS

Spearwood Dunes

Sands derived from Tamala Limestone (Qts: S7)

Tamala Limestone (Qtl: LS1)

Wetlands (within the Spearwood Dunes)

Holocene Swamp Deposits (Qhw: Cps)

VEGETATION AND FLORA

Vegetation Complexes

Spearwood Dunes

Karrakatta Complex — Central and South

Wetlands

Herdsmen Complex

Floristic Community Types: not sampled, types not inferred

Supergroup 2: Seasonal Wetlands

Supergroup 4: Uplands centred on Spearwood and Quindalup Dunes

WETLANDS

Wetland Types: sumpland, river, artificial channel

Natural Wetland Groups

Spearwood Dunes

Balcatta (S.2)

Wetland Management Objectives: Conservation (29.55ha, 235.8m)

Swan Coastal Plain Lakes EPP: 22.4ha + 4.8ha = 27.2ha (total)

THREATENED ECOLOGICAL COMMUNITIES

Not determined

SECTION 3: SPECIFIC SITE DETAIL

Landscape Features: open water, vegetated wetlands, vegetated uplands

Vegetation and Flora: limited survey (Dames and Moore 1988a, EPA and WAWA 1990)

Structural Units: mapping (Dames and Moore 1988a, EPA and WAWA 1990)

Uplands — Sands derived from Tamala Limestone: *Eucalyptus gomphocephala* Open Forest

Wetlands: *Melaleuca* sp. Low Closed Forest to Low Woodland; *Baumea* sp. Closed Sedgeland; mixed Closed Sedgeland

Scattered Native Plants: not assessed

Vegetation Condition: >75% Good to Very Good, <25% Degraded, with areas of severe localised disturbance

Total Flora: not known

Significant Flora: none recorded

Fauna: multiple survey for birds (90 species) (RAOU 1996 D, 25 visits) and amphibians (6 species) (Dames and Moore 1988a). Good assemblage of ducks including Hardhead, Australasian Shoveler, Blue-billed and Musk, and small insectivores including Splendid and White-winged Fairy-wrens, Weebill, Broad-tailed, Western and Yellow-rumped Thornbills. Significant bird species: category 1 (2), category 2 (2), category 3 (12) and category 4 (4). Long-necked Tortoise (*Chelodina oblonga*) (Dames and Moore 1988a)

Linkage: adjacent bushland/canopy to the north; part of Greenways 33, 38, 8 (Tingay, Alan & Associates 1998a); part of a regionally significant potential bushland/wetland linkage (Part A, Map 7)

SECTION 4: INTERNATIONAL AND NATIONAL SIGNIFICANCE

Location for JAMBA/CAMBA species; subject to protection under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

SECTION 5: SELECTION CRITERIA AND RECOMMENDATIONS

Criteria: Representation of ecological communities, Rarity, General criteria for the protection of wetland, streamline and estuarine fringing and coastal vegetation, Criteria not relevant to determination of regional significance, but which may be applied when evaluating areas having similar values

Recommendation: Site with Some Existing Protection; the existing care, control and management intent of the reserve is endorsed. The purpose of the reserve should be amended to include conservation and appropriate mechanisms applied in consultation with the management body (see Table 3, Volume I).

CARINE SWAMPS, CARINE

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SECTION 1: CADASTRAL INFORMATION

(Lots, locations and derived information to be updated in the public submission period)

Bushplan Site no. 203 **Map no.** 44 **Map sheet series ref. no.** 2034-II NW

System 6 (1983): M37 part System area bushland, only bushland described

Other Names: not known

Area (ha): total 90.5 (includes open water); bushland 33.1

Local Authorities (Suburb)

Zoning

City of Stirling (Carine)

MRS: Parks and Recreation, Controlled Access Highways

TPS: Landscape

Ownership Categories

Lot/Location/Reserve numbers (Purpose), Street name

State Government

10, 27 Beach Rd; 11 Duffy Rd

SECTION 2: REGIONAL INFORMATION

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Linkage: adjacent bushland/canopy to the north; part of proposed Greenways 39, 9 (Tingay, Alan & Associates 1997a); part of a regionally significant potential bushland/wetland linkage (Volume 2A, Map 8)

SECTION 4: INTERNATIONAL AND NATIONAL SIGNIFICANCE

Not listed; Location for JAMBA/CAMBA species

SECTION 5: SELECTION CRITERIA AND RECOMMENDATIONS

Criteria: Representation of ecological communities, Rarity, General criteria for the protection of wetland, streamline and estuarine fringing and coastal vegetation, Criteria not relevant to determination of conservation value, but which may be applied when evaluating areas having similar values

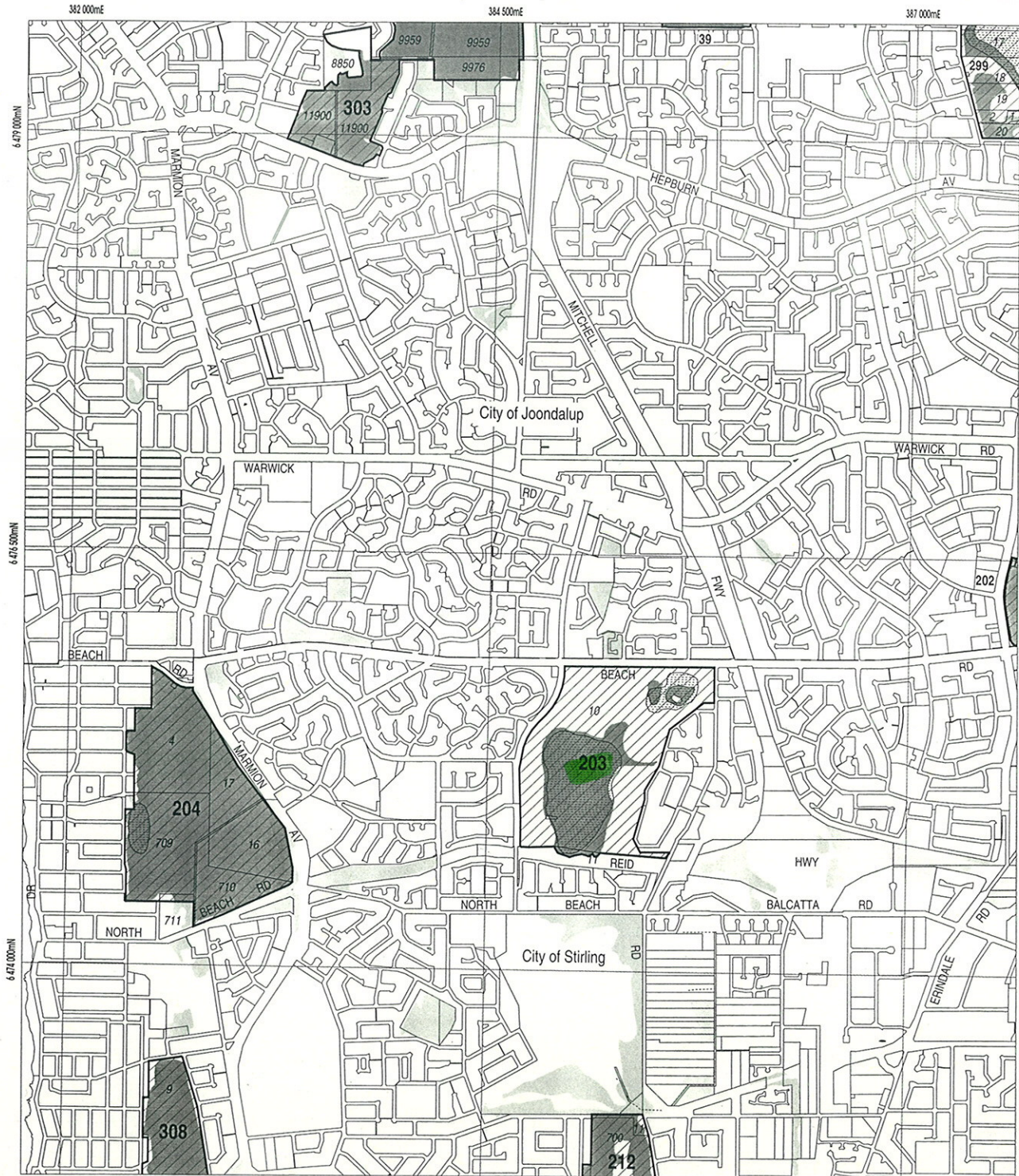
Opportunities and/or Constraints

Opportunities: Bushplan Site/part Bushplan Site subject to Swan Coastal Plain Lakes EPP; location of Scheduled Fauna, conservation category wetlands; under MRS Parks and Recreation Reservation and TPS Landscape Zoning

Constraints: under MRD regional road requirements

Recommendation: The existing care, control and management intent of the reserve is endorsed. Long-term security and support for conservation management of the Bushplan Site be enhanced by: amending the purpose of the reserve to include conservation; and applying appropriate mechanisms in consultation with the reserve management body.





LEGEND

- Bushplan Sites With Regionally Significant Bushland
- Other Native Vegetation
- Conservation Category Wetlands
- Bushplan Sites With Some Existing Protection
- Lot Number, Location Number
- Channel Wetlands
- Local Government Boundary

2034 - II NW

IV	I
2034	
NW	NE
SW	SE

1 : 25 000 AMG Reference Grid showing Perth's Bushplan Map Sheet Breakdown

PERTH'S BUSHPLAN MAP INDEX

1	2		
3	4	5	
6	7	8	9
10	11		
12	13	14	15
16	17	18	19
20	21	22	23
24	25	26	27
28	29	30	
31	32	33	34
35	36	37	38
39	40	41	42
43	44	45	46
47	48	49	50
51	52	53	54
55	56	57	58
59	60	61	62
63	64	65	66
67	68	69	70
71	72	73	74
75	76	77	
78	79	80	81
82	83	84	85
86	87	88	89
90	91	92	93
94	95	96	97
98	99	100	101
102	103	104	105
106	107	108	

SCALE

0 500 1000

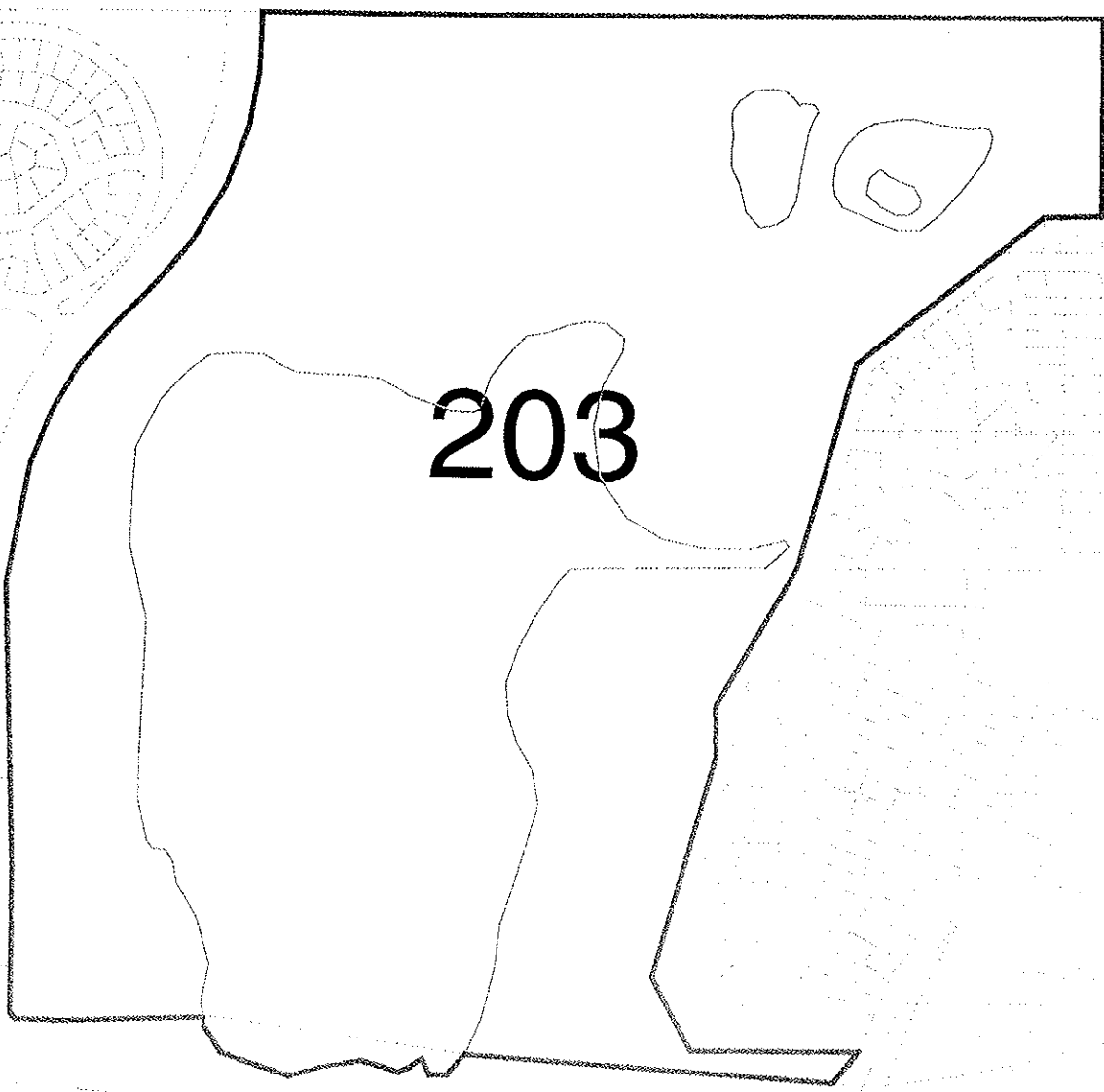
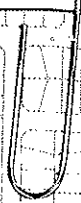
Metres

Produced by Project Mapping Section
Land Information Branch, Ministry for
Planning, Perth W.A. November 1998
ntw-map11/environ/bushplan/bushv2_44.dgn

Cadastral Data supplied by Department
of Land Administration, W.A.

Wetlands Data supplied by
Water and Rivers Commission

Native Vegetation Extent for Study Area
supplied by Agriculture Western Australia



203

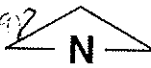
BUSHPLAN SITES CORRECTED

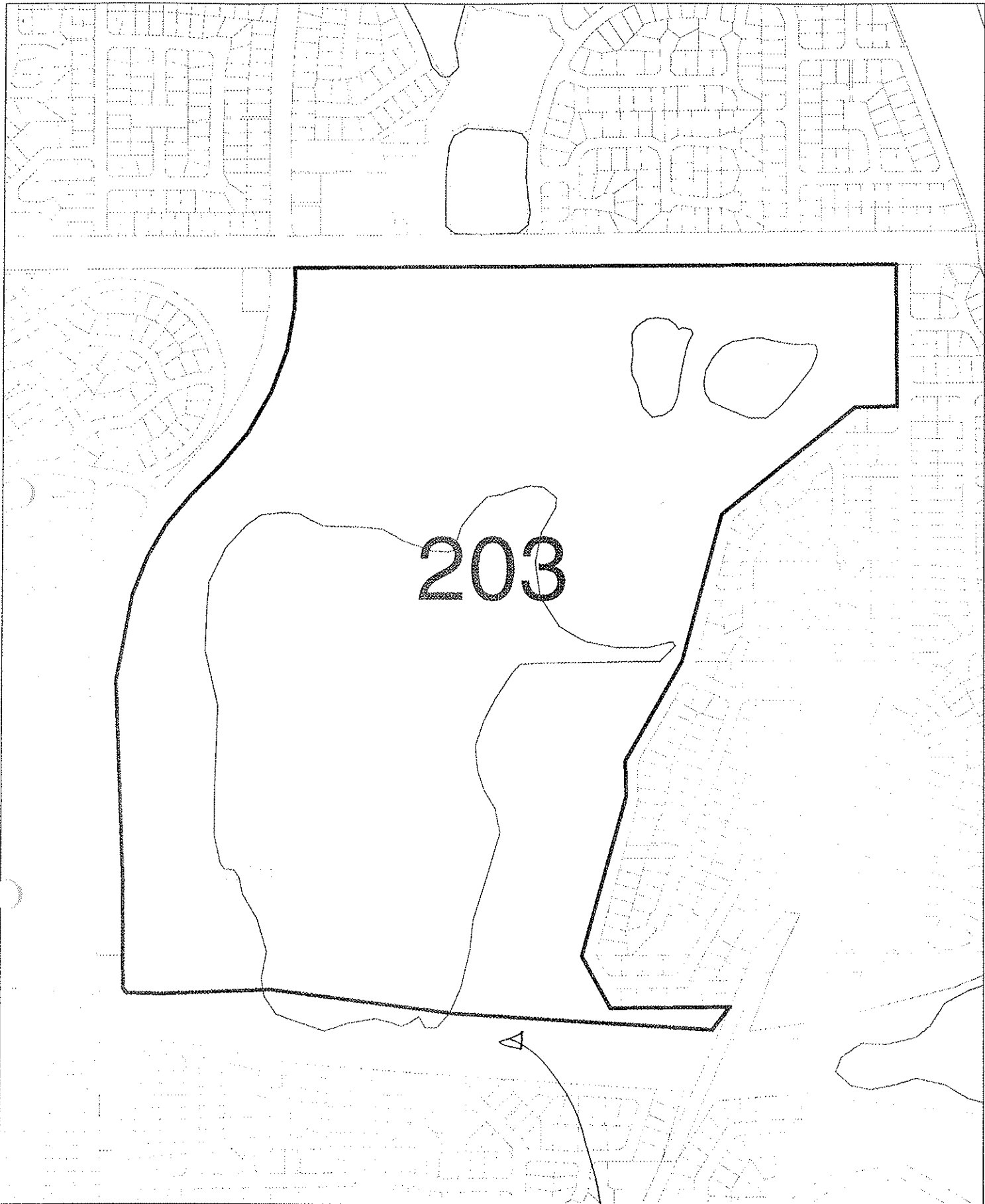


WESTERN
AUSTRALIAN
PLANNING
COMMISSION



CUSTOMER
FOCUS
WESTERN AUSTRALIA

✓ NT 25/9
B BK/T6 21/10/97 



BUSHPLAN SITES CORRECTED

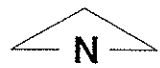


WESTERN
AUSTRALIAN
PLANNING
COMMISSION



CUSTOMER
FOCUS
WESTERN AUSTRALIA

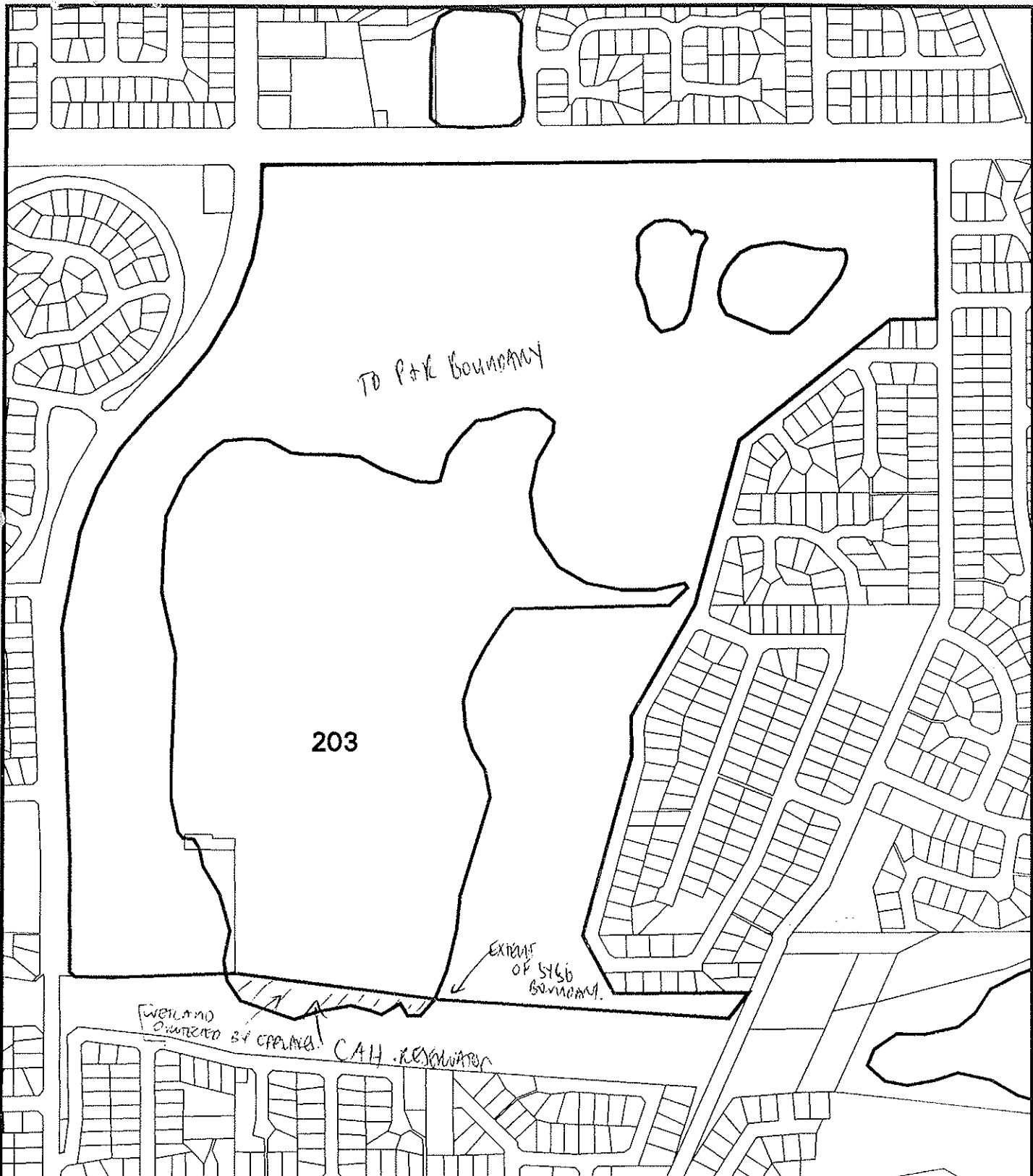
*15JK 6/7
? Road reserve,
include it is.*



SCALE 1:2500



Metres



bp site 203

- AG VEG 1998 BOUNDARY THEME
- Cadastre in BLUE.
- Bushplan sites refno 1-500 SCP BOUNDARY THEME

Search for Park Boundary?

MFP INTERNAL USE ONLY
 Prepared By: Andrea Zappacosta
 Prepared For:
 Map Idant: plot980526_1
 Date: 26 May 98
 Scale 1:7307

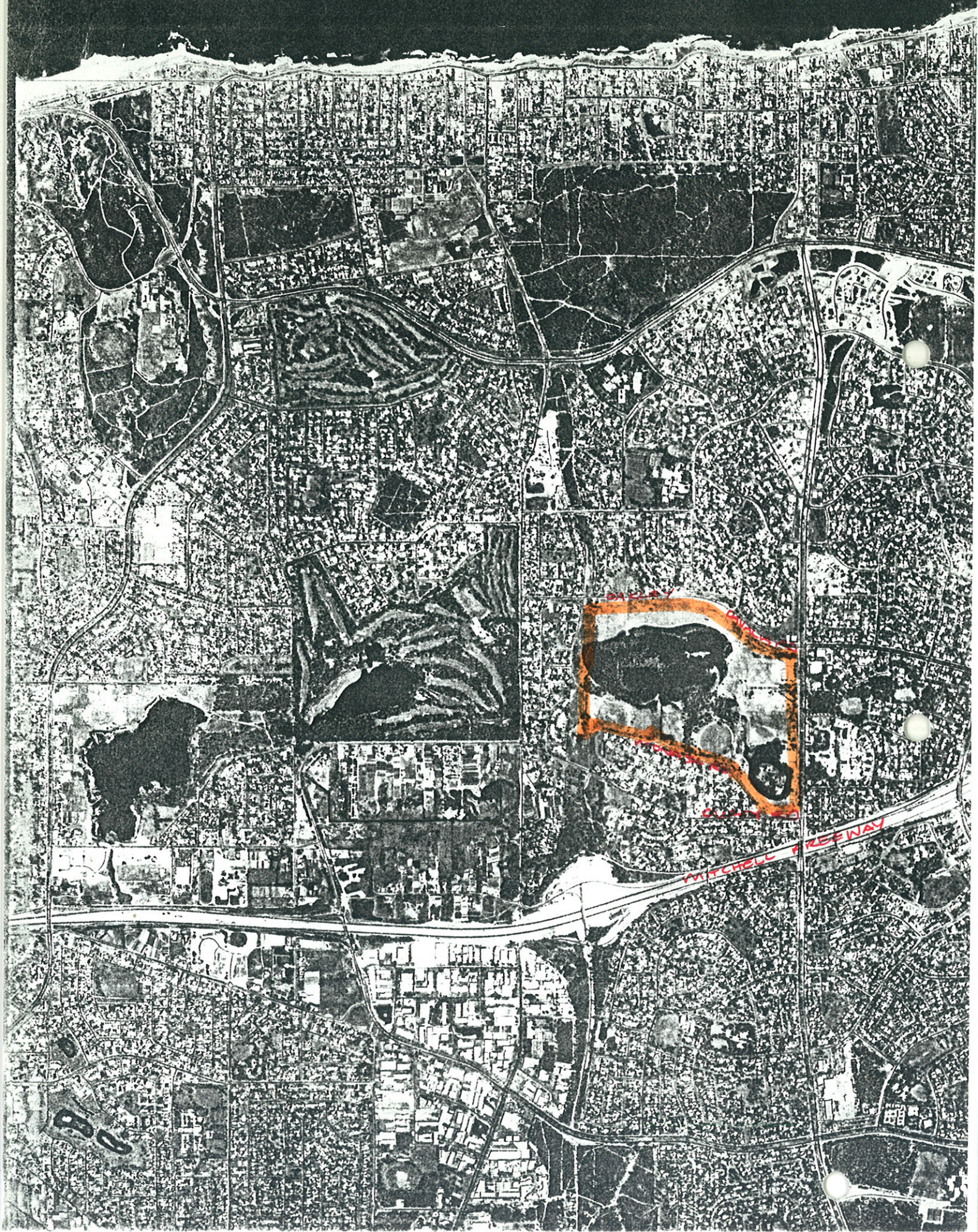
*DEB
 NOTE ADDITIONAL
 AERIAL PHOTO FOR RECONSTRUCTION MEETING.*

BS 203

PB061



2 →





CARINE LAKE SWAMP

check for MP in library

~~502.45(941) DAM~~ ✓

Accession No. 901 891

Carine Lake Region - Dames + Moore ✓

~~Vegn Map Fig 5~~

~~missing~~

5

Aerial photo S135
- is also required to show
Northern edge of Big Game Lake

SYSTEM 6 BUSHLAND SUBMISSION FORM FOR CONSIDERATION IN THE UPDATE PROGRAMME

If you wish to submit more than one area for consideration in the System 6 update, please use a separate form for each area.

Please fill in each section giving as much information as possible.

LOCATION, OWNERSHIP AND ZONING OF THE AREA

1. Location

Please give as accurate and detailed a description as possible of the site location

Please include either a hand drawn or copied map showing the area of the area

a) Bordering Roads: *Attached map self-explanatory*

b) Nearest Corner:

c) Lot Number: Street Number:

d) Town/Suburb/Location:

e) Local Council: *Sydney Council*

f) Site Name (if any):

g) Approximate size of the area (ha):

h) Please locate the area on a map and give us map references if possible:
.....

i) Map: Streetsmart /UBD/Other:

j) Map no.:

k) Grid Ref:

l) Please give any other information that may help us to find the location:
.....

m) Are you aware of any development proposals that are likely to affect the area?
.....

NOTE: Areas that have already been given development APPROVAL should not be nominated

Please fill out those questions that you can answer

2. Who owns the area? (If owned by the person/s making the nomination please indicate)

3. If you own the area, and may be interested in participating in conservation on private land initiatives please indicate (and leave your name and address at the end of this submission form)

4. What is the area zoned? (please indicate whether zoning is Town Planning Scheme or Metropolitan Region Scheme)

CAN YOU TELL US A LITTLE ABOUT THE PHYSICAL CHARACTERISTICS OF THE AREA

5. Why do you consider this area important? (Refer to Guiding Issues paper)

The area is important as part of vast wetlands area with original

6. What is/are the soil type/s and colours? F. rudis habitat / corridor link.

Type: Sand/Clay/Gravel/Loam/Silt

Colour: White/Grey/Brown/Orange/Yellow/Red/Black

7. Does the area have any special features such as unusual landforms / landscapes that still retain their natural vegetation? Yes/No

If yes, what are they? Melaleuca raphaeophylla plus F. rudis
corridor link

8. Is the area a wetland or does it include a wetland? Yes

If yes, what kind of a wetlands is it?

a) lake

b) river

c) stream

d) swamp

e) estuary

f) seasonally wet

g) other permanently wet.

9. What percentage of the wetland is open water in summer?

CAN YOU TELL US A LITTLE ABOUT THE VEGETATION /FAUNA ON THE NOMINATED AREA.

10. What percentage of the area is indigenous vegetation?

11. If the area includes regions cleared of native bushland please indicate reasons for the inclusion.

..... *Isolated / corridor connecting wetlands*

12. Has any previous flora or fauna survey work been done on the area?

If yes, please give details of the work

.....
.....

13. How would you rate the condition of the native bushland? (see attached table)

- a) pristine
- b) excellent
- c) very good
- d) good
- e) degraded
- f) completely degraded
- g) don't know

14. Please indicate the disturbances affecting the area and where appropriate the percentage of the area disturbed.

- a) Partial clearing
- b) fragmentation
- c) Selective removal of species: timber cutting, wildflower picking, mowing dieback and other plant diseases
- d) Fire regime, including intensity, season and frequency
- Carine* e) 'Enrichment plantings' that is plantings of species not found in that community
- f) Weed invasion
- g) Animal impact: horses, foxes, rabbits, cats, dogs, camels, goats etc
- h) Soil movement, both removal and dumping
- i) Changes in water regimes; flooding, drainage and watering
- j) Salinity
- k) Fertiliser drift and along waterways nutrient influx
- l) Mining, including that for road works

- m) Grazing: stock, overgrazing by feral or native mammals
- n) Proliferation of tracks, fire breaks and walk trails
- o) Off-road vehicle use
- p) Use as service corridors by the SEC, Main Roads, Water Authority.

(Source: B Keighery. Bushland Plant Survey, September 1994)

15. Does the area contain any plant species of special interest that you know of? (eg. declared rare flora, priority taxa, outlier populations)

Do you know what they are?

16. Do you know of any native animals that use the area?

Can you list those you know of? (birds, mammals, reptiles, amphibians etc)

Big Carnie = Long-necked Tortoise + 60+ Birds

17. Is the area used by any native animals of special interest? (eg. endangered species, large/important populations).....

If yes, please name them and indicate source of information

.....

CAN YOU TELL US A LITTLE ABOUT THE SURROUNDING AREA

18. Are there any bushland areas (including wetlands) near to this area?

.....

If yes, how close are they?

.....

Are they already conservation reserves?

What is their approximate size?

19. Does the submitted area link other bushland areas?

.....

Please attach any additional information about the area which may be of use when assessing it.

R. A. O. U. TRACKING DATABASE

23/06/96

PARK SIGHTINGS REPORT

Page No.

1

Carine Swamp (M37)

ORDER:	REF:	BIRD NAME		NO. SIGHTINGS
0018	0216	Blue-billed Duck	3	11
0019	0217	Musk Duck	3	21
0022	0203	Black Swan		24
0025	0207	Australian Shelduck		21
0028	0202	Australian Wood Duck		20
0031	0948	Mallard		3
0032	0208	Pacific Black Duck		25
0033	0212	Australasian Shoveler	3	6
0035	0211	Grey Teal		18
0039	0213	Pink-eared Duck		3
0040	0215	Hardhead	3	14
0041	0061	Australasian Grebe		23
0042	0062	Hoary-headed Grebe		9
0043	0060	Great Crested Grebe		21
0128	0101	Darter		15
0129	0100	Little Pied Cormorant		23
0132	0097	Little Black Cormorant		22
0133	0096	Great Cormorant		11
0135	0106	Australian Pelican		15
0139	0188	White-faced Heron		22
0140	0185	Little Egret		11
0145	0187	Great Egret		20
0146	0186	Intermediate Egret		1
0150	0192	Nankeen Night Heron		7
0156	0178	Glossy Ibis		2
0157	0179	Australian White Ibis		21
0158	0180	Straw-necked Ibis		17
0159	0181	Royal Spoonbill		2
0160	0182	Yellow-billed Spoonbill		20
0165	0232	Black-shouldered Kite		4
0170	0228	Whistling Kite	4	2
0174	0219	Swamp Harrier		2
0175	0221	Brown Goshawk	4	6
0177	0222	Collared Sparrowhawk	4	1
0181	0225	Little Eagle	4	2
0183	0235	Australian Hobby		2
0186	0237	Peregrine Falcon	1	2
0192	0046	Buff-banded Rail		3
0204	0058	Purple Swamphen		24
0205	0056	Dusky Moorhen	3	22
0208	0059	Eurasian Coot		23
0231	0158	Common Greenshank	2	5
0235	0157	Common Sandpiper	2	1

0267	0146	Black-winged Stilt		9
0282	0144	Black-fronted Dotterel		9
0297	0125	Silver Gull		1
0324	0957	Rock Dove		19
0326	0988	Laughing Turtle-Dove		16
0327	0989	Spotted Turtle-Dove		1
0356A	1266	White-tailed Black-Cockatoo	1	1
0359	0273	Galah		20
0360	0272	Long-billed Corella		1
0362	0271	Little Corella		7
0366	0254	Rainbow Lorikeet		15
0368	0257	Varied Lorikeet		1
0386	0294	Australian Ringneck		23
0387	0290	Red-capped Parrot		1
0408	0338	Fan-tailed Cuckoo		1
0411	0344	Shining Bronze-Cuckoo		2
0416	0322	Laughing Kookaburra		16
0451	0326	Sacred Kingfisher		7
0453	0329	Rainbow Bee-eater		1
0471	0532	Splendid Fairy-wren	3	1
0472	0536	Variegated Fairy-wren	3	2
0492	0976	Striated Pardalote		13
0512	0465	Weebill	3	2
0517	0463	Western Gerygone		15
0524	0476	Inland Thornbill	3	4
0528	0472	Western Thornbill	3	1
0531	0486	Yellow-rumped Thornbill	3	14
0537	0638	Red Wattlebird		25
0561	0608	Singing Honeyeater		21
0583	0597	Brown Honeyeater		18
0587	0631	New Holland Honeyeater	4	4
0607	0448	White-fronted Chat		2
0644	0549	Varied Sittella	3	1
0653	0401	Rufous Whistler		9
0671	0415	Magpie-Lark		24
0673	0361	Grey Fantail		16
0676	0364	Willie Wagtail		25
0678	0424	Black-faced Cuckoo-shrike		4
0695	0702	Grey Butcherbird		19
0697	0700	Pied Butcherbird		1
0698	0705	Australian Magpie		25
0706	0930	Australian Raven		24
0763	0357	Welcome Swallow		24
0765	0359	Tree Martin		18
0768	0524	Clamorous Reed-Warbler		13
0772	0522	Little Grassbird		3
0781	0574	Silvereye		19

*** END OF REPORT ***

① 2
 ② 2
 ③ 12
 ④ 4

SUMMARY REPORT

TOTAL BIRDS SIGHTED	:	90
TOTAL NUMBER OF CARDS	:	25

*** END OF SUMMARY ***

Please circle the appropriate response or respond in the space provided.

Area M 37 Name	<u>Carine Lake</u>		
Title	<u>Carine Lake Regional Open Space Reserve - Management Plan</u>		
Published <input checked="" type="checkbox"/> Unpublished	Date	<u>January 1988</u>	
Author/s	<u>Dames & Moore</u>		
Location of Publication	<u>CALM (Wanneroo), Stirling</u>		
Purpose (why was the report prepared?)	<u>Management</u>		
Government	<u>Local - City of Stirling</u>		
Corporate			
Community Group			
Management Plan			

Soils			
Units	<u>mapped</u>	<input checked="" type="checkbox"/> <u>described</u>	<input checked="" type="checkbox"/> <u>referenced</u>
			<u>general</u>

Landscape			
Features	<input checked="" type="checkbox"/> <u>described</u>	<input type="checkbox"/> <u>referenced</u>	

Flora	<u>Maddocks, De Moore 1984, May 1987</u>		
Vegetation Map			
Units	<u>'Jarrah' 'bullrushes'</u>	Site based (no) <u>no descriptions</u>	
Mapped	<u>Yes - flora list in these units</u>		
Veg Units	<u>Comparable Heddle et al</u>	<u>Compared Heddle et al.</u>	<u>Unit not mapped by Heddle et al.</u>
Flora list	<u>Dr A. Weston</u>		
Timing	<u>% completion - by habitat</u>		Significant Taxa
	<input checked="" type="checkbox"/> <u>Trees</u>	<input checked="" type="checkbox"/> <u>Shrubs</u>	<input checked="" type="checkbox"/> <u>Herbs</u>
	<input checked="" type="checkbox"/> <u>Sedges</u>	<input checked="" type="checkbox"/> <u>Weeds</u>	<input type="checkbox"/> <u>DRF</u>
			<input type="checkbox"/> <u>CALM</u>
			<input type="checkbox"/> <u>Priority</u>
			<input type="checkbox"/> <u>Other</u>

Fauna	<u>literature, area, Elliot trapping</u>		
Timing	<u>% completion</u>		Significant Taxa
	<input checked="" type="checkbox"/> <u>Mammals</u>	<u>90%</u>	<input checked="" type="checkbox"/> <u>Birds</u>
			<u>80%</u>
	<input type="checkbox"/> <u>Reptiles</u>	<u>common</u>	<input type="checkbox"/> <u>Invertebrates</u>
			<input type="checkbox"/> <u>Sched1</u>
			<input type="checkbox"/> <u>Sched2</u>
			<input type="checkbox"/> <u>Other</u>

Vegetation Condition	<u>general statements</u>		
Site based	<input type="checkbox"/> <u>Mapped</u>	<input type="checkbox"/> <u>Units</u>	

Disturbance Factors			
Phytophthora	<input type="checkbox"/> <u>observed</u>	<input type="checkbox"/> <u>comment for</u>	Other <input checked="" type="checkbox"/> <u>Incidental</u>
	<input type="checkbox"/> <u>tested</u>	<input type="checkbox"/> <u>management not observed</u>	<input checked="" type="checkbox"/> <u>Itemised</u>
			<input type="checkbox"/> <u>Fire</u>

Notes	* <u>Maddocks T (1983) Environmental survey at Carine Regional Open Space Res. W.A. Inst/Tech work Exp. Rep.</u>		
	<u>Dames & Moore (1984) Phase III - Ecological Study Lake Gwelup/Cariniup swamp area. Report to the City of Stirling</u>		
	<u>Dames & Moore Job No. 12693-002-071.</u>		

Preparation of plans for development of Little Carine Swamp. Report to the City of Stirling. James & Moore Job No. 12693-003-071

Please circle the appropriate response or respond in the space provided.

Area M <u>37</u> / Name <u>138 1981</u> <u>Lake Guelph 1982</u>
Title
Published <input checked="" type="checkbox"/> Unpublished Date <u>1981</u>
Author/s <u>A. Weston - James and Moore</u>
Location of Publication
Purpose (why was the report prepared?)
Government <u>Stirling City Council</u>
Corporate
Community Group
Management Plan

Soils
Units mapped described referenced

Landscape
Features described referenced

Flora
Vegetation Map
Units Site based (no)
Mapped
Veg Units Comparable Heddle <i>et al</i> Compared Heddle <i>et al</i> Unit not mapped by Heddle <i>et al</i>
Flora list
Timing %completion <u>90%</u> Significant Taxa
<u>Winkler</u> <input checked="" type="checkbox"/> Trees <input checked="" type="checkbox"/> Shrubs <input checked="" type="checkbox"/> Herbs <input checked="" type="checkbox"/> Sedges <input checked="" type="checkbox"/> Weeds DRF CALM Priority Other

Fauna
Timing %completion Significant Taxa
Mammals Birds Sched1 Sched2 Other
Reptiles Invertebrates

Vegetation Condition
Site based Mapped Units <u>general (subjective)</u>

Disturbance Factors
Phytophthora observed Other <input checked="" type="checkbox"/> Incidental
tested <input checked="" type="checkbox"/> Itemised

Notes



M37 Carine Swamps
City of Stirling Management Plan

Friends Advocate Management

Other Names:

Specific Study/studies Miscellaneous studies

?

Flora

Vegetation Map	1	2	3	
Flora list	1	2	3	4
Significant Taxa		done / suitable / doubtful		

?

Fauna

Mammals	1	2	
Birds	1	2	<u>RAOU</u>
Reptiles and Amphibia	1	2	
Invertebrates	1	2	

Vegetation Condition Map Sites Comment

Disturbance Factors Comment Management

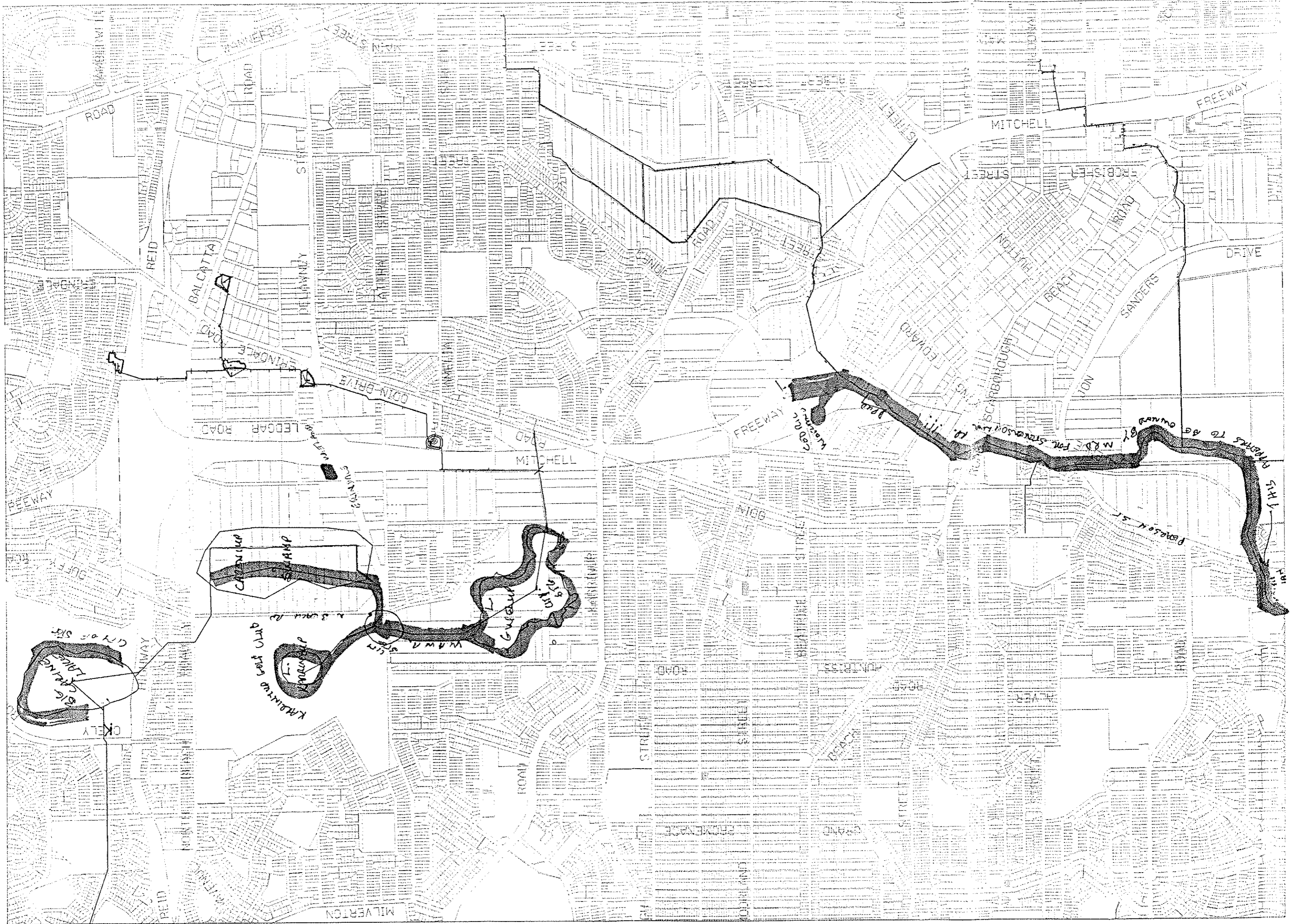
Swan Coastal Plain Floristic Survey

AHC: National Estate- Listed / Interim / Nominated / Notified NT (WA): Heritage Classification

Notes

M37 Carine Swamps City of Stirling Management Plan		
M37.1 Management plan for the area prepared by DPUD and City of Stirling is endorsed.	Implemented	Endorsement. Stirling Wetlands Advisory Group has an interest in this area.

W.A.W.A Facement Map



CARINE LAKE REGION OPEN SPACE RESERVE : DRAFT MANAGEMENT PLAN FOR CITY OF STIRLING / Dames & Moore -- South Perth: The Company, 1987.

1. CARINE LAKE REGION. 2. OPEN SPACE RESERVE. 3. MANAGEMENT.
PEP TOPIC: 1. MISCELLANEOUS.

Location(s) : EPA 502.45(941.1) DAM

CARINE LAKE REGION OPEN SPACE RESERVE MANAGEMENT PLAN FOR CITY OF STIRLING. / Dames & Moore -- South Perth: The Company, 1988.

1. CARINE LAKE REGION. 2. OPEN SPACE RESERVE.
PEP TOPIC: 1. MISCELLANEOUS.

Location(s) : EPA 712.256(941.1) DAM

8.2 WETLANDS IN CARINE OPEN SPACE

BS 203

8.2.1 GENERAL INFORMATION

LOCAL AUTHORITY: City of Stirling
 MRS ZONE: Parks and Recreation
 RESERVE NUMBERS: Owned by State Planning
 PURPOSE: Parks and Recreation
 MANAGEMENT: City of Stirling
 SYSTEM 6 RECOMMENDATION: M37
 WAC CLASSIFICATION: LE.f.s.p.sc
 WATER RESERVE: west of Gwelup Public We
 DRAINAGE: Main and local
 ROADWORKS: North Perimeter Highway impinges on sou

**Full document
 available
 on request**

8.2.2 PHYSIOGRAPHY AND GEOLOGICAL SETTING

Big Carine Swamp is situated on peats and peaty sands on coastal limestone, in the Karrakatta association near its interface with the Cottesloe association.

8.2.3 AREAS

Total area of open space:	92.3 ha
Tuart woodland	5 ha
Big Carine Swamp	24.8 ha
Including mixed sedge/rush	8.2 ha
Central paperbarks (including paperbarks over water)	4.6 ha
Fringing paperbark	4.0 ha
<u>Baumea</u> /weed	1.8 ha
<u>Typha</u>	5.1 ha
open water	1.1 ha

8.2.4 HYDROLOGY (Figure 8.3)

Townley (1984) provided a broad overview of the hydrology of the general region with specific reference to Star Swamp but applicable to Carine.

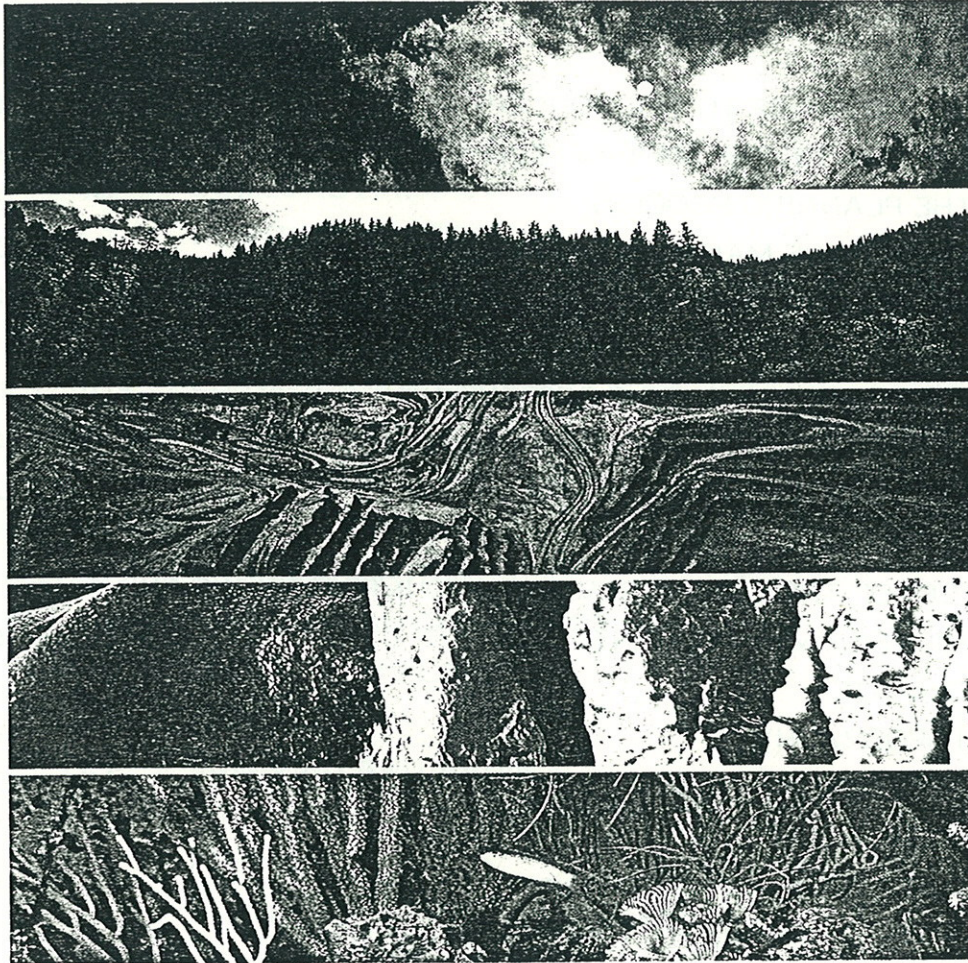
Big Carine Lake is connected to the main drainage system of the Hamersley, Balcatta, Gwelup, Stirling and Carine districts. This drainage system links Lake Gwelup, Lake Karrinyup and Careniup Swamp to Big Carine Lake. A pump station on the western side of Big Carine pumps water to the ocean if necessary.

Local drains also flow into Big Carine, either directly or through Little Carine Lake. Little Carine Lake has recently been recontoured and landscaped.

The water level record for Big Carine Lake reflects its role in the regional drainage system. The upper level can be controlled by pumping to the ocean. In below-average to average rainfall years the upper level does not reach the control level. Variations in minimum levels reflect private pumping and groundwater use to maintain surrounding parkland.

CITY of STIRLING

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CARINE LAKE REGION
OPEN SPACE RESERVE

DRAFT MANAGEMENT PLAN
for

City of Stirling

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Dames & Moore

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