

Our Ref: J12029

26 June 2013

Chairman, Environmental Protection Authority  
168 St Georges Terrace  
PERTH WA 6000

Dear Sir

**Proposed Subdivision – Lot 701 Mayor Road, Munster**

On behalf of Auro Pty Ltd I am pleased to refer the above proposal to the EPA for consideration. This referral is necessary due to the impingement of the proposed development on a gazetted EPP Lake.

Lot 701 Mayor Road totals about 1.71ha in area, of which Auro Pty Ltd proposes to develop about 1ha. About two-thirds of the Lot, including 4,180 m<sup>2</sup> of the proposed development area, is within the EPP Lake boundary. All of the wetland within Lot 701, apart from a small area of saltwater paperbark (*Melaleuca cuticularis*) at the western edge of the Lot, is completely devoid of native vegetation and in completely degraded condition. Much of the EPP portion is affected by a severe infestation of *Juncus acutus* (Spiny or Sharp Rush), a highly invasive weed that is the subject of a Strategic Plan by the DEC (2009). *J. acutus* is notoriously difficult to remove once it becomes established. The most successful method for large infestations is physical removal of all plants and their rootstock using earthmoving equipment, followed by placement of clean topsoil and planting of native species.

Lot 701 extends over part of a wetland mapped by the DEC as UFI 15167 and known as Market Garden Swamp 2, which is gazetted under the *Environmental Protection (Swan Coastal Plain Lakes) Policy 1992* (Lakes EPP). Market Garden Swamp 2 is currently mapped by the DEC as a Resource Enhancement category wetland. Bayley Environmental Services, on behalf of Auro Pty Ltd, prepared a Wetland Assessment and Buffer Definition Report in March 2013 to correct boundary inaccuracies in the DEC database and to propose the division of the wetland into areas of Resource Enhancement and Multiple Use category. The assessment report is attached in Attachment 2a.

In its preliminary response, the DEC Wetland Branch has indicated that it agrees with the downgrading of the outer part of the wetland to Multiple Use category, but has indicated that it may increase the category of the inner wetland core to Conservation Category (Anthea Jones, DEC, pers. comm.).

The Wetland Assessment and Buffer Definition Report also examined the buffering requirements of the wetland and the buffers adopted in recent developments in the nearby area. Central to this assessment was the recognition of the need to use earthmoving equipment to physically remove the *Juncus acutus* infestation and its rootstock from the wetland margin. The analysis suggested that 30 metres would be an adequate buffer to the wetland and would facilitate the removal of the *J. acutus* infestation. It also found that a 30m buffer would be in line with buffers provided by nearby and adjacent developments around Market Garden Swamp 2.

As well as the EPP Lake, Lot 701 is also crossed by the boundary of the Beeliar Regional Park. Both the EPP and regional park boundaries pre-date the routine use of computerised GIS systems, and would have been drawn by hand from small-scale (probably 1:20,000) aerial photographs. As a result, the boundaries only generally follow the curve of the Market Garden Swamp 2 boundary and do not accurately reflect the wetland boundary or vegetation condition within Lot 701.

Auro Pty Ltd, on behalf of and by authority of the Lot owner ALB Developments Pty Ltd (see Letter of Authority, Attachment 2b), proposes to subdivide and develop Lot 701 for residential use. The proposed development area extends to about 30m from the edge of the native vegetated core of the wetland. A subdivision application has been submitted to the WAPC (application no. 147800) and is attached in Attachment 2c. The proposal has also been submitted to the DEC Regional Parks Branch and Contaminated Sites Branch for comment. Preliminary responses from these branches are attached in Attachments 2d and 2e respectively.

As part of the development, Auro Pty Ltd proposes to remove the *Juncus acutus* infestation using earthmoving equipment and to rehabilitate the area of the infestation with native sedge species. This is similar to rehabilitation work carried out in 2011 on the opposite side of Mayor Road as part of the development of the Lake Coogee Estate Stages 3 and 5.

The attached appendices provide further details of the proposed subdivision and its effect on the EPP Lake. Please don't hesitate to contact the undersigned should you require any clarification or further information.

Yours sincerely

**BAYLEY ENVIRONMENTAL SERVICES**



**PHIL BAYLEY**



**Referral of a Proposal by the Proponent to the Environmental Protection Authority under Section 38(1) of the *Environmental Protection Act 1986*.**

**PURPOSE OF THIS FORM**

Section 38(1) of the *Environmental Protection Act 1986* (EP Act) provides that where a development proposal is likely to have a significant effect on the environment, a proponent may refer the proposal to the Environmental Protection Authority (EPA) for a decision on whether or not it requires assessment under the EP Act. This form sets out the information requirements for the referral of a proposal by a proponent.

Proponents are encouraged to familiarise themselves with the EPA's *General Guide on Referral of Proposals* [see Environmental Impact Assessment/Referral of Proposals and Schemes] before completing this form.

A referral under section 38(1) of the EP Act by a proponent to the EPA must be made on this form. A request to the EPA for a declaration under section 39B (derived proposal) must be made on this form. This form will be treated as a referral provided all information required by Part A has been included and all information requested by Part B has been provided to the extent that it is pertinent to the proposal being referred. Referral documents are to be submitted in two formats – hard copy and electronic copy. The electronic copy of the referral will be provided for public comment for a period of 7 days, prior to the EPA making its decision on whether or not to assess the proposal.

**CHECKLIST**

Before you submit this form, please check that you have:

	Yes	No
Completed all the questions in Part A (essential).	✓	
Completed all applicable questions in Part B.	✓	
Included Attachment 1 – location maps.	✓	
Included Attachment 2 – additional document(s) the proponent wishes to provide (if applicable).	✓	
Included Attachment 3 – confidential information (if applicable).		✓
Enclosed an electronic copy of all referral information, including spatial data and contextual mapping but excluding confidential information.	✓	

Following a review of the information presented in this form, please consider the following question (a response is optional).

Do you consider the proposal requires formal environmental impact assessment?	
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<input type="checkbox"/> Not sure	
If yes, what level of assessment?	
<input type="checkbox"/> Assessment on Proponent Information	<input type="checkbox"/> Public Environmental Review

**PROPONENT DECLARATION** (to be completed by the proponent)

I, ...Phillip Bayley....., (*full name*) declare that I am authorised on behalf of...Auro Pty Ltd..... (being the person responsible for the proposal) to submit this form and further declare that the information contained in this form is true and not misleading.

Signature <i>Phil Bayley</i>	Name (print) Phillip Bayley
Position Director	Company Bayley Environmental Services
Date 23 June 2013	

## PART A - PROPONENT AND PROPOSAL INFORMATION

(All fields of Part A must be completed for this document to be treated as a referral)

### 1 PROPONENT AND PROPOSAL INFORMATION

#### 1.1 Proponent

Name	Auro Pty Ltd
Joint Venture parties (if applicable)	na
Australian Company Number (if applicable)	008 915 535
Postal Address (where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State)	PO Box 660 CLAREMONT WA 6910
Key proponent contact for the proposal: <ul style="list-style-type: none"><li>• name</li><li>• address</li><li>• phone</li><li>• email</li></ul>	Kim Morrison PO Box 660 CLAREMONT WA 6910 9383 4500 kim@morkim.com.au
Consultant for the proposal (if applicable): <ul style="list-style-type: none"><li>• name</li><li>• address</li><li>• phone</li><li>• email</li></ul>	Bayley Environmental Services 30 Thomas Street SOUTH FREMANTLE 6162 9335 9160 bayley@iinet.net.au

#### 1.2 Proposal

Title	Subdivision of Lot 701 Mayor Road, Munster
Description	Disturbance of EPP Lake as part of subdivision and development of Lot 701 Mayor Road, Munster.
Extent (area) of proposed ground disturbance.	4,000 m <sup>2</sup> within EPP Lake; 8,526m <sup>2</sup> total development.
Timeframe in which the activity or development is proposed to occur (including start and finish dates where applicable).	Late 2013
Details of any staging of the proposal.	None
Is the proposal a strategic proposal?	No
Is the proponent requesting a declaration that the proposal is a derived proposal? If so, provide the following information on the strategic assessment within which the referred proposal was identified: <ul style="list-style-type: none"><li>• title of the strategic assessment; and</li><li>• Ministerial Statement number.</li></ul>	No
Please indicate whether, and in what way, the proposal is related to other proposals in the region.	Unrelated to any other proposal
Does the proponent own the land on which the proposal is to be established? If not, what other	No. Land is owned by ALB Developments

arrangements have been established to access the land?	Pty Ltd, which has granted Auro Pty Ltd (Kim Morrison) authority to act on its behalf in the lodgement of the subdivision application. See Attachment 2b: Letter of Authority.
What is the current land use on the property, and the extent (area in hectares) of the property?	Property is currently unused. Total area of Lot 701 is 1.71 ha.

### 1.3 Location

Name of the Shire in which the proposal is located.	City of Cockburn
For urban areas: <ul style="list-style-type: none"> <li>• street address;</li> <li>• lot number;</li> <li>• suburb; and</li> <li>• nearest road intersection.</li> </ul>	Lot 701 on Diagram 55142 Mayor Road MUNSTER WA Nearest intersection: Mayor Road and Fawcett Road
For remote localities: <ul style="list-style-type: none"> <li>• nearest town; and</li> <li>• distance and direction from that town to the proposal site.</li> </ul>	na
Electronic copy of spatial data - GIS or CAD, georeferenced and conforming to the following parameters: <ul style="list-style-type: none"> <li>• GIS: polygons representing all activities and named;</li> <li>• CAD: simple closed polygons representing all activities and named;</li> <li>• datum: GDA94;</li> <li>• projection: Geographic (latitude/longitude) or Map Grid of Australia (MGA);</li> <li>• format: Arcview shapefile, Arcinfo coverages, Microstation or AutoCAD.</li> </ul>	Enclosed?: Yes

### 1.4 Confidential Information

Does the proponent wish to request the EPA to allow any part of the referral information to be treated as confidential?	No
If yes, is confidential information attached as a separate document in hard copy?	na

## 1.5 Government Approvals

Is rezoning of any land required before the proposal can be implemented? If yes, please provide details.		No	
Is approval required from any Commonwealth or State Government agency or Local Authority for any part of the proposal? If yes, please complete the table below.		Yes	
Agency/Authority	Approval required	Application lodged Yes / No	Agency/Local Authority contact(s) for proposal
WAPC	Subdivision	Yes 12 April 2013	Frances Page-Croft 6551 9290

## PART B - ENVIRONMENTAL IMPACTS AND PROPOSED MANAGEMENT

### 2. ENVIRONMENTAL IMPACTS

Describe the impacts of the proposal on the following elements of the environment, by answering the questions contained in Sections 2.1-2.11:

- 2.1 flora and vegetation;
- 2.2 fauna;
- 2.3 rivers, creeks, wetlands and estuaries;
- 2.4 significant areas and/ or land features;
- 2.5 coastal zone areas;
- 2.6 marine areas and biota;
- 2.7 water supply and drainage catchments;
- 2.8 pollution;
- 2.9 greenhouse gas emissions;
- 2.10 contamination; and
- 2.11 social surroundings.

These features should be shown on the site plan, where appropriate.

For all information, please indicate:

- (a) the source of the information; and
- (b) the currency of the information.

#### 2.1 Flora and Vegetation

2.1.1 Do you propose to clear any native flora and vegetation as a part of this proposal?

[A proposal to clear native vegetation may require a clearing permit under Part V of the EP Act (Environmental Protection (Clearing of Native Vegetation) Regulations 2004)]. Please contact the Department of Environment and Conservation (DEC) for more information.

(please tick)  Yes **If yes**, complete the rest of this section.

No **If no**, go to the next section

2.1.2 How much vegetation are you proposing to clear (in hectares)?

2.1.3 Have you submitted an application to clear native vegetation to the DEC (unless you are exempt from such a requirement)?

Yes  No **If yes**, on what date and to which office was the application submitted of the DEC?



2.1.4 Are you aware of any recent flora surveys carried out over the area to be disturbed by this proposal?

Yes

No

**If yes**, please attach a copy of any related survey reports and provide the date and name of persons / companies involved in the survey(s).

**If no**, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.

2.1.5 Has a search of DEC records for known occurrences of rare or priority flora or threatened ecological communities been conducted for the site?

Yes

No

If you are proposing to clear native vegetation for any part of your proposal, a search of DEC records of known occurrences of rare or priority flora and threatened ecological communities will be required. Please contact DEC for more information.

2.1.6 Are there any known occurrences of rare or priority flora or threatened ecological communities on the site?

Yes

No

**If yes**, please indicate which species or communities are involved and provide copies of any correspondence with DEC regarding these matters.

2.1.7 If located within the Perth Metropolitan Region, is the proposed development within or adjacent to a listed Bush Forever Site? (You will need to contact the Bush Forever Office, at the Department for Planning and Infrastructure)

Yes

No

**If yes**, please indicate which Bush Forever Site is affected (site number and name of site where appropriate).

2.1.8 What is the condition of the vegetation at the site?

## 2.2 Fauna

2.2.1 Do you expect that any fauna or fauna habitat will be impacted by the proposal?

(please tick)

Yes

**If yes**, complete the rest of this section.

No

**If no**, go to the next section.

2.2.2 Describe the nature and extent of the expected impact.

2.2.3 Are you aware of any recent fauna surveys carried out over the area to be disturbed by this proposal?

Yes

No

**If yes**, please attach a copy of any related survey reports and provide the date and name of persons / companies involved in the survey(s).

**If no**, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.

2.2.4 Has a search of DEC records for known occurrences of Specially Protected (threatened) fauna been conducted for the site?

Yes

No

(please tick)

2.2.5 Are there any known occurrences of Specially Protected (threatened) fauna on the site?

Yes

No

**If yes**, please indicate which species or communities are involved and provide copies of any correspondence with DEC regarding these matters.

### 2.3 Rivers, Creeks, Wetlands and Estuaries

2.3.1 Will the development occur within 200 metres of a river, creek, wetland or estuary?

(please tick)

Yes

**If yes**, complete the rest of this section.

No

**If no**, go to the next section.

2.3.2 Will the development result in the clearing of vegetation within the 200 metre zone?

Yes

No

**If yes**, please describe the extent of the expected impact.

Introduced grasses and weeds only – no native vegetation.

2.3.3 Will the development result in the filling or excavation of a river, creek, wetland or estuary?

Yes

No

**If yes**, please describe the extent of the expected impact.

Part of the development site is gazetted as an EPP Lake. The part to be affected is completely degraded and is expected to be downgraded to Multiple Use category by DEC (see Attachment 2a: Wetland Assessment).

2.3.4 Will the development result in the impoundment of a river, creek, wetland or estuary?

Yes

No

**If yes**, please describe the extent of the expected impact.

2.3.5 Will the development result in draining to a river, creek, wetland or estuary?

Yes

No

**If yes**, please describe the extent of the expected impact.

2.3.6 Are you aware if the proposal will impact on a river, creek, wetland or estuary (or its buffer) within one of the following categories? (please tick)

Conservation Category Wetland * Inner wetland core is currently mapped as REW by DEC; may be upgraded to CCW (Anthea Jones, DEC, pers. comm.).	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Unsure
Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Unsure
Perth's Bush Forever site	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Unsure
Environmental Protection (Swan & Canning Rivers) Policy 1998	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Unsure
The management area as defined in s4(1) of the <i>Swan River Trust Act 1988</i>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Unsure
Which is subject to an international agreement, because of the importance of the wetland for waterbirds and waterbird habitats (e.g. Ramsar, JAMBA, CAMBA)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Unsure

## 2.4 Significant Areas and/ or Land Features

2.4.1 Is the proposed development located within or adjacent to an existing or proposed National Park or Nature Reserve?

Yes       No      **If yes**, please provide details.

2.4.2 Are you aware of any Environmentally Sensitive Areas (as declared by the Minister under section 51B of the EP Act) that will be impacted by the proposed development?

Yes       No      **If yes**, please provide details.

Approximately 4,000 m<sup>2</sup> of land gazetted as EPP Lake will be developed.

2.4.3 Are you aware of any significant natural land features (e.g. caves, ranges etc) that will be impacted by the proposed development?

Yes       No      **If yes**, please provide details.

## 2.5 Coastal Zone Areas (Coastal Dunes and Beaches)

2.5.1 Will the development occur within 300metres of a coastal area?

(please tick)       Yes      **If yes**, complete the rest of this section.

No      **If no**, go to the next section.

2.5.2 What is the expected setback of the development from the high tide level and from the primary dune?

2.5.3 Will the development impact on coastal areas with significant landforms including beach ridge plain, cusped headland, coastal dunes or karst?

Yes       No      **If yes**, please describe the extent of the expected impact.

2.5.4 Is the development likely to impact on mangroves?

Yes       No      **If yes**, please describe the extent of the expected impact.

## 2.6 Marine Areas and Biota

2.6.1 Is the development likely to impact on an area of sensitive benthic communities, such as seagrasses, coral reefs or mangroves?

Yes       No      **If yes**, please describe the extent of the expected impact.

2.6.2 Is the development likely to impact on marine conservation reserves or areas recommended for reservation (as described in *A Representative Marine Reserve System for Western Australia*, CALM, 1994)?

Yes       No      **If yes**, please describe the extent of the expected impact.

2.6.3 Is the development likely to impact on marine areas used extensively for recreation or for commercial fishing activities?

Yes       No      **If yes**, please describe the extent of the expected impact, and provide any written advice from relevant agencies (e.g. Fisheries WA).

## 2.7 Water Supply and Drainage Catchments

2.7.1 Are you in a proclaimed or proposed groundwater or surface water protection area?

(You may need to contact the Department of Water (DoW) for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)

Yes       No      **If yes**, please describe what category of area.

2.7.2 Are you in an existing or proposed Underground Water Supply and Pollution Control area?

(You may need to contact the DoW for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)

Yes       No      **If yes**, please describe what category of area.

2.7.3 Are you in a Public Drinking Water Supply Area (PDWSA)?

(You may need to contact the DoW for more information or refer to the DoW website. A proposal to clear vegetation within a PDWSA requires approval from DoW.)

Yes       No      **If yes**, please describe what category of area.

2.7.4 Is there sufficient water available for the proposal?

(Please consult with the DoW as to whether approvals are required to source water as you propose. Where necessary, please provide a letter of intent from the DoW)

Yes       No      (please tick)

2.7.5 Will the proposal require drainage of the land?

Yes       No      **If yes**, how is the site to be drained and will the drainage be connected to an existing Local Authority or Water Corporation drainage system? Please provide details.

2.7.6 Is there a water requirement for the construction and/ or operation of this proposal?

(please tick)       Yes      **If yes**, complete the rest of this section.  
 No      **If no**, go to the next section.

2.7.7 What is the water requirement for the construction and operation of this proposal, in kilolitres per year?

na

2.7.8 What is the proposed source of water for the proposal? (e.g. dam, bore, surface water etc.)

na

## 2.8 Pollution

2.8.1 Is there likely to be any discharge of pollutants from this development, such as noise, vibration, gaseous emissions, dust, liquid effluent, solid waste or other pollutants?

(please tick)       Yes      **If yes**, complete the rest of this section.  
 No      **If no**, go to the next section.

2.8.2 Is the proposal a prescribed premise, under the Environmental Protection Regulations 1987?

(Refer to the EPA's *General Guide for Referral of Proposals to the EPA under section 38(1) of the EP Act 1986* for more information)

Yes       No      **If yes**, please describe what category of prescribed premise.

2.8.3 Will the proposal result in gaseous emissions to air?

Yes       No      **If yes**, please briefly describe.

2.8.4 Have you done any modelling or analysis to demonstrate that air quality standards will be met, including consideration of cumulative impacts from other emission sources?

Yes       No      **If yes**, please briefly describe.

2.8.5 Will the proposal result in liquid effluent discharge?

Yes

No

**If yes**, please briefly describe the nature, concentrations and receiving environment.

2.8.6 If there is likely to be discharges to a watercourse or marine environment, has any analysis been done to demonstrate that the State Water Quality Management Strategy or other appropriate standards will be able to be met?

Yes

No

**If yes**, please describe.

na

2.8.7 Will the proposal produce or result in solid wastes?

Yes

No

**If yes**, please briefly describe the nature, concentrations and disposal location/ method.

2.8.8 Will the proposal result in significant off-site noise emissions?

Yes

No

**If yes**, please briefly describe.

2.8.9 Will the development be subject to the Environmental Protection (Noise) Regulations 1997?

Yes

No

**If yes**, has any analysis been carried out to demonstrate that the proposal will comply with the Regulations?

Please attach the analysis.

2.8.10 Does the proposal have the potential to generate off-site, air quality impacts, dust, odour or another pollutant that may affect the amenity of residents and other "sensitive premises" such as schools and hospitals (proposals in this category may include intensive agriculture, aquaculture, marinas, mines and quarries etc.)?

Yes

No

**If yes**, please describe and provide the distance to residences and other "sensitive premises".

2.8.11 If the proposal has a residential component or involves "sensitive premises", is it located near a land use that may discharge a pollutant?

Yes

No

Not Applicable

**If yes**, please describe and provide the distance to the potential pollution source

## 2.9 Greenhouse Gas Emissions

2.9.1 Is this proposal likely to result in substantial greenhouse gas emissions (greater than 100 000 tonnes per annum of carbon dioxide equivalent emissions)?

Yes

No

**If yes**, please provide an estimate of the annual gross emissions in absolute and in carbon dioxide equivalent figures.

2.9.2 Further, if yes, please describe proposed measures to minimise emissions, and any sink enhancement actions proposed to offset emissions.

na

## 2.10 Contamination

2.10.1 Has the property on which the proposal is to be located been used in the past for activities which may have caused soil or groundwater contamination?

Yes       No       Unsure      **If yes**, please describe.

See Attachment 2e: DEC Contaminated Sites Branch advice.

2.10.2 Has any assessment been done for soil or groundwater contamination on the site?

Yes       No      **If yes**, please describe.

See Attachment 2e: DEC Contaminated Sites Branch advice.

2.10.3 Has the site been registered as a contaminated site under the *Contaminated Sites Act 2003*? (on finalisation of the CS Regulations and proclamation of the CS Act)

Yes       No      **If yes**, please describe.

See Attachment 2e: DEC Contaminated Sites Branch advice.

## 2.11 Social Surroundings

2.11.1 Is the proposal on a property which contains or is near a site of Aboriginal ethnographic or archaeological significance that may be disturbed?

Yes       No       Unsure      **If yes**, please describe.

2.11.2 Is the proposal on a property which contains or is near a site of high public interest (e.g. a major recreation area or natural scenic feature)?

Yes       No      **If yes**, please describe.

2.11.3 Will the proposal result in or require substantial transport of goods, which may affect the amenity of the local area?

Yes       No      **If yes**, please describe.

### 3. PROPOSED MANAGEMENT

#### 3.1 Principles of Environmental Protection

3.1.1 Have you considered how your project gives attention to the following Principles, as set out in section 4A of the EP Act? (For information on the Principles of Environmental Protection, please see EPA Position Statement No. 7, available on the EPA website)

- |  |   |                             |
|--|---|-----------------------------|
| 1. The precautionary principle.  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 2. The principle of intergenerational equity.  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 3. The principle of the conservation of biological diversity and ecological integrity. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 4. Principles relating to improved valuation, pricing and incentive mechanisms.        | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 5. The principle of waste minimisation.  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |

3.1.2 Is the proposal consistent with the EPA's Environmental Protection Bulletins/Position Statements and Environmental Assessment Guidelines/Guidance Statements (available on the EPA website)?

Yes       No

#### 3.2 Consultation

3.2.1 Has public consultation taken place (such as with other government agencies, community groups or neighbours), or is it intended that consultation shall take place?

Yes       No      **If yes**, please list those consulted and attach comments or summarise response on a separate sheet.

DEC Contaminated Sites Branch – see attached advice.

DEC Wetland Branch – see attached Wetland Assessment report.

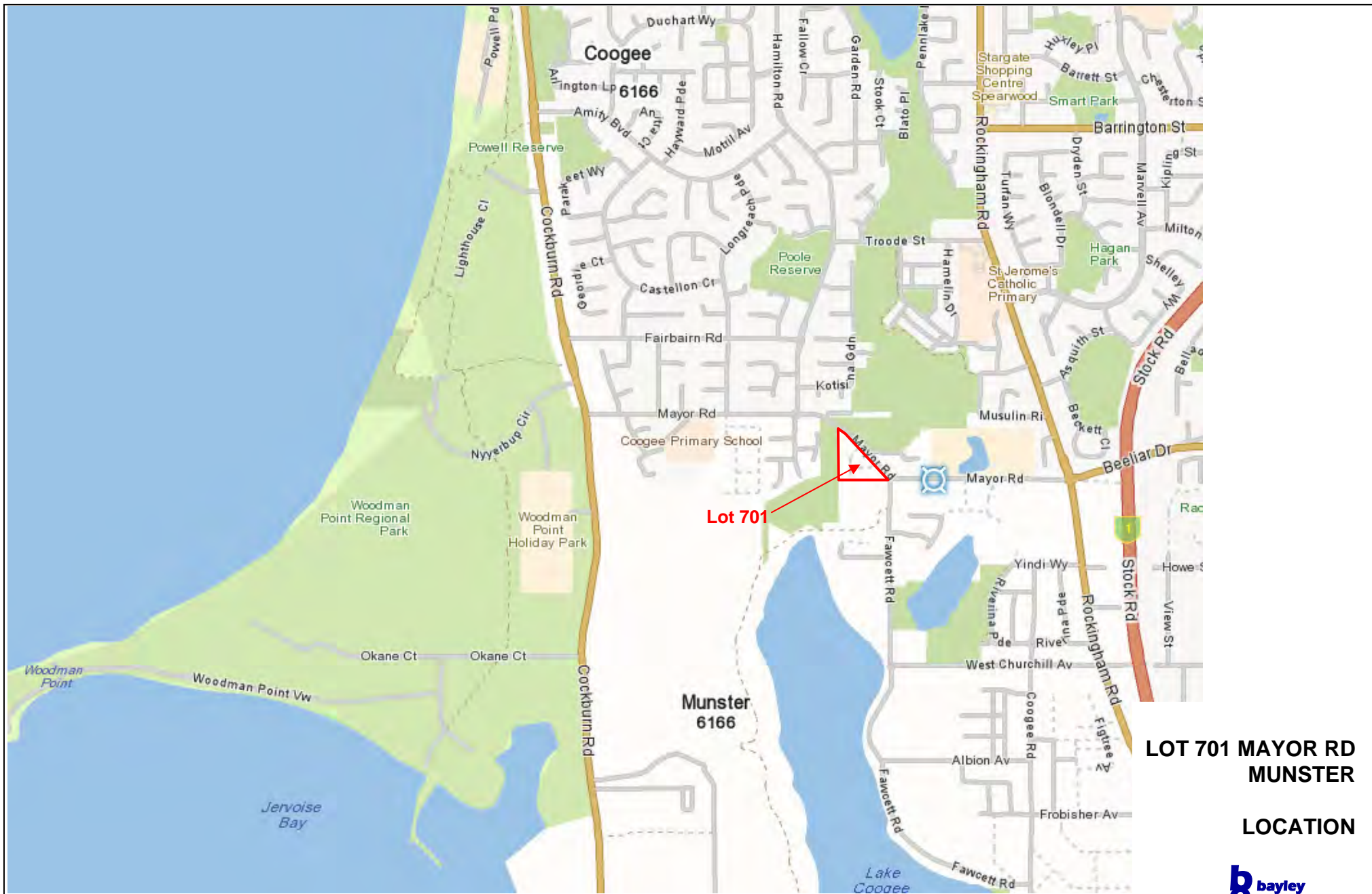
DEC Regional Parks Branch – see attached advice.

City of Cockburn.



# **Attachment 1**

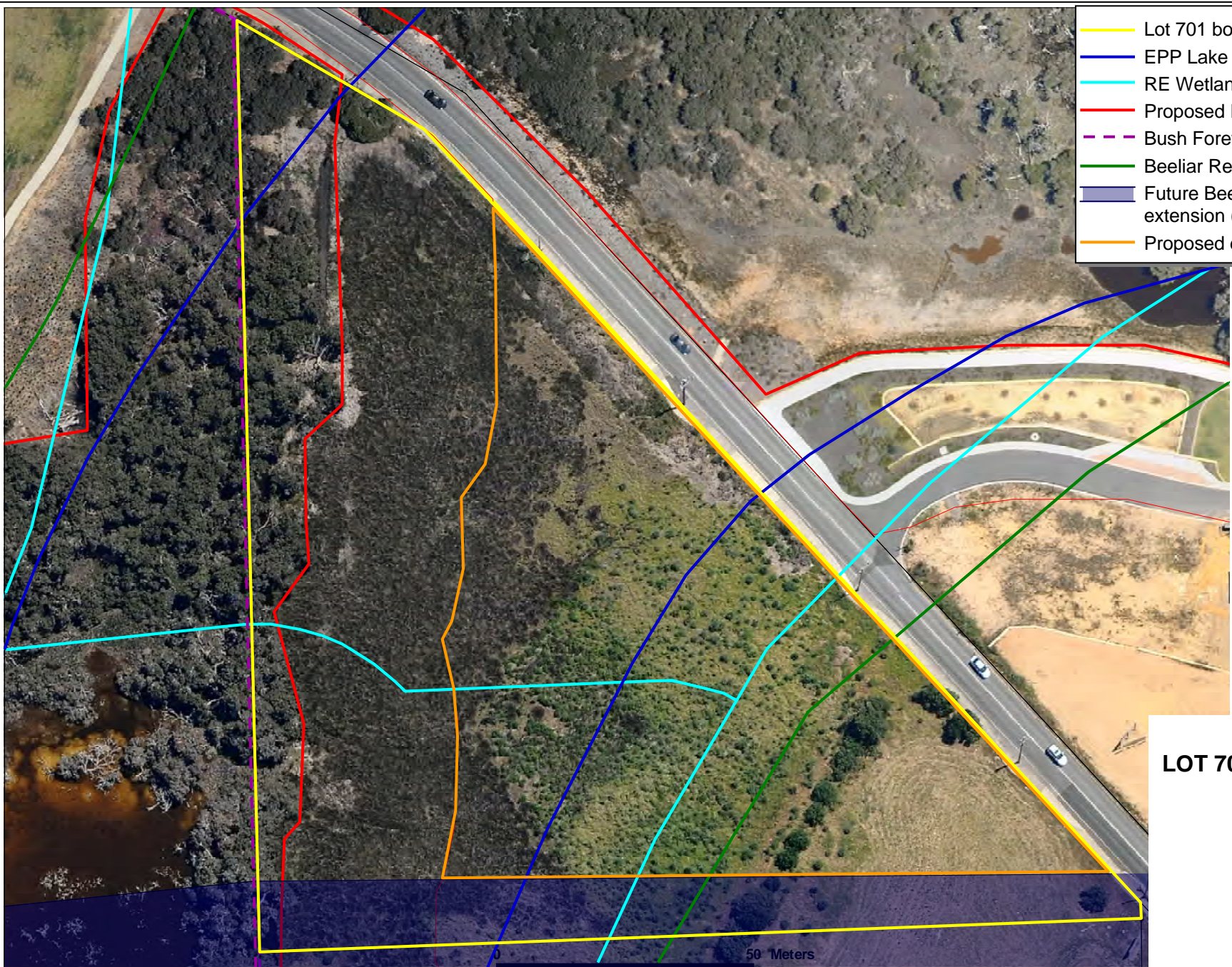
## **Maps**



Lot 701

**LOT 701 MAYOR RD  
MUNSTER**

**LOCATION**



- Lot 701 boundary
- EPP Lake boundary
- RE Wetland as mapped by DEC
- Proposed RE Wetland boundary
- - - Bush Forever Site 435 boundary
- Beeliam Regional Park boundary
- Future Beeliam Drive extension (approximate)
- Proposed development area

**LOT 701 MAYOR ROAD  
MUNSTER  
SITE PLAN**

50 Meters

# **Attachment 2a**

## **Wetland Assessment and Buffer Definition Study**

**LOT 701 MAYOR ROAD, MUNSTER**

**WETLAND ASSESSMENT AND  
BUFFER DEFINITION**

**Prepared for**

**Auro Pty Ltd**  
PO Box 660  
CLAREMONT WA 691

Report No. J12029  
8 March 2013

**BAYLEY ENVIRONMENTAL SERVICES**  
30 Thomas Street  
SOUTH FREMANTLE WA 6162

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## 1.0 INTRODUCTION

Wetland UFI 15167, as mapped by the DEC, includes Market Garden Swamp No. 2 (north and south of Mayor Road) and a small part of Lake Coogee. Part of the wetland falls within Lot 701 Mayor Road, the owner of which, Auro Pty Ltd, is preparing plans to develop part of the land for urban use in accordance with its zonings under the City of Cockburn Town Planning Scheme (TPS) and the Metropolitan Region Scheme (MRS).

Wetland UFI 15167 is mapped as Resource Enhancement category, in common with most of the Market Garden Swamps. This category recognises the history of use of the swamps for market gardening, their poor water quality and the encroachment of agricultural and latterly residential land uses. Parts of the swamps, where disturbance is severe, are mapped as Multiple Use. Other parts, still mapped as Resource Enhancement, have been developed for housing. Overall, the mapping of the Market Garden Swamps in many areas does not reflect the current condition and land uses in the swamps.

Part of Wetland 15167 is gazetted under the *Environmental Protection (Swan Coastal Plain Lakes) Policy 1992* (Lakes EPP). Development, including mining, filling, drainage or effluent disposal, cannot be undertaken within the gazetted wetland boundary (Figure 1) without authorisation under the Environmental Protection Act.

Figure 1 shows an aerial photograph of Wetland 15167 and the current DEC wetland mapping. Figure 2 shows ground-level views of the wetland from a number of locations.

Bayley Environmental Services was commissioned in November 2012 to undertake an assessment of the management category of Wetland UFI 15167 within Lot 701 Mayor Road and determine an appropriate buffer for the wetland. The assessment included:

- inspection and photography of the wetland from numerous locations;
- collation of published and unpublished information including vegetation maps, management plans, cadastral information and aerial photography;
- desktop review of published references including those named in the DEC's *Protocol for Proposing Modifications to the Geomorphic Wetlands Swan Coastal Plain Dataset* (2007); the WAPC *Draft Guideline for the Determination of Wetland Buffer Requirements* (2005) and publications relating to the Market Garden Swamps; and
- vegetation surveys and mapping in March and December 2012.

The assessment focussed mainly on the part of UFI 15167 within Lot 701, but for context also examined the whole wetland as mapped, extending from Troode Street in the north to Lake Coogee in the south. The recommendations in this report are concerned mainly with the wetland management category and buffers within and immediately adjacent to Lot 701, but include some general recommendations for boundary rationalisations in other parts of the wetland.



## 2.0 WETLAND DESCRIPTION

Wetland 15167 is mapped as a sumpland with an area of 23 hectares, of which 1.3ha is within Lot 701.

### 2.1.1 Topography

Wetland 15167 lies in an interdunal swale within the Spearwood Dunes system at an elevation of about 2m AHD. The land rises on the west to a high point of about 23m AHD and to the east to a local high of about 12m AHD.

Lot 701 rises from about 2m AHD at its western edge (within the wetland) to about 5m AHD at its eastern boundary, with most of the rise occurring in the east of the Lot.

Figure 3 shows the topography of the wetland and surroundings.

### 2.1.2 Geology and Soils

Wetland 15167 is mapped by the Geological Survey of Western Australia (Gozzard, 1983) as Swamp Deposits (M6), described as “Silt – brownish grey, calcareous in part, soft, some fine sand content in places, of lacustrine origin”.

The land immediately surrounding Wetland 15167, including the eastern corner of Lot 701, is mapped as Tamala Limestone (LS1) and sand derived from Tamala Limestone (S7), described as “Sand – pale yellowish brown, medium to coarse grained sub-angular quartz, trace of feldspar, moderately sorted, of residual origin”.

Figure 3 shows the geology and soils of the wetland and surroundings.

### 2.1.3 Hydrology

Mapping by the Department of Water (historical maximum groundwater levels based on data from the 1950s to the 1970s). Indicates that groundwater flows from east to west through and beneath Wetland 15167 at an elevation of about 1.5m AHD. Given its location close to the ocean and on highly permeable limestone substrate, the groundwater gradient in the vicinity is extremely low at approximately 1:2,500. Also given the location, the groundwater level is likely to vary little between summer and winter, although historical aerial photography shows that Wetland 15167 does dry out during some summers. The presence of numerous dead (apparently drowned) paperbarks in the southern part of Wetland 15167 suggests that the wetland is subject to greater and more prolonged inundation than occurred naturally before the surrounding land was cleared.

Wetland 15167 currently receives inflow from Market Garden Swamp No. 1 to the north via a drain under Troode Street, and loses water occasionally to Lake Coogee via an

overflow drain at its southern end. The wetland also receives direct road runoff from Troode Street and Mayor Road, as well as occasional overflow from several infiltration basins located immediately outside or in some cases inside the mapped wetland boundary. Figure 3 shows these drainage features.

No runoff from Lot 701 to the wetland would occur under normal conditions, although sheet surface flow may occasionally occur under extreme rainfall conditions.

#### 2.1.4 Water quality

The very low hydraulic gradient across Wetland 15167 means that groundwater flow into and through the wetland is also very low. In summer, groundwater may flow into the lake from both the east and west. This, coupled with high evaporation in summer, causes the wetland to have a high salinity.

The water quality in Wetland 15167, as with the other Market Garden Swamps, is poor as a result of a history of nutrient leaching from nearby market gardens and landfills.

The City of Cockburn has monitored water quality and water level in the northern part of Market Garden Swamp No. 2 between two and seven times per year between 1995 and 2012. The monitoring site is located on the west side of the swamp north of Mayor Rd (Figure 3). Data supplied by the City of Cockburn (A. Harris, January 2013) shows that the water in the swamp is saline, alkaline and enriched in phosphorus and nitrogen. Table 2.1 summarises the City of Cockburn data.

**Table 2.1 Water Quality in Market Garden Swamp 2 (North) 1995 – 2012**  
(see Figure 3 for sample location)

<i>Parameter</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Median</i>
Salinity (mg/L) <sup>1</sup>	602	41,548	9,992	7,894
pH	6.1	10.3	8.6	8.7
Total Phosphorus (mg/L)	0.02	1.22	0.17	0.08
Total Nitrogen (mg/L)	0.78	33.59	4.34	3.00

1. Calculated as 0.6 x recorded electrical conductivity (µS/m)

#### 2.1.5 Vegetation

The vegetation of Lot 701 and the adjacent wetland area was surveyed by Dr Arthur Weston in March 2012. Other parts of Wetland 15167 have been mapped and surveyed at various times during the preparation of publications including the Beeliar Regional Park Management Plan (CALM, 2006), the Lake Coogee Estate Stages 3 & 5 Wetland Foreshore and Environmental Management Plan (Dingle Bird Environmental, 2010) and the Market Garden Swamps Environmental Management Plan (GHD, 2009).

The core of Wetland 15167 supports a Low Open Forest to Low Closed Forest of Saltwater Paperbark *Melaleuca cuticularis* with little understorey.

The north-eastern margin of the wetland is dominated by a heavy infestation of Sharp Rush *Juncus acutus*. This infestation extends across about 0.7ha of Lot 701, with a further 0.2ha in patches around the south-east and south-west margins of the wetland. The infestation is also believed to have formerly extended immediately north of Mayor Road, but this was removed by scraping and rehabilitation in 2011 during the development of Stage 3 of the Lake Coogee Estate. Figure 3 shows the current distribution of *J. acutus* around the wetland.

*Juncus acutus* is a serious environmental weed that invades wetland and riparian habitats across the south-west from Perth to Esperance. Once established it can exclude all native vegetation and render areas impenetrable to humans and most animals. It poses a serious threat to environmental, economic, aesthetic and recreational values. The *J. acutus* infestation on Lot 701 is severe and one of the largest in the Perth area. The infestation appears to be spreading around the wetland.

*J. acutus* is notoriously difficult to eradicate once it becomes established. Control methods centre around physical removal and/or repeat spraying with glyphosate. The DEC has developed action plans to combat the spread of the species (e.g. DEC, 2009).

The outer part of the mapped wetland in Lot 701 is covered by a tall grassland dominated by Fennel, Kikuyu, Buffalo, Couch and other weeds. There are a few small stands of Asian Bulrush *Typha orientalis* close to the paperbark core and a few small stands of olive trees in higher parts of the Lot.

The *Melaleuca cuticularis* forest in the core wetland is generally in good condition, although considerable areas of dead trees occur in the deeper parts of the wetland, apparently drowned by rising water levels.

All of Lot 701 apart from the small area of *M. cuticularis* at the extreme west is in a completely degraded condition. South of Lot 701, the vegetation is similar in type and condition, although the degree of *J. acutus* infestation is less.

On the south-western side of the wetland, the vegetation is a mix of native sedges including *J. kraussii*, paperbarks (*M. cuticularis* and *M. raphiophylla*), samphire and introduced grasses. *J. acutus* occurs in several patches but has not yet reached the scale of dominance evident in Lot 701.

On the western side of the wetland opposite Lot 701, a narrow band of native vegetation remains between the paperbark core and urban development. The fringing vegetation consists largely of planted native rehabilitation, including an area of Acacia shrubs on fill.

North of Mayor Road, the wetland vegetation consists largely of a core of *M. cuticularis* surrounded by fringing *M. raphiophylla* woodland, with a largely planted margin of Acacias, native sedges and parkland. There are no visible infestations of *J. acutus* remaining north of Mayor Road.

### 2.1.6 Fauna habitat

The central part of the wetland and adjacent native vegetation provide feeding, roosting and breeding habitat for a range of water and land bird species. The saline water probably supports different prey species from other, fresher wetlands in the vicinity.

Bird roosting and breeding habitat is mostly restricted to the paperbark trees of the inner wetland. Old trees with hollow limbs tend to be the most suitable for breeding. Taller shrubs in upland areas around the wetland, particularly in the northern part, may provide nesting habitat for smaller birds.

Western long-necked turtles are known to exist in the main northern water body of Market Garden Swamp No. 2 (GHD, 2009), and are likely to also be present in the southern part. Long-necked turtles are tolerant of saline water and have the ability to migrate between water bodies to escape seasonal drying. Female turtles lay their eggs on open sandy ground outside the wetland, and may travel long distances (several hundred metres or more) in search of suitable nesting sites.

Bandicoots have been reported to inhabit the surroundings of Market Garden Swamp No. 2 (GHD, 2009), although the area of dense native vegetation suitable for bandicoots in the southern part of the swamp is limited. The dense Kikuyu growth in parts of Lot 701 may provide some habitat. The *Juncus acutus* infestation is unlikely to provide useful habitat due to its very dense growth and savage spines.

### 2.1.7 Landscape

Market Garden Swamp No. 2 and Wetland 15167 together form a distinctive and important landscape element in the local area. This significance is recognised in part by its inclusion in the Beeliar Regional Park.

Wetland 15167 is clearly visible from public roads and footpaths on high ground to the east and west.

Lot 701 currently presents a view from Mayor Road of a degraded, weed-infested land with little landscape value. The landscape values are associated with the paperbark zone in the central wetland.

The Main Roads Department has plans to extend Beeliar Drive as a Regional Road across Market Garden Swamp No. 2. Figure 3 shows the reservation for this extension approximately as it is depicted in the Metropolitan Region Scheme. The construction of this road will have a major impact on the landscape and possibly the ecology of the wetland.

### 2.1.8 Recreation

A dual-use path surrounds Market Garden Swamp No. 2 north of Mayor Road and links to a similar path around Market Garden Swamp No. 1 north of Troode Street. A dual-use path runs along the north-west side of Wetland 15167 south of Mayor Road, opposite Lot 701 adjacent to a recent urban subdivision. Another path runs via a footbridge across the filled southern boundary between Wetland 15167 and Lake Coogee. These paths appear to be well used by local residents.

The western part of the mapped Wetland 15167 just north of Mayor Road has been filled to create a landscaped park which also functions as an infiltration basin. Other landscaped grassed areas border the north-east side of the wetland adjacent to urban developments on the former Cable Water Ski Park site.

Lot 701 currently has no recreational use.

### 3.0 WETLAND BOUNDARY ASSESSMENT

The mapped boundary of Wetland 15167 generally corresponds with the actual boundary on the ground. No attempt has been made in this investigation to remap the wetland in detail based on soil types and hydrology; however, there are a number of areas where the mapped boundary can be readily seen from aerial photography and features on the ground to be inaccurate, either from errors in the original mapping or as a result of subsequent changes such as filling. These include:

- At the southern end, Wetland 15167 (RE category) intrudes some distance into Lake Coogee (C category) for no apparent reason.
- Wetland 15167 is divided in two by a boundary within Lot 701, for no apparent reason. This boundary, if retained, would be better aligned with Mayor Road, which forms a surface hydraulic barrier between the northern and southern parts of the wetland.
- Part of the mapped wetland north-west of Mayor Road has been filled and developed for housing and a landscaped park-cum-infiltration basin. A smaller area immediately north-east of Mayor Road has been similarly filled and developed.
- In the far north-east near Troode Street, the outer wetland margin has been filled and grassed to create landscaped parkland.
- In several other areas, the mapped boundary deviates slightly from the visible edge of wetland-dependent vegetation.

Figure 4 shows minor modifications to the mapped boundary of Wetland 15167 to correct these inaccuracies.

## 4.0 WETLAND MANAGEMENT CATEGORY ASSESSMENT

### 4.1 Desktop Study of Wetland Values

A review of published and unpublished literature was undertaken, including the references noted in the DEC Protocol (2007). These sources, and the results of the review, are summarised below.

<i>Source</i>	<i>Status</i>
Ramsar List of Wetlands of International Importance	Not listed
A Directory of Important Wetlands in Australia (DEWHA)	Not listed
Register of the National Estate (DEWHA)	Not listed
Conservation Reserves for Western Australia The Darling System–System 6 (Department of Conservation and Environment 1983)	Most of northern part and some of southern part of wetland 15167 is within Area M92: Cockburn Wetlands – Western Chain (Manning Lake, Market Garden Swamps, Lake Coogee, Brownman Swamp, Mt Brown Lake and Mt Brown).
Environmental Protection (Swan Coastal Plain Lakes) Policy 1992	Part of Wetland 15167 is gazetted under the Policy (see Figure 1).
Environmental Significance of Wetlands in the Perth to Bunbury Region (LeProvost Semeniuk & Chalmer 1987)	Not listed
A Systematic Overview of the Environmental Values of the Wetlands, Rivers and Estuaries of the Busselton–Walpole Region (Pen 1997)	Not listed
Bush Forever (Government of Western Australia 2000)	Southern part of wetland 15167 is partly within BF Area 261 (Lake Coogee Part B – identified as Urban zoned land). Northern part of wetland is part of BF Area 435 (Market Garden Swamps (2) Parts C and D – identified as Urban zoned land).
Aboriginal Sites Register System (Department of Indigenous Affairs).	Southern end of wetland 15167 is within Lake Coogee mythological site – no effect on Lot 701.
DEC/WA Herbarium Declared Rare and Priority Flora and Threatened Ecological Communities Databases	No DRF, PF or TECs listed within 1.2km of subject site. One Priority 4 species ( <i>Dodonaea hackettiana</i> ) 1.2km SW. TEC (SCP30a) present 1.75km SW. No DRF, PF or TEC found in site surveys.

## 4.2 Bulletin 686 Evaluation

Wetland 15167 has been evaluated using the method set out EPA Bulletin 686: *A Guide to Wetland Management In the Perth and Near Perth Swan Coastal Plain Area* (1993). Bulletin 686 and its predecessor, Bulletin 374 (1990), established the system of wetland management categories used in the Geomorphic Wetlands Database and provided the first (and to date, only published) method of evaluating and assigning management categories to wetlands.

The evaluation method set out in Bulletin 686 is most applicable to open-water wetlands such as lakes. The DEC considers that Bulletin 686 is not well equipped to recognise wetland condition, floristic complexities, less conspicuous fauna, and functions and values present in systems such as dampland and palusplains (DEC, 2007). Despite this, Bulletin 686 is a useful method for identifying the information required in evaluating wetlands and judging the significance of that information.

The evaluation of the subject wetland was carried out using the Bulletin 686 questionnaire for permanent and seasonal wetlands with well defined boundaries. The questionnaire covers both natural attributes and human use values.

The completed Bulletin 686 questionnaire is attached in Appendix B. Also in Appendix B is the Management Category graph from Bulletin 686, which plots the scores from the questionnaire against recommended management categories. The results of the evaluation place the wetland in the Resource Enhancement category, which matches the category assigned to it in the Geomorphic Wetlands Database.

## 4.3 Management Category Conclusion

The overall condition of Wetland 15167 is currently fair to good, although the water and sediment quality, vegetation and habitat values have all suffered as a result of previous market gardening and changing water levels.

The condition of the central core of the wetland, dominated by paperbarks and other native species, justifies the assignment of its Resource Enhancement category. However, much of the outer part of the wetland is heavily degraded, with little or no native vegetation remaining. Most of Lot 701, in particular, has no native vegetation and a heavy infestation of *Juncus acutus*.

These degraded areas would be more appropriately mapped as Multiple Use category. This designation would facilitate the earthworks required to remove and rehabilitate the *J. acutus* infestation, as well as enabling an economical viable development on Lot 701 to provide a source of funds for the rehabilitation.

Other parts of the Market Garden Swamps and Lake Coogee are segregated into different management categories to reflect variations in condition and land use. Given



the great differences in condition between parts of Wetland 15167, it is considered that a similar segregation is appropriate here.

It is recommended that:

- The core area of Wetland 15167 should be kept as Resource Enhancement category.
- The degraded outer parts of the wetland within Lot 701 and some other areas should be reclassified to Multiple Use category.
- Areas where filling and landscaping has occurred should be reclassified as “no longer a wetland”.

Figure 4 shows these recommended modifications. Figure 5 shows an enlargement of the recommendations for Lot 701.

## 5.0 WETLAND BUFFER ASSESSMENT

### 5.1 Wetland Function Area

The WAPC (2005) guideline states (p. 25) that the wetland function area (WFA) should "...be defined by the outer boundary of the wetland vegetation or the geomorphologic boundary, whichever is the larger, unless a specific case can justify extension beyond that boundary. Extension of the wetland function area to surrounding upland vegetation areas would not normally occur unless those areas served a specific role in maintaining wetland processes and contain or serve attributes associated with the wetland...".

Based on this definition, the WFA of the subject wetland is defined as the area within the redefined wetland boundary as shown on Figure 4.

### 5.2 Threats to the wetland

#### 5.2.1 Hydrology

##### *Groundwater Level*

Development may raise groundwater levels as a result of vegetation clearing and increased recharge, or it may lower them due to subsoil drainage and abstraction from bores.

Most of the surroundings of Wetland 15167 have been cleared for several decades, and substantial areas have been developed for housing. The historic effect of this on water levels can be seen in the large numbers of dead (apparently drowned) paperbarks in the deeper parts of the wetland. Groundwater levels are unlikely to rise any further with additional urban development, as the recharge will not change significantly.

The development of housing on Lot 701 would affect less than 4% of the perimeter of Wetland 15167 and would involve no clearing, so would not be expected to have any effect on recharge or water levels.

##### *Runoff and Drainage*

Runoff from urban development on Lot 701 could be infiltrated in an amended-soil basin located in the lower part of the lot, which would convert surface flows to groundwater flow as well as retaining all particulate contaminants and almost all phosphorus. Total and peak flows from the site would not change.

Development of Lot 701 would have little or no effect on the hydrology of the wetland, and this would be unaffected by the size of the wetland buffer.

### 5.2.2 Water Quality

The water and sediment quality of Wetland 15167 is poor due to past market gardening, land filling and other factors. The water quality may be degrading further due to inflow of untreated runoff from Troode Street and Mayor Road.

Current best-practice urban development focusses on maintaining water quality through measures including soil amendment and infiltration of runoff. These measures will ensure that all sediments and almost all phosphorus from development on Lot 701 will be excluded from the wetland. This will be unaffected by the size of the buffer around the wetland.

### 5.2.3 Physical Disturbance

Physical disturbance results from people using the wetland. It can include trampling, bicycle, motorcycle or vehicle traffic, littering, rubbish dumping, weed invasion, fire and incursion by domestic animals. The effects of these disturbances can include habitat loss or damage, death or frightening of wildlife and disruption of breeding and feeding. Physical disturbance can be minimised by separation, barriers, surveillance and provision of alternative, managed access.

#### *Direct Impacts*

The most severe impacts are generally caused by motorcycles and vehicles. There is no evidence of current vehicle use in the wetland, although vehicle access is possible.

Although physical disturbance results from use of bush areas by people, its severity is not necessarily proportional to the human population in the vicinity. Indeed, an increased population density can reduce the degree of physical disturbance by increasing the level of public surveillance and reducing opportunities for vandalism or unauthorised vehicle access.

In this case, the level of public surveillance is currently low but will increase as the surrounding land is developed. No physical barriers to access exist except for the dense vegetation in parts of the wetland.

A physical barrier within Lot 701 can reduce access to the eastern end but not to the wetland as a whole. Likewise, the distance of separation of development within Lot 701 from the wetland will not affect the ease of access to the wetland via other access points.

#### *Weeds*

The outer parts of the wetland are currently heavily infested with weeds including Fennel, Kikuyu and Couch Grass. A heavy infestation of *Juncus acutus* is present in Lot 701 and is spreading in other areas to the south and west. The disused farmland to

the south-east (including Lot 701) and south-west are major sources of weeds and seed to the wetland.

The development of Lot 701 will largely eliminate that area as a source of weeds as weed-infested open ground gives way to sealed surfaces, buildings and tended gardens. Future development on land to the south-east and south-west will similarly reduce or eliminate weed sources from these areas.

### *Fire*

Fire risk can increase with increased human presence near bush areas, through escaping burnoffs, campfires or arson. As with physical disturbance, development can also bring a reduced fire risk through an increased level of public surveillance.

Housing development on Lot 701 will increase the level of surveillance and will also reduce ground fuel loads near the wetland, which are currently very high due to the presence of untended tall grass and weeds. The fire risk will be largely unaffected by the width of the setback from the wetland. The presence of a road and accompanying fire hydrants adjacent to the buffer will help to reduce the fire risk.

### *Domestic Animals*

Dogs and cats may affect wetlands primarily by preying on or frightening native fauna. Both dogs and cats are already present in the vicinity and have access to the wetland.

Urban development may bring additional cats and dogs into the area. However, the distance of the development from the wetland will not affect the ease of access for unmanaged animals to the wetland.

Both setback distance and physical barriers such as fences can reduce the potential for “incidental/accidental” incursion of supervised dogs into the wetland.

## **5.3 Wetland Buffer Definition**

### **5.3.1 Role of the Buffer**

The role of the wetland buffer is to maintain fringing habitats and to minimise impacts of the development on the wetland in terms of hydrology, water quality and physical disturbance. In each case, this can best be achieved by a combination of physical separation and structural or non-structural management measures.

### 5.3.2 Separation Requirement

#### *Determining the Size of Setback*

The question of how much wetland setback is desirable in a particular situation is complex. There is no single formula that enables the ideal setback distance to be calculated. The EPA normally applies a default 50m buffer requirement to Conservation Category wetlands in the absence of site-specific studies, while the nominal buffer for Resource Enhancement Category wetlands is more flexible. The WAPC's draft *Guideline for the Determination of Wetland Buffer Requirements* (2005) was produced in an attempt to provide a rational basis for determining buffer requirements for particular wetlands. The WAPC guideline states that site-specific buffer requirements may be determined, and notes that buffering may involve a combination of a setback distance and a physical barrier.

#### *Fringing Habitat*

The fringing vegetation at the site may fulfil the following habitat functions:

- Breeding and roosting habitat for birds inhabiting the wetland. Planting of additional tall shrubs in the buffer zone could increase this habitat.
- Nesting habitat for aquatic animals such as long-necked turtles (*Chelodina oblongata*). Buffers incorporating areas of bare sandy soil close to the wetland will enable turtles species to breed without having to make long, hazardous excursions.
- Cover, feeding and breeding habitat for terrestrial species such as bandicoots, snakes and lizards. Incorporation of areas of dense native undergrowth in the buffer zone will help to preserve habitat for these species.

#### *Hydrology*

The WAPC's draft *Guideline for the Determination of Wetland Buffer Requirements* (2005) does not recommend a general development setback distance for management of hydrological impacts. Rather, it advocates regulation of groundwater abstraction in the wetland's groundwater catchment (defined by the DoW as 1,000m upgradient). Current design principles for urban developments emphasise the maintenance of pre-development site hydrology regardless of the distance from wetlands.

#### *Water Quality*

The WAPC's draft *Guideline for the Determination of Wetland Buffer Requirements* (2005) does not recommend a general development setback distance for management of water quality. Instead, it suggests that water quality impacts be prevented by avoidance or management of direct drainage into the wetland. This approach will be

adopted in the development of Lot 701, with all road runoff being infiltrated via a basin with modified soils.

### *Physical Disturbance*

The WAPC's draft *Guideline for the Determination of Wetland Buffer Requirements* (2005) suggests the following generic setback distances for managing physical disturbance to Resource Enhancement category wetlands:

Habitat modification	-	50m weed infestation
	-	50m avifauna habitat
	-	6m firebreak
Inappropriate recreational use	-	10-50m for improving aesthetics
	-	10-50m for barrier
	-	Fence, paths for controlling access.

In the case of Wetland 15167, most of these generic setback recommendations are unachievable due to the heavily cleared and developed nature of the surrounding land. In several areas, roads, houses, landscaped parks and infiltration basins have been developed close to or even within the mapped wetland itself. Figure 4 shows these instances. In other areas, including Lot 701, heavy weed infestations have destroyed the ecological functions of the fringing vegetation and parts of the wetland.

Based on the analysis presented in Section 3.3, the following setback distances within Lot 701 are considered appropriate:

- Weed infestation - None (development will eliminate weed infestation and reduce weed sources).
- Bird habitat - 30m.
- Firebreak - None (development, including road, will reduce fire risk).
- Fauna access - 30m combined with fence.
- Edge effects - 30m combined with fence.
- Aesthetics - 30m.
- Barrier - 30m combined with fence.

These setbacks can be accommodated by a 30m buffer from the remapped edge of the Resource Enhancement category wetland. Figure 4 shows the recommended buffer. Figure 5 shows an enlargement of the recommended buffer for Lot 701.

### 5.3.3 Local Precedents

The land around Market Garden Swamp No. 2 has been progressively redeveloped from market gardening and other rural uses to residential over the last few decades. As a rule, given the degraded condition of the wetland and the past encroachment of clearing, weed infestation and filling up to or into the wetland, this development has incorporated little or no setback from the mapped wetland boundary. In some areas,

such as that immediately north-west of Mayor Road, the development of housing, parks and infiltration basins has encroached some distance into the mapped wetland in a previously filled area. In the most recently developed area, immediately north-east of Mayor Road, an infiltration basin and part of a road have been located within the mapped wetland boundary, leaving an effective separation of between 15m and 25 from the hard edge of the basin to the paperbark zone.

Around much of the perimeter of Wetland 15167, it is not possible to achieve a buffer of 30m width due to the presence of housing, roads and infiltration basins close to and in places within the wetland boundary. A 30m separation can be achieved within Lot 701, but its effectiveness as a buffer will depend on significant rehabilitation works to remove the infestation of *J. acutus*.

#### 5.3.4 Effectiveness of Separation

This investigation has identified physical disturbance as the only significant threat to the wetland from development on 701. Direct disturbance from the development can be prevented by the provision of a 30m separation together with a fence and the hard edge created by a road.

The provision of a 30m native vegetated buffer within Lot 701 will increase the amount of fringing habitat around the wetland and will improve its value for birds and other fauna. A buffer of this size would be similar to or greater than the buffers provided around most other parts of Market Garden Swamp No. 2.

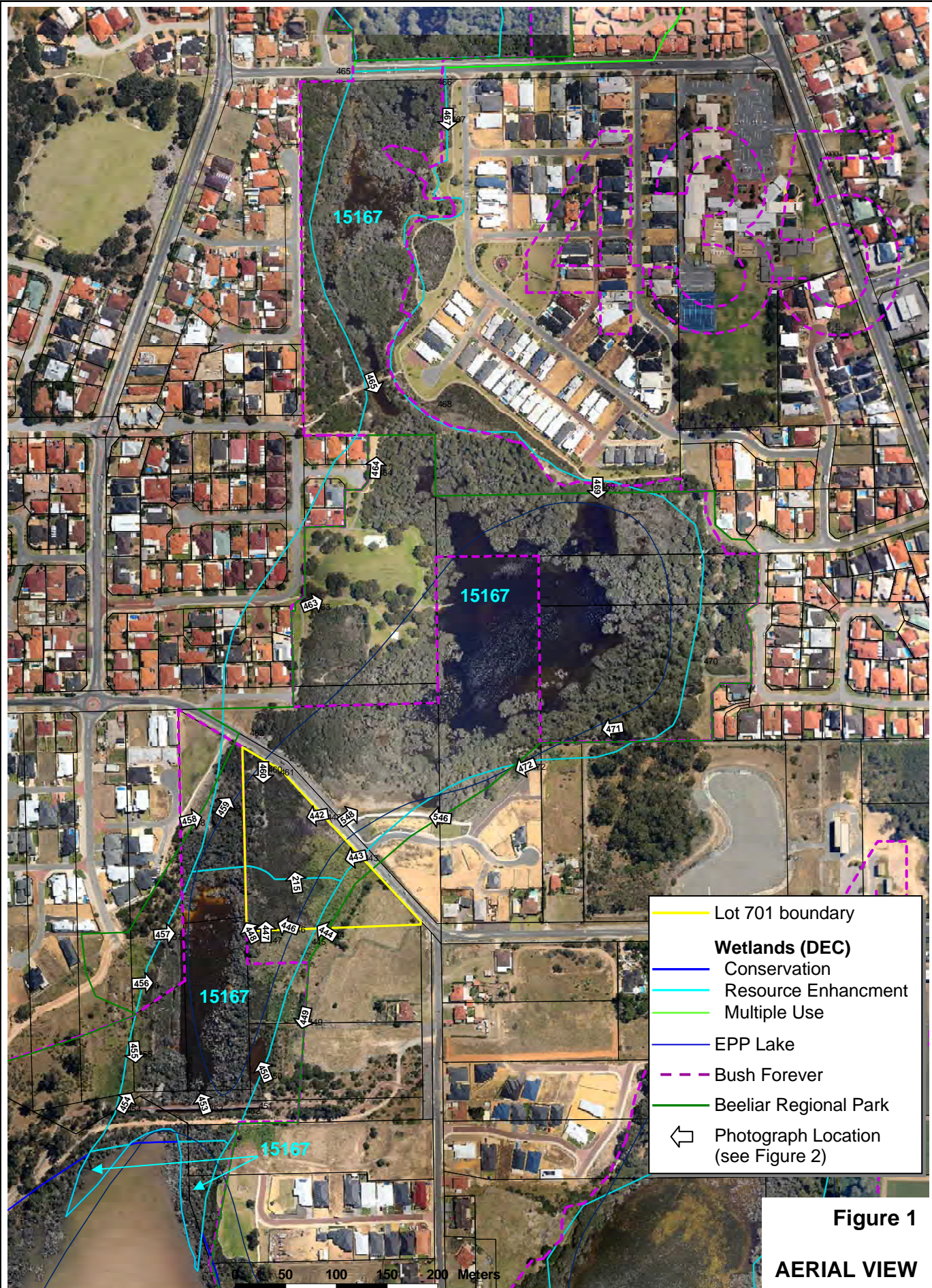
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# Figures



- Lot 701 boundary
- Wetlands (DEC)**
- Conservation
- Resource Enhancement
- Multiple Use
- EPP Lake
- - - Bush Forever
- Beelihar Regional Park
- ⇐ Photograph Location (see Figure 2)

**Figure 1**

**AERIAL VIEW**



Figure 2a

VIEWS OF THE WETLAND



See Figure 1 for photograph locations



See Figure 1 for photograph locations

Figure 2b

IEWS OF THE WETLAND



Figure 2c

IEWS OF THE WETLAND

See Figure 1 for photograph locations



Figure 2d



See Figure 1 for photograph locations

IEWS OF THE WETLAND



Figure 2e  
VIEWS OF THE  
WETLAND

See Figure 1 for photograph locations



Figure 2f  
VIEWS OF THE WETLAND



See Figure 1 for photograph locations



Figure 2g  
VIEWS OF THE  
WETLAND



467



469

See Figure 1 for  
photograph locations



471



472

Figure 2h  
VIEWS OF  
THE WETLAND



Figure 2i

VIEWS OF THE WETLAND

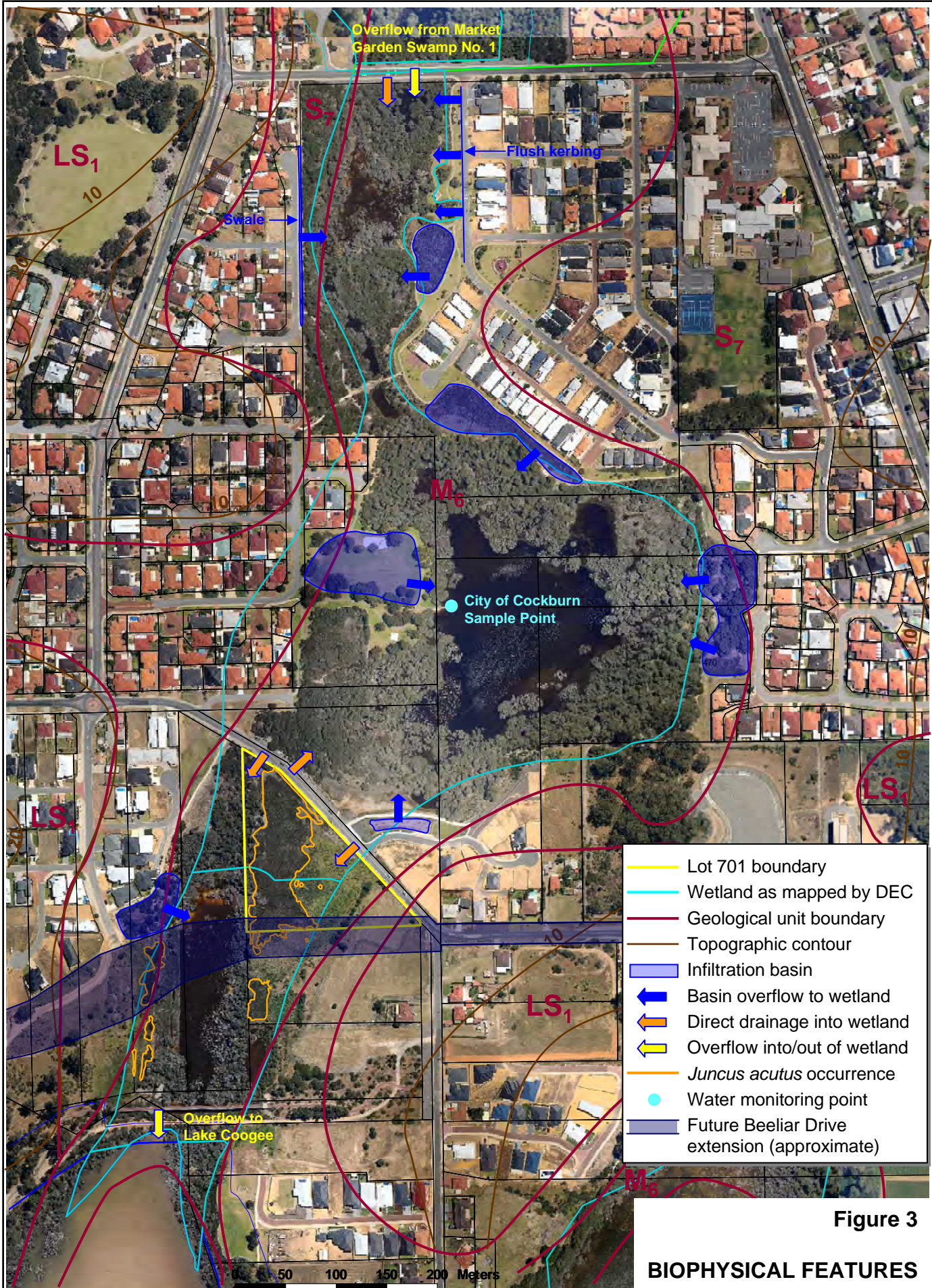
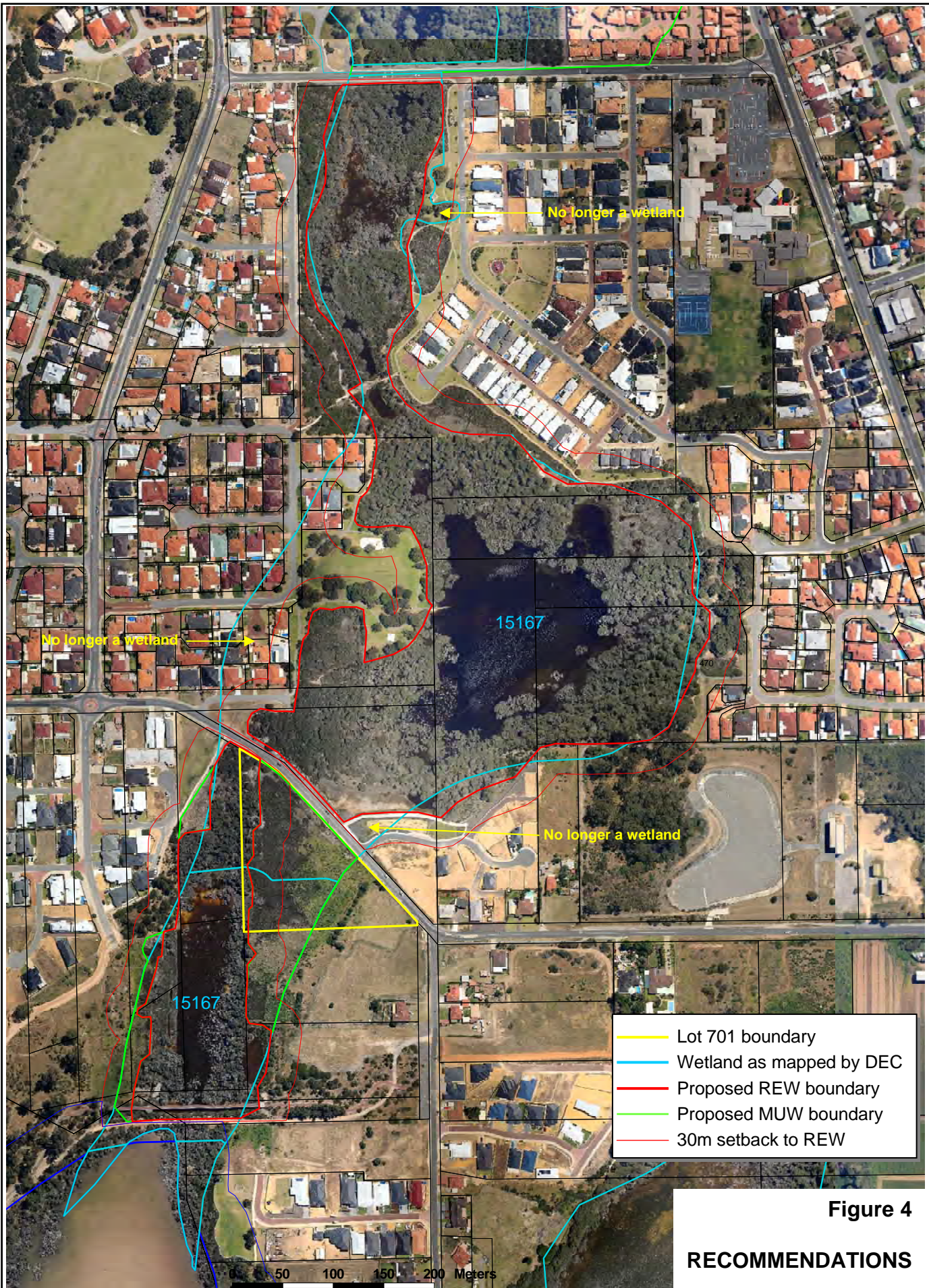


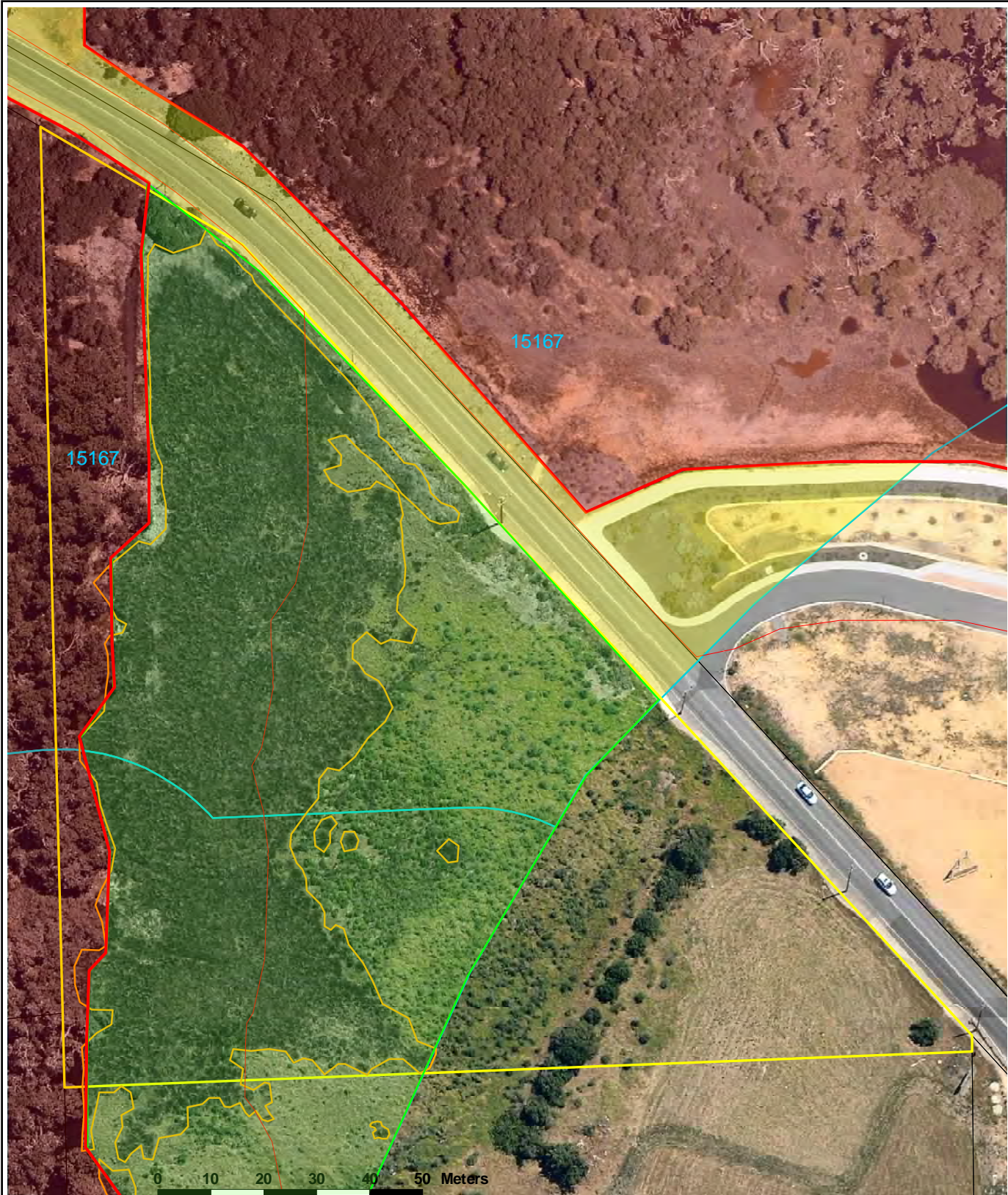
Figure 3

BIOPHYSICAL FEATURES



- Lot 701 boundary
- Wetland as mapped by DEC
- Proposed REW boundary
- Proposed MUW boundary
- 30m setback to REW

**Figure 4**  
**RECOMMENDATIONS**



- Lot 701 boundary
- Wetland as mapped by DEC
- Proposed REW
- Proposed MUW
- No longer a wetland
- 30m setback to REW
- *Juncus acutus* occurrence

Figure 5

**RECOMMENDATIONS -  
LOT 701 ENLARGEMENT**

# **Appendix A**

## **Botanical Survey of Lot 701 Mayor Road**

Arthur S. Weston, PhD (Botany)  
**Consulting Botanist**  
 Phone (08) 9458 9738  
[naomiseg@iinet.net.au](mailto:naomiseg@iinet.net.au)

ABN/GST No  
 54 924 460 919

**8 Pitt Street**  
**ST JAMES**  
**WA 6102**  
**AUSTRALIA**

Our Ref: J12002

Job Name: Lot 701 Vegetation Assessment

23 March 2012

P. O. Bayley  
 Bayley Environmental Services  
 30 Thomas Street  
 South Fremantle WA 6162  
 Tel. (08) 9335 9160, 0427 808 633  
 Email: "Phil Bayley" [bayley@iinet.net.au](mailto:bayley@iinet.net.au)

Dear Phil,

**ASSESSMENT OF VEGETATION MAPPED BY THE DEC AS RE WETLAND  
 IN LOT 701 MAYOR ROAD, MUNSTER**

On 8 and 14 March 2012 Phil Bayley and I walked in, through and around the area in Lot 701 mapped by the DEC as Resource Enhancement (RE) Wetland to identify the vegetation units there and the dominant species in them. All of the DEC-mapped area is in Beeliar Regional Park, and the western part, the part with *Melaleuca cuticularis* (Saltwater Paperbark) small trees and the watercourse between Lake Coogee and Market Garden Swamp, may be in Bush Forever Site Part B.

The descriptions of the vegetation units and their condition use the following classification and terminology, which are essentially the same as those in *Bush Forever* (2000, Volume 2, pp. 493-494):

Canopy cover / Form, height	100% - 70%	70% - 30%	30% - 10%	10% - 2%
Trees < 10m	Low Closed Forest	Low Open Forest	Low Woodland	Low Open Woodland
Shrubs > 2m	Closed Tall Scrub	Tall Open Scrub	Tall Shrubland	Tall Open Shrubland
Shrubs 1-2m	Closed Heath	Open Heath	Shrubland	Open Shrubland
Shrubs < 1m	Closed Low Heath	Open Low Heath	Low Shrubland	Low Open Shrubland
Herbs	Closed Herbland	Herbland	Open Herbland	Very Open Herbland
Grasses	Closed Grassland	Grassland	Open Grassland	Very Open Grassland
Sedges	Closed Sedgeland	Sedgeland	Open Sedgeland	Very Open Sedgeland

\* The name, a binomial, following the asterisk is that of an environmental weed, an alien.

The six-point condition scale is, basically:

- |                        |   |
|------------------------|---|
| 1. Pristine            | No obvious signs of disturbance,  |
| 2. Excellent           | Vegetation structure intact, disturbance affecting individual species (plants?), weeds are non-aggressive species,  |
| 3. Very Good           | Vegetation structure altered, obvious signs of disturbance,   |
| 4. Good                | Vegetation structure significantly altered by very obvious signs of multiple disturbance; basic vegetation structure or ability to regenerate it is retained,       |
| 5. Degraded            | Basic vegetation structure severely impacted by disturbance; scope for regeneration but not to a state approaching good condition without intensive management, and |
| 6. Completely Degraded | Vegetation structure not intact; the area completely or almost completely without native species ('parkland cleared').  |



The vegetation units in Lot 701, their condition and the symbols used for the units on the vegetation map are:

**Mc      *Melaleuca cuticularis* (Saltwater Paperbark) Low Open Forest – Low Closed Forest**

Good to Very Good

*Melaleuca cuticularis* (Saltwater Paperbark) Low Open Forest – Low Closed Forest is in the western part of the lot; almost all of it is west and south-west of the north-south drain. A few plants and small populations of *Lobelia anceps* (Angled Lobelia), *Samolus repens* var. *paucifolius* (Brookweed) and a few other native species are in the understorey. Plants of *\*Symphyotrichum squamatum* (Bushy Starwort) and other environmental weeds are also in the understorey. There were more plants and species of native flora in the low forest than in the other vegetation units.

**Ja      *\*Juncus acutus* (Spiny Rush) Closed Sedgeland**

Completely Degraded

*\*Juncus acutus* (Spiny Rush) Closed Sedgeland is between the *Melaleuca cuticularis* (Saltwater Paperbark) Low Open Forest – Low Closed Forest and the *Pennisetum clandestinum* (Kikuyu Grass) Closed Grassland and extends into both of them as scattered plants. There are also two small enclaves of *\*Typha orientalis* (Bulrush) Closed Tall Scrub in the closed sedgeland and at its northern edge. Few other species, none of them native, were seen in the sedgeland.

**Pc(Fv)    *\*Pennisetum clandestinum* (Kikuyu Grass) Closed Grassland**

Completely Degraded

*\*Pennisetum clandestinum* (Kikuyu Grass) Closed Grassland covers the south-eastern part of the area mapped by the DEC as wetland and extends south-east of it. Some of the grassland has occasional, sometimes dense occurrences of *\*Stenotaphrum secundatum* (Buffalo Grass) and *\*Cynodon dactylon* (Couch), often mixed with *\*Pennisetum clandestinum*. A few small stands to more than 3 m tall of *\*Arundo donax* (Giant Reed) Open Grassland are over the shorter, denser grasses. Much of the closed grassland has an overstorey of *\*Foeniculum vulgare* (Fennel) Herbland - Open Herbland to 2 m tall. A few scattered plants of *\*Atriplex prostrata* (Hastate Orache), *\*Lactuca saligna* (Wild Lettuce) and a few other non-native environmental weeds were found in the closed grassland. A few plants of *\*Sorghum halepense* (Johnson Grass), an alien, were found near Mayor Road, and one native, *Apium prostratum* (Sea Celery), was found in lower areas.

**Cd      *\*Cynodon dactylon* (Couch) Closed Grassland**

Completely Degraded

A central, probably wetter part of the grassland-sedgeland vegetation is *\*Cynodon dactylon* (Couch) Closed Grassland with an overstorey of *\*Foeniculum vulgare* (Fennel) Herbland - Open Herbland to 2 m tall and scattered plants of *\*Juncus acutus* (Spiny Rush). There are also scattered, much smaller plants of *\*Symphyotrichum squamatum* (Bushy Starwort), *\*Atriplex prostrata* (Hastate Orache), *\*Lactuca saligna* (Wild Lettuce), *\*Conyza* sp. (Fleabane), a few other aliens and the native *Rhagodia baccata* (Berry Saltbush).

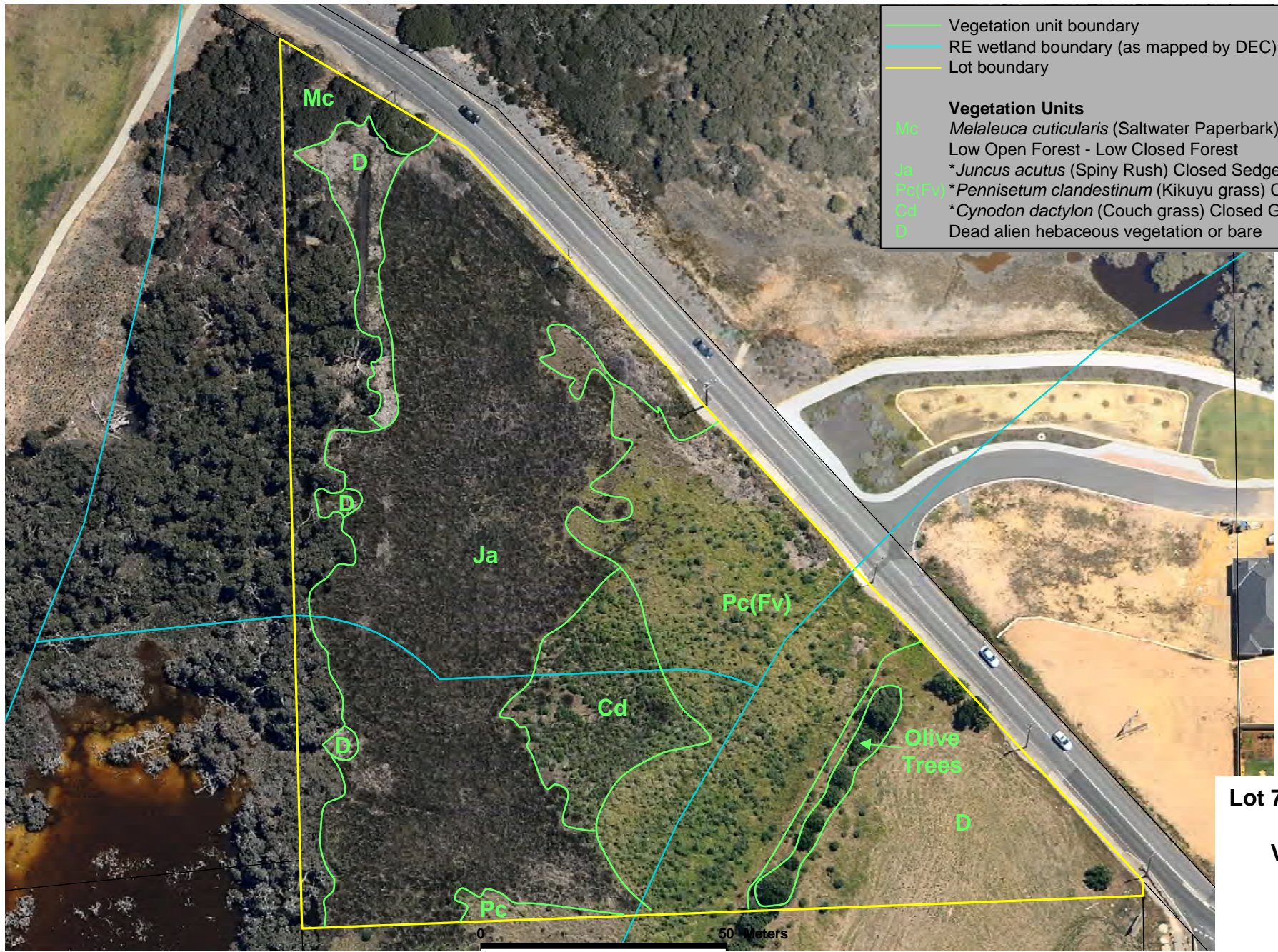
**D      Dead alien herbaceous vegetation or bare**

Completely Degraded

The assistance of botanists Greg Keighery and Mike Hislop in identifying specimens was invaluable and is greatly appreciated.

Regards,

Arthur



— Vegetation unit boundary  
— RE wetland boundary (as mapped by DEC)  
— Lot boundary

**Vegetation Units**

Mc *Melaleuca cuticularis* (Saltwater Paperbark) Low Open Forest - Low Closed Forest  
Ja *Juncus acutus* (Spiny Rush) Closed Sedgeland  
Pc(Fv) *Pennisetum clandestinum* (Kikuyu grass) Closed Grassland  
Cd *Cynodon dactylon* (Couch grass) Closed Grassland  
D Dead alien hebeaceous vegetation or bare

Lot 701 Mayor Rd

**VEGETATION**

# **Appendix B**

## **Bulletin 686 Questionnaire**

## Section 5. The questionnaire

### Part I - presence of rare species

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

Yes/No

If "yes" wetland automatically is allocated management category H. If "no" proceed with Parts II and III to determine management category.

### Part II The natural attributes questionnaire

#### Part IIA: Permanent and seasonal wetlands with well defined boundaries

For wetlands with poorly defined boundaries go to Part IIB

##### i Environmental geology classification

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

YES	Score	5
NO	Score	1

Score[ 1 ]

Source: Refer to 1:50,000 Environmental Geology Series (see Gozzard 1982).

Management Notes: Geological origin is one of the basis for wetland classification systems. In the metropolitan area wetlands within these geological units are rare.

##### ii Adjacent wetlands

Are there wetlands within a 2km radius?

YES		<u>go to question iii</u>
NO	Score	3 <u>go to question (iv)</u>

Score[ ]

Source : Aerial photos.

Management Notes: Refer to question (iii).

### iii Habitat diversity

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

YES	Score	3
NO	Score	1

**Score[ 1 ]**

*Source: Refer to question (vi) for a listing of habitat types. Use aerial photos and field visits.*

Management Notes: A high diversity of habitats is desirable from an ecological perspective. In some cases this diversity is not expressed in an individual wetland, but in a series of adjacent wetlands.

### iv Drought refuge

What is the importance of the wetland as a drought refuge for birds?

Major importance	Score	5
Minor importance	Score	2
No importance	Score	0

**Score[ 2 ]**

*Source: Refer to Appendix 7 and local branch of RAOU.*

Management Notes: Although waterbirds can move long distances to find suitable habitat when lakes dry out, it has been shown that Perth's natural and artificial wetlands provide a valuable drought refuge during the summer. Verify with local government authority.

### v Area of wetland

Estimate the area of the wetland and score as follows:

Area	Score
>100ha	5
50-100ha	4
25-50ha	3
10-25ha	2
<10ha	1

**Score[ 3 ]**

*Source: Map of appropriate scale in conjunction with a grid overlay. The edge of the inundated area (often indicated by fringing vegetation or summer grass) should be used as the wetland perimeter for this calculation.*

Management Notes: As a general rule large wetlands are capable of supporting a larger variety of species and have a greater capacity to absorb the detrimental impacts of nearby land uses than small wetlands. Where a wetland chain is severed by urban development, species diversity within individual lakes often declines due to a reduction in habitat diversity (see management notes Question (vi)).

## vi Habitat type

Using the list below score 1 for each habitat type represented.

a). Must cover 0.1 ha (1000m<sup>2</sup>) in area (not necessarily in one stand)

- large paperbarks (> 2.5m tall) in dense clumps [ 1 ]
- low thickets (ie < 2.5m tall). These are often *Melaleuca*, *Astartea* or *Kunzea* spp [ 1 ]
- paperbark fringe [ 1 ]
- fringing rushes and sedges (often *Baumea* and *Juncea* spp.) [ 1 ]
- fringing *Typha* (bullrush) [ ]
- samphire or saltmarsh [ 1 ]
- extensive inlake beds of sedges [ ]
- extensive inlake beds of *Typha* or other rushes [ ]
- scattered dense clumps of rushes or sedges [ 1 ]

b) Other habitats

- flooded grassland in winter/spring [ ]
- mud flats or seasonally dry open water [ 1 ]
- 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 [1/2]
- scattered rushes [1/2]

**Score [ 9 ]**

*Source: Field visit and aerial photos.*

Management Notes: The composition, density and structure of the vegetation around a wetland has a major influence on the size and diversity of bird and other animal populations. The more complex the vegetation associations, the greater the habitat diversity.

### vii Emergent vegetation

Calculate how much of the wetland is covered with emergent wetland vegetation and score as follows:

Percentage emergent vegetation	Score
40-60%	5
30-40% or 60-70%	4
20-30% or 70-80%	3
10-20% or 80-90%	2
<10% or >90%	1

Score[ 2 ]

Source: Aerial photos and field visit.

Management Notes: A wetland which provides both open water and emergent vegetation is likely to fulfil the biological requirements of a greater range of species. For example, waterbirds need emergent vegetation for breeding and open water areas for feeding.

### viii Adverse water quality

Has adverse water quality been reported in the last two years or observed on the current inspection? For example the presence of oil slicks, algal blooms or botulism in waterbirds. Score according to the following table.

Number of aspects observed or reported	Score
0	5
1	2
2	1
3 or more	0

Score[ 2 ]

Source: Field survey, Waterbird Conservation Group, discussion with local residents, and local government authority.

Management Notes:

- 1 Water quality varies significantly throughout the year with problems most evident in summer and often undetectable during winter.
- 2 The presence of macroalgae and/or large numbers of epiphytes is often an indication of poor water quality. An epiphyte is a non parasitic plant that relies on other plants for physical support.

- 3 Good water quality is important, particularly for invertebrates. If there is evidence of pollution (from heavy metals, pesticides and nutrients etc) measures should be taken to alleviate the problem.

### ix Drainage

This question deals with drains into or out of the wetland. Four scenarios are possible:

- no drains;
- drains into wetland only;
- drains out of wetlands only; and
- drains into or out of wetlands.

First determine which category is applicable, and then proceed to the relevant sub-section below.

#### a) No drains present

NO DRAINS                      Score        5            go to question (x).

#### b) Drain(s) into wetland only

Drain(s) into a wetland will likely cause two problems: a deterioration in water quality and a rise in water level. Drains can be categorised as one of three types, as listed below. Note the presence of each.

- off-road stormwater drains;
- open drains carrying excess groundwater from nearby urban land; and
- open drains carrying excess groundwater from rural land.

Note the types of drains present and score as follows:

Number of drain types observed	Score
1	3
2	1
3	0

Score[ 1 ]

#### c) Drain(s) out of wetland only

Outlet drains are constructed to either:

- maintain water levels in the lake or to support wetland vegetation; or
- dry out the wetland.

Score as follows:

Maintain water levels            Score        3  
 Dry out the wetland                Score        0



#### d) Drains into and out of wetland

The inlet drains will likely (a) carry unwanted pollutants and (b) raise water levels in the wetland. An outlet drain could manage the water level changes by controlling maximum levels. A deterioration in water quality would still be expected.

Score as follows.

Is the outlet drain(s) constructed to maintain water levels in the lake or to support wetland vegetation?

Maintain water levels	Score	1
Other reasons	Score	0

*Source: Field inspection and visit to local government authority.*

Management Notes: Surface water run-off entering wetlands via drains is often polluted. Nutrient inputs from this source should ideally be monitored for several years before determining the most appropriate means of managing algal and insect problems.

### **x Adjacent nutrient sources**

#### a) Presence of nutrient sources

Are there adjacent nutrient sources that could affect the water quality in the wetland? For example:

- rubbish tips or landfill;
- lawns and/or grazing property fertilised on a seasonal basis;
- septic tanks within 100m of the wetland; and
- agricultural development with high nutrient output such as feedlots and sheep holding yards nearby.

YES		<u>go to (b) and (c)</u>
NO	Score	5 <u>go to question (xi)</u>

#### b) Nutrient sources present

Note the number of nutrient sources and score as follows:

Number of nutrient sources observed	Score
1	2
more than 1	0

**Score [ 0 ]**

*Source: Field inspection and visit to the local government authority.*

Management Notes: Recent research has demonstrated that large quantities of nutrients enter wetlands via surface water drains.

### xi Area of wetland modified

What proportion of the wetland, within boundaries taken as 50m from the edge of the inundated area, has been modified by landfill, paving, cultivated gardens/playing fields, irrigated agriculture, grazing, weed invasion, mining etc?

Percentage modified	Score
0 - 10 %	5
11 - 20%	4
21 - 30 %	3
31 - 40%	2
> 40%	1

6.96ha/24.39ha = 28%

Score[ 3 ]

Source: Aerial photos and maps.

Management Notes: See question (xiii)

### xii Reserve area

Is the size of the (potential) reserve containing the wetland large enough to ensure that conservation values can be protected from the impacts of surrounding land uses. To determine this divide the area of the wetland by the area of the reserve surrounding the wetland. Score according to the following table:

ratio or wetland to "reserve"	Score
< 0.1	5
0.1 - 0.25	4
0.25 - 0.5	3
0.5 - 0.75	2
0.75 - 1.0	1

Score[ 1 ]

Source: Aerial photos and maps — If there are not formal boundaries around the wetland use fence lines, roads or natural features of the landscape for the calculation (see management notes below).

Management Notes: Wetlands with large buffer zones are less likely to be degraded by the impact of surrounding land uses than those with small buffer zones. The size of buffer zones should be determined according to the physical and ecological properties of the individual wetland and the purpose for which it is being managed. Property or reserve boundaries used in the above computation should be at least 50m from the wetland edge. If less than 50m make a note in the report.

### xiii Native vegetation buffer

Calculate the percentage of the wetland perimeter with a buffer of native vegetation 50m or wider along it. Score as follows:

<b>% wetland perimeter with 50m buffer</b>	<b>Score</b>
100 - 90%	10
89 - 80%	8
79 - 70%	6
69 - 60%	4
59 - 50%	2
<50%	1

$$397\text{m}/3667\text{m} = 22\%$$

**Score[ 1 ]**

*Source: Aerial photos.*

Management Notes: Native vegetation has a beneficial effect on water quality and aesthetics and is essential for wetland fauna. A clear management objective for all wetlands should be to ensure there is vegetation cover where it would normally occur. Limited clearing may be acceptable at some sites if management procedures ensure that weed invasion is controlled and applied nutrients are prevented from leaching into the ground water or reaching the wetland through surface flow.

**TOTAL SCORE [ 26 ]**

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

**Score[ 3 ]**

Source: Field survey.

Management Notes: A management plan should try to ensure that these attributes are preserved or enhanced by proposed developments.

### ii Historical and archaeological features

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

- registered Aboriginal relics or sacred sites<sup>3</sup> .
- pioneer relics/operations
- National Estate/Trust listings

Score according to the following table:

Number of historical archaeological features	Score
2 or more	5
one	3
0	0

**Score[ ]**

Source: Field survey, local government authorities, National Trust, WA Museum — Department of Aboriginal Sites.

<sup>3</sup> This information may not be made available by the Aboriginal Sites Department in some circumstances. In these situations it should be assumed that a site is present and scored appropriately.

Management Notes: Strategies for the protection and/or preservation of historical and archaeological features should be clearly defined in the management plan for the wetland.

### iii Security of wetland

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

Vesting/ownership of wetland	Score
A Class Reserve for conservation and recreation or Metropolitan Region Scheme reserve for Parks and Recreation owned by the Department of Planning and Urban Development or local government authority.	5
Other class of reserve — vested System Six recommendation unvested or on private property	3
Other class of reserve — unvested	2
Other (eg private or vacant Crown land)	1

Score [ 5 ]

### iv Protection groups

Does the wetland have active community protection groups?

One or more	Score	5
No groups	Score	0

Score [ 5 ]

### 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 [ 1 ]
- education (school or other educational interest within 500m) [ 1 ]
- picnic and /or barbecue facilities [ ]
- conservation of flora (refer to maps) [ ]
- conservation of fauna (refer to maps) [ 1 ]
- protection and preservation of other attributes [ ]
- recognised research site
  - biological
  - archaeological
  - other [ ]
- recognised tourist venue [ ]

**Score[ 3 ]**

*Source: Field surveys, maps, road directories, State and local government department and residents.*

Management Notes: Damage such as trampling, erosion and destruction of vegetation should be noted during the field visit.

**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 [ 1 ]
- horse riding [ ]
- trail bike riding [ ]
- playground [ 1 ]
- sports grounds [ ]
- model boats [ ]
- golf course [ ]
- canoeing/rowing [ ]
- power boating/skiing [ ]
- swimming [ ]

**Score[ 2 ]**

*Source: State and local government recreation departments.*

Management Notes: Damage from current activities should be recorded during the field survey and reported to the appropriate authority/s.

**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) [ 1 ]
- water supply [ ]
- proposed urban/housing use [ 1 ]
- private purposes other than described above [ ]

**Score[ 2 ]**

*Source: Field survey, maps and State and local government departments.*

Management Notes: The compatibility of the above activities with conservation values should be considered during the formulation of a management plan. It may not be practical to achieve all management objectives, and land use priorities will have to be decided.

**TOTAL SCORE [ 20 ]**

## Part IV - Supplementary questions

These questions are to be used to

- determine the most appropriate management category for a wetland where the natural attributes and human-use score falls in the "transition zones" in the graph in Appendix 2;
- determining the most appropriate management category for wetlands on private land with high private human-use value.

### Instructions

1. If the answer is YES in question i (below) the wetland should be moved to the management category to the right.  
If NO, move to left.
2. If the answer to either ii or iii is YES, move upwards; if NO move downwards.
3. If the answer to iv is yes, then:
  - if the wetland is in Category R, the wetland is allocated management category O unless Part I applies; or
  - if wetland is in any other category, do not change the category but make a note for future reference.

#### i Species rarity

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

*Source: Department of Conservation and Land Management, local government authorities, conservation groups, literature searches.*

Management Notes: Wetlands supporting rare and endangered species should be given priority when allocating resources for the formulation of management plans and implementation of field works.

**YES/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?

*Source: local government authorities, estate agents.*

Management Notes: The enhancement of real estate values is a legitimate reason for increased expenditure on the active management of a wetland.

**YES/NO**

#### iii Human use

Do more than 100 people visit the wetland each week?

*Source: Extended field surveys, State and local government recreation departments.*

Management Notes: This question provides a good measure of the need for human-use management.

**YES/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?

Source: evidence from field trip and interview with owner.

YES/NO

## References

- Environmental Protection Authority (1986). *Draft Guidelines for Wetland Conservation in the Perth Metropolitan Area*. Department of Conservation and Environment, Perth, Western Australia. Bulletin 227
- Environmental Protection Authority (1990). *A guide to wetland management in Perth.* , Perth, Western Australia. Bulletin 374
- Gozzard, J R (1982). Perth Sheet 2034 11 and part 2034 111 and 2134 111 Perth Metropolitan Region Environmental Geology Series. Geological Survey of Western Australia.
- Semeniuk, C. A. (1987). Wetlands of the Darling System - A geomorphic approach to habitat classification. *J. Roy. Soc. W.A.*, **69**, 95-112.

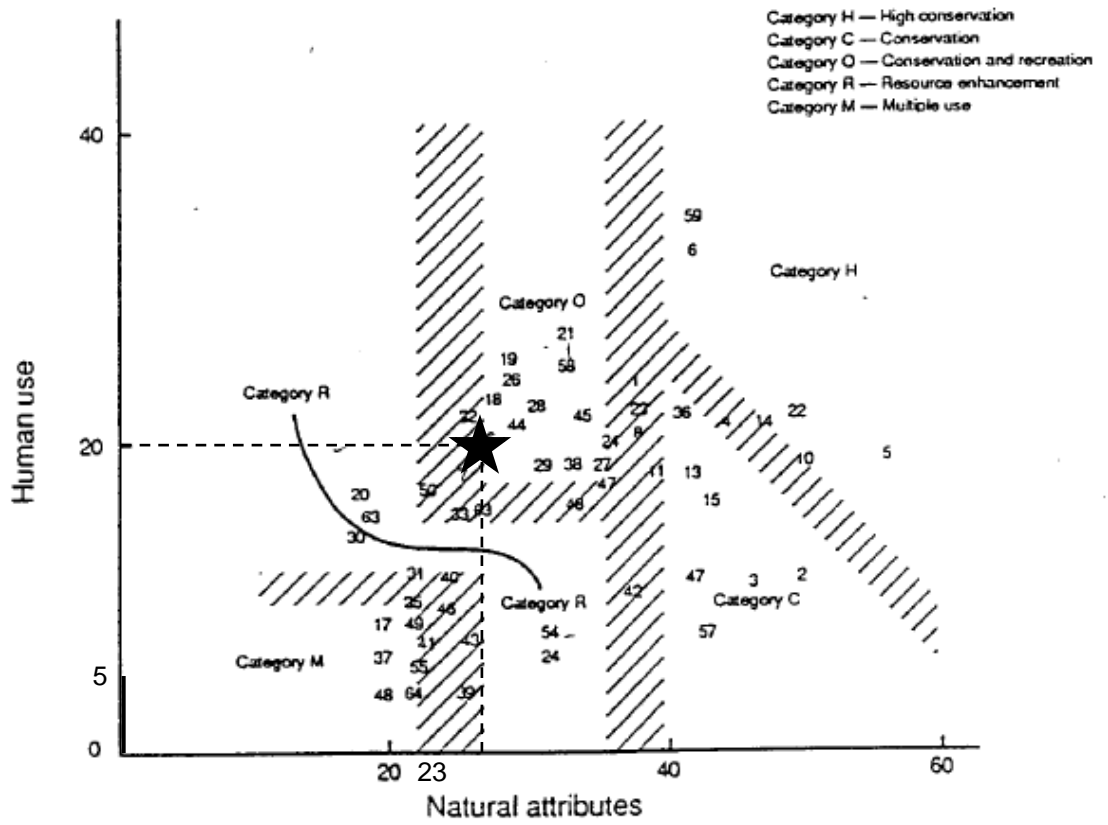
## Glossary of terms

The definitions given here are as they relate to wetlands and their usage in this Bulletin.

<b>Term/word</b>	<b>definition</b>
Attribute	Characteristic used to describe a wetland - eg size, diversity and depth of water.
Dampland	A basin wetland where the soil is seasonally waterlogged.
Episodic wetlands	Wetland with surface water for a period of time but not every year.
Extensive wetland	Large seasonally waterlogged wetlands found on the east of the Swan Coastal Plain, found typically on the Pinjarra Plain and the Bassendean Dunal system.
Function	Ecological (biological and chemical), hydrological or social process carried out by a wetland - eg food web and flood control.
Gazetted rare species	Species Gazetted Endangered under the Wildlife Conservation Act.
Hydrological function	Wetland processes that are related to water only - flood control, and drainage
Lake (as used in EPA Bulletin 227)	A wetland dominated by open water (rather than emergent vegetation), whether permanent, seasonal or ephemeral.
Lake (Semeniuk, 1987)	A basin wetland permanently inundated irrespective of vegetation cover.
Lentic wetland	Wetland where the water is stationary - a lake or swamp.
Lotic wetland	Wetland where the water is moving - streams and rivers.



1.



# **Attachment 2b**

**ALB Developments Pty Ltd  
Letter of Authority**

11 February 2011

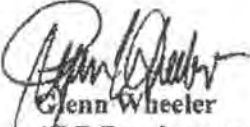
Chief Executive Officer  
Department of Planning and Infrastructure  
PO Box J747  
PERTH WA 6001

Dear Sir/Madam

**PROPOSED SUBDIVISION OF LOT 701 ON DEPOSITED PLAN 55142 - MAYOR  
ROAD, SOUTH COOGEE**

Please accept this correspondence as authority from ALB Developments Pty Ltd for Kimberley Morrison of 4 Jetty Road, Claremont to sign and lodge applications pertinent to the above property on our behalf.

Yours faithfully,

  
Glenn Wheeler  
ALB Developments Pty Ltd  
*Sae* DIRECTOR

# **Attachment 2c**

## **WAPC Subdivision Application**

Our Ref: 11/013 DR:

12 April 2013

**Attention: Frances Page-Croft**

West Australian Planning Commission  
140 William Street  
PERTH WA 6000

Dear Madam,

**APPLICATION TO SUBDIVIDE – LOT 701 MAYOR ROAD, MUNSTER**

On behalf of our client Auro Pty Ltd, please find enclosed an application for subdivision approval of Lot 701 Mayor Road, Munster. This application comprises the following documentation:

- A completed and signed **Form 1A**;
- A letter confirming Kim Morrison's **authority to sign** on behalf of ALB Developments Pty Ltd;
- A **cheque for \$2,023.00**, being the prescribed fee for a 14 lot subdivision application;
- A copy of the relevant **Certificate of Title**;
- A **Basic Summary of Records** from DEC regarding potential site contamination on the land;
- A copy of the **MRS Clause 42 Certificate** relating to the land;
- A **Wetland Assessment and Buffer Definition Study** prepared by Bayley Environmental Services;
- Eight (8) copies of the City adopted **Packham Structure Plan**; &
- Eight (8) copies of the proposed Plan of Subdivision (**Plan No. 11/013/005**).

**LOCATION AND SITE DESCRIPTION**

**Lot Details**

The legal description of the land, its ownership and current use is outlined in the following table:

Lot No.	Volume / Folio	Deposited Plan	Area (Ha)	Owner	Current Use
701	1934 / 499	55142	1.7122	ALB Developments Pty Ltd	Vacant

**Site Features**

In terms of topography, Lot 701 rises from about 2m AHD at its western edge (within Wetland 15167) to about 5m AHD at its south eastern corner, with the majority of the rise occurring in the eastern portion of the site. With exception to a stand of paperbarks located along the western boundary of the site, that define the eastern extent of the revised wetland boundary (as discussed/determined in the Wetland Reclassification section that follows), the site is largely devoid of significant vegetation.

Of note, immediately east of the paperbarks is one of the State's largest populations of *Juncus acutus*, a serious environmental weed that invades wetland and riparian habitats. Otherwise vegetation on-site is limited to pasture and a line of small trees located approximately two thirds of the way up the slope of the site. There are currently (nor to our knowledge has there ever been any) buildings or other improvements on the land.



### **Site Contamination**

In May 2011 a Memorial was placed on the Title of the land based on the results of a 2007 investigation that found the heavy metal chromium present in surface soils across the site at concentrations potentially exceeding Ecological Investigation Levels. Fragments of asbestos-containing materials were also present on the soil surface of Lot 701, as was general waste including putrescible materials presumably as a result of illegal dumping. A check of Department of Environment and Conservation (DEC) records has confirmed that the land does not appear on the Contaminated Sites Register and is instead listed as a registered site awaiting further investigation. A copy of a Basic Summary of Records obtained from DEC on this matter is attached as **Appendix A**.

Similar to other proposals in the area, inclusive of an application on Fawcett Road by the same proponent/landowner (**WAPC Ref. #144591**), any contamination is expected to be minor in nature and capable of being readily addressed via a condition of subdivision approval requiring a comprehensive contamination assessment and remediation works (if/where necessary) to be undertaken prior to ground disturbing works taking place.

### **Acid Sulphate Soils (ASS)**

Typical of low lying areas within close proximity to wetlands, the western portion of Lot 701 is identified as having a 'high to moderate' risk of encompassing Acid Sulphate Soils, whilst the balance of the landholding is identified as being at 'low to moderate risk'. Whilst this does not preclude development of the land for residential purposes, it is likely to trigger the imposition of a condition of subdivision approval requiring assessment, and the preparation of an ASS Management Plan covering any ground-disturbing works.

### **BACKGROUND**

Lot 701 formed the subject of a previous subdivision application lodged in August 2007 (**WAPC Ref. #135712**). After being on hold for a number of years on the basis of unresolved wetland issues, upon transfer of the land to our Client's ownership the application was withdrawn, as it did not accurately represent the development intentions of the current owner.

Responding to the concerns raised to that previous proposal, prior to the preparation of this application the Client consulted with both the City of Cockburn and Department of Environment and Conservation (DEC), and based on the outcome of those discussions proceeded to engage the services of a botanist and environmental specialist to undertake a comprehensive review of the remnant vegetation on-site and qualities (classification and boundary definition) of the adjacent wetland. The results of that work are outlined in the sections that follow and provide a sound basis for defining the developable portion of Lot 701.

### **STATUTORY PLANNING ENVIRONMENT**

#### **Zoning**

Aside from a narrow strip along the southern edge of the property which is reserved as an 'Other Regional Road' to accommodate the future extension of Beeliar Drive, the land is zoned 'Urban' under the Metropolitan Region Scheme (MRS) and 'Residential' (with a residential density coding of R30) under the City of Cockburn Town Planning Scheme No.3 (TPS3). A copy of the MRS Clause 42 certificate identifying the exact dimensions of the MRS reservation is included as **Appendix B**.

The land is also identified within Development Area No.1, within which Schedule 11 of TPS3 (amongst other things) requires an approved Structure Plan to apply to the land in order to guide subdivision and development.



### **Packham Structure Plan**

Adopted in 1999 by the City of Cockburn as a Local Planning Policy (or statutory equivalent) to meet the above expressed requirements of TPS3, the Packham Structure Plan (refer **Appendix C**) identifies the eastern half of the property for residential development, with the balance to form an substantive extension of the adjoining wetland reserve. Access is identified as being provided by a short cul-de-sac extending into the property via the termination of what will become a disconnected portion of Mayor Road (where it currently severs Wetland 15167). The plan is outdated in terms of current design principles and practice, and also fails to document/reflect a number of key constraints that relate to the land, as discussed in the following sections.

### **Developer Contributions**

TPS3 further identifies the land as being located within Developer Contribution Area No.6 (Munster), within which Schedule 12 requires landowners to make a proportional contribution towards the widening and construction/upgrade of Beelias Drive between Stock and Cockburn Roads. This requirement is in addition to its inclusion within the broader Developer Contribution Area No.13 area, within which landowners are required to make a proportional contribution towards the provision/upgrade of various community facilities across the total Local Government area.

## **SITE CONSTRAINTS**

### **Wetland Investigations**

As identified through the previous application, DEC's Geomorphic Wetlands Swan Coastal Plan Database identifies a 'Resource Enhancement' category wetland over approximately two thirds of the site, inclusive of the paperbarks, the *Juncus acutus* environmental weed, and a large area of open pasture. Acceptance of this boundary, plus the DEC's typical 50m buffer requirement would effectively sterilise all but a small triangular portion of land in the south-east corner of the site (approximately 287m<sup>2</sup>), and thereby render any redevelopment of the site completely unviable.

In response, Dr Arthur Weston and Bayley Environmental Services were engaged by the landowner to undertake a comprehensive assessment of the vegetation of the site, and subsequently a Wetland Assessment and Buffer Definition study in accordance with the relevant guidelines released by the Wetland Classification Branch of DEC. In summary, the recommendations of that report are that:

- The boundary of the Resource Enhancement Wetland be revised to match the line of paperbarks that extend within Lot 701;
- The balance of the site, which is heavily degraded with little or no native vegetation remaining, be reclassified as a Multiple Use wetland, enabling development of a portion of that area for urban/residential purposes;

And, consistent with the treatment/outcome of numerous subdivisions within immediate locality:

- A reduced buffer of 30m be accepted from the edge of the redefined Resource Enhancement Wetland, on the basis that it is comprehensively rehabilitated to minimise future impacts on the wetland in terms of hydrology, water quality and physical disturbance, and that drainage required for the development is detained and appropriately treated outside the buffer prior to entering the wetland proper. A full copy of the report can be found at **Appendix D**.

A significant portion of Lot 701 is also identified as being subject to the Environmental Protection Swan Coastal Plain Lakes Policy 1992 (EPP). The purpose of this policy is to protect the environmental values of lakes on the Swan Coastal Plain by making any proposal to fill, drain, excavate, pollute and/or clear these lakes an offence unless authorised by the Environmental Protection Authority (EPA). As this proposal involves development works encroaching within the EPP boundary, a copy of the proposal has been referred by Bayley Environmental Services direct to the EPA under Section 38 of their Act.



### **Access Arrangements**

Since adoption of the Packham Structure Plan, the City has progressively advanced the necessary environmental approvals involved in the future extension of Beeliar Drive, inclusive of the preparation of a preliminary engineering design (as reflected on the proposed plan of subdivision). Whilst by no means finalised, that design highlights two important considerations as it relates to this land, as follows:

- An intention to cul-de-sac Mayor Road at its current intersection with Fawcett Road (thereby avoiding what would be a considerably difficult intersection design); &
- The need to accommodate an entry into Lot 701 off Beeliar Drive, that extends through to Mayor Road in order to ensure that development of Lot 701 (in addition to existing estate recently developed on the northern side of Mayor Road), remain accessible and connected to the broader road network.

It is worth noting that in the absence of some form of development within Lot 701, either the problematic intersection of Mayor/Beeliar/Fawcett Roads will need to be retained, the environmental benefit of disconnecting Mayor Road where it currently severs Wetland 15167 will be rendered unachievable, or compulsory acquisition of a portion of Lot 701 for road purposes (within the current EPP wetland boundary) will need to occur.

### **SUBDIVISION PROPOSAL**

In summary, the application proposes subdivision of Lot 701 into:

- **12 x Front Loaded Residential Lots**  
(ranging between 297m<sup>2</sup> and 435m<sup>2</sup> in area, with an average lot size of 362m<sup>2</sup> in accordance with the 270m<sup>2</sup> minimum and 300m<sup>2</sup> average lot area requirements of the land's 'R30' residential density coding);
- **1 x Grouped Housing Site**  
(measuring 1,828m<sup>2</sup> in area, capable of comfortably accommodating 4 additional grouped dwellings in accordance with the 270m<sup>2</sup> minimum and 300m<sup>2</sup> average lot area requirements of the land's 'R30' residential density coding. A preliminary strata layout is shown dashed on the plan of subdivision in order to demonstrate the site's development potential);
- **1 x Public Open Space Reserve**  
(measuring 7,525m<sup>2</sup> in area, inclusive of the entire extent of the redefined Resource Enhancement Wetland, a completely rehabilitated and revegetated 30m buffer, plus additional area set aside for the construction of an appropriately sized drainage retention and treatment basin, well in excess of the requirements of the Packham Structure Plan or standard 10% gross land area requirement for POS);
- **1 x MRS Reservation Balance Lot**  
(measuring 2,077m<sup>2</sup> in area, to be set aside for future acquisition as part of the future extension of Beeliar Drive); &
- **A New Road Reservation**  
(measuring 12m in width, inclusive of a 6m carriageway and a 1m wide offset verge on the POS side, that will ultimately replace the current function of Mayor Road and provide access/egress to the development of Lot 701 and an adjoining estate).

### **SERVICING**

All essential services are understood to be available within the adjoining Mayor Road reservation with sufficient capacity to accommodate the proposal. Site levels and drainage will be addressed in further detail subsequent to approval, at the time of submitting detailed engineering drawings.





## CONCLUSION

This subdivision application proposes the timely provision of up to 16 residential dwellings as an infill development of readily serviceable urban zoned land, in accordance with the dwelling aspirations and strategic guidance set out under Directions 2031 and Beyond, and the underlying Outer Metropolitan Perth and Peel Sub-Regional Strategy.

Whilst similar in appearance, the application represents a significant evolution of the 2007 proposal in that it is now underpinned, and the design specifically responds to, a comprehensive review of the relevant environmental and access limitations that affect the land.

In addition, the proposal represents a beneficial environmental outcome, in that it will specifically facilitate a number of environmental improvements that would otherwise require significant effort to be expended (and at considerable expense), by both State and Local Government agencies, including:

- Complete removal of the *Juncus acutus* environmental weed, one of the largest populations within the Metropolitan Region which based on visual inspection of the area, appears to be rapidly spreading to other portions of the wetland;
- Comprehensive rehabilitation of a scientifically defined wetland buffer, including associated improvements to fauna habitat and the hydrology, water quality and overall function of the parent wetland;
- Substantive improvements to the management of physical disturbance that currently occurs within the wetland by establishing a hard edge (ie. road) that not only defines the boundary between private and public land, but can be fenced on the wetland side to preclude access by humans (and feral species), and also provides fire fighting facilities directly adjacent to an area of potential threat; and
- Facilitates on-going alternative access to the existing and future residences in a manner that does not jeopardise the potential benefits of removing the portion of Mayor Road that currently severs and significantly impacts on the adjoining wetland.

The WAPC's favourable consideration of this application is therefore kindly requested at its earliest opportunity. Should you wish to discuss this matter, please do not hesitate to contact the undersigned at this office on 9382 2911.

Yours faithfully

TAYLOR BURRELL BARNETT

DAVID REYNOLDS  
ASSOCIATE

CC: Mr Kim Morrison: Auro Pty Ltd  
Mr Phil Bayley: Bayley Environmental Services



**APPLICATION FORM,  
CERTIFICATE OF TITLE  
& LETTER OF AUTHORISATION**



# Form 1A

## Application for Approval of Freehold or Survey Strata Subdivision



### Notice to applicants - Consent to the disclosure of information

In the interests of transparency, the agenda and minutes of meetings of the Western Australian Planning Commission may appear on the PlanningWA Website, which is a website that is available to the public. Accordingly, in signing this form, you acknowledge that except for information about your business, professional, personal or commercial and financial affairs, the information you have provided in support of your application may be placed on the website.

### Important information for applicants

- 1 Please read all of this form carefully and consult the application guide and schedule of fees for further information. The application may not be accepted and will be returned to the applicant with the submitted fee if these requirements are incorrect or incomplete.
- 2 The WAPC is responsible for determining applications for freehold and survey strata subdivision under the *Planning and Development Act 2005* and *Strata Titles Act 1985*. The information required for an application is authorised by regulation 25 of the Planning and Development Regulations 2009. There are penalties for providing false information.
- 3 Applications for a freehold and survey strata subdivision require a fully completed form 1A with any additional information attached, the correct application fee and multiple copies of a subdivision plan and any supporting documentation (see part 7 of form 1A).
- 4 Subdivision plans must be based on an accurate and up-to-date feature survey (survey of existing physical features and improvements such as driveways, buildings as required by part 7). The additional information requirements, under part 7 item 17, are not required for amalgamation approval.
- 5 The applicant must sign part 1. All landowners or an agent with written authority must sign part 3. Agents must provide written authority from the landowner.
- 6 The application fee must accord with the current schedule of fees.
- 7 Applicants must check that there are no restrictive covenants applying to the land or if there are, attend to the resulting liabilities and obligations. The WAPC is only bound by the terms of restrictive covenants created under statute in favour of a public authority.
- 8 Applicants must state the application type, freehold or survey strata subdivision, on part 5 of form 1A. A separate application is required for each application type, freehold or survey strata subdivision. Application fees for cancelled applications will not be refunded if the application has been referred to external agencies.

### 1 Applicant

The applicant is the person with whom the WAPC will correspond and, if the application is approved, the person to whom the approval will be sent.

Name / company Taylor Burrell Barnett

Contact person David Reynolds

Postal address PO Box 8166

Town / suburb SUBIACO EAST Phone number/s (08) 9382 2911

Postcode 6008 Fax (08) 9382 4586 Email david@tbbplanning.com.au

Current email address required for communicating decisions or other relevant matters

The form 1A has been completed in full and all relevant information is attached

Applicant signature



Print name and position David Reynolds - Associate  
(if signing on behalf of a company or agency)

Date 11/4/13

### 2 Landowners

All the registered proprietors (landowners) as shown on the record of certificate/s of title for the subject lot/s must be provided. A change of name must be supported by relevant documentation such as a transfer of land document that incorporates a lodgement receipt, a company search from the Australian Securities and Investment Commission, a marriage certificate or a change of name certificate. If there are more than two landowners please provide the additional information on a separate page.

Full name ALB Development Pty Ltd

Company / agency (if applicable)

ACN/ABN (if applicable)

Postal address Suite 1, 1 Centro Ave

Town / suburb SUBIACO Postcode 6008

Full name

Company / agency (if applicable)

ACN/ABN (if applicable)

Postal address

Town / suburb Postcode

### 3 Consent to apply

Registered proprietor/s (landowner/s) or the authorised agent's details **must** be provided in this section. If there are more than two landowners please provide all relevant information on a separate page. Signature/s must be provided by all registered proprietors or by an authorised agent. **Alternatively**, a letter of consent, which is signed by all registered proprietors or by the authorised agent, can be provided.

Full name

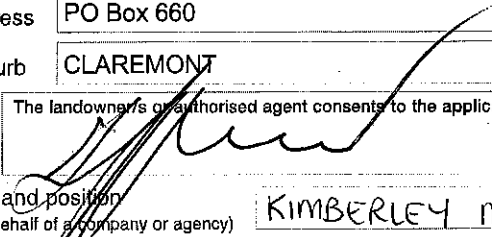
Company / agency (if applicable)

ACN/ABN (if applicable)

Postal address

Town / suburb  Postcode

The landowner/s or authorised agent consents to the applicant submitting this application

Signature  Date

Print name and position (if signing on behalf of a company or agency)

Full name

Company / agency (if applicable)

ACN/ABN (if applicable)

Postal address

Town / suburb  Postcode

The landowner/s or authorised agent consents to the applicant submitting this application

Signature

Date

Print name and position (if signing on behalf of a company or agency)

Please tick 'yes' or 'no' for each statement.

- 1 All registered proprietors (landowners) listed on the certificate/s of title have signed the application or an attached letter of consent.  yes  no
- 2 Consent to apply is given on behalf of landowners.  yes  no  
 If you indicate 'yes', a letter of consent that is signed by the registered proprietor/s as shown on the certificate/s of title and/or an endorsed power of attorney or other evidence must be provided.  
 If the subject land is owned by a company, you must confirm whether it is a sole proprietorship company and state the full name/s and position/s of the company signatory/ies, company name and ACN/ABN on the form 1A. Appropriate company signatory/ies include one director and the company seal, two directors or one director and one secretary.  
 If the subject land is owned by a strata company, part 3 or a letter of consent can be signed by the company secretary or by an elected person of the company providing proof of authority either by letter of delegated authority, signed by all strata owners or minutes showing delegated authority.
- 3 The application is by or on behalf of a prospective purchaser/s under contract of sale or offer and acceptance.  yes  no  
 If you indicate 'yes', evidence of landowner's consent must be provided. Relevant evidence may include an express provision of consent by the vendor on the contract of sale or offer and acceptance, a letter of consent from the registered proprietor/s giving prospective purchaser/s consent to lodge the application or copy of the transfer of land document that incorporates a lodgement receipt. Lodgement does not guarantee registration of the document and prospective purchaser/s must notify the WAPC in writing if the document is withdrawn or rejected from registration.
- 4 Consent to apply is given by or on behalf of joint tenant survivors.  yes  no  
 If you indicate 'yes', a copy of the death certificate of the deceased landowner must be provided.
- 5 Consent to apply is given by or on behalf of an executor of a deceased estate.  yes  no  
 If you indicate 'yes', a copy of the grant of probate or endorsed power of attorney must be provided.
- 6 This application includes land that is owned by or vested in, or held by management order by a government agency or local government.  yes  no  
 If you indicate 'yes', you must ensure that part 3 or a letter of consent is signed by an authorised officer of the relevant agency or authority, stating the name and position of the signatory/ies.
- 7 This application includes Crown land.  yes  no  
 If you indicate 'yes', you must ensure that part 3 or a letter of consent is signed by an authorised officer, State Land Services, Department of Regional Development and Lands, stating the name and position of the signatory/ies.

#### 4 Certificate/s of title

Current copies (issued within the last 6 months) of a record of certificate/s of title for all subject lot/s must be attached to the form. If there are more than two records of title please provide the additional information on a separate page. Duplicate certificate/s of title will not be accepted.

Certificate of title Volume  Folio  Diagram/plan/deposit plan no

Lot number and location of subject lot Lot no (whole/part)  Location

Reserve no (if applicable)

Street number and name

Town / suburb  Postcode

Nearest road intersection

Certificate of title Volume  Folio  Diagram/plan/deposit plan no

Lot number and location of subject lot Lot no (whole/part)  Location

Reserve no (if applicable)

Street number and name

Town / suburb  Postcode

Nearest road intersection

Current copies of all records of title are attached.  yes

Total number of current lot/s subject of this application

#### 5 Summary of the proposal

Please print clearly and tick the appropriate boxes.

1 Application type  subdivision or  amalgamation

2 Tenure of proposed lot/s  freehold (go to 4) or  survey strata (go to 3)

3 Is common property proposed?  yes  no

4 Does the subject lot/s contain existing dwellings (ie buildings for residential purposes), outbuildings and/or structures?  yes (go to 5)  no (go to 6)

5 Please provide details of dwellings, outbuildings and/or structures

dwellings number of dwellings .....

all to be retained  all to be removed  partially retained/removed (please specify) ...

and/or  outbuilding/s and/or structures number of outbuildings and/or structures .....

all to be retained  all to be removed  partially retained/removed (please specify) ...

and/or  others (please specify) .....

6 Number of proposed lot/s 14 (12 x Single Residential, 1 x Grouped Housing, 1 x MRS Acquisition Lot)

7 Current land use Vacant

8 Proposed land use / development Residential  
(please state the purpose of the subdivision and specify the proposed use of each of the proposed lots) .....

9 Local government where the subject land is located City/Town/Shire of City of Cockburn

#### 6 Application fee

The application fees are listed in the schedule of fees which is reviewed annually. Please ensure the fees submitted accord with the current fee schedule. Cheques should be made out to the Western Australian Planning Commission.

The correct application fee determined in accordance with the current schedule of fees is attached.  yes \$ 2,023

## 7 Required information about the proposal

An application may not be accepted and will be returned to the applicant with the submitted fee if the requirements are incorrect or incomplete.

### General information required for all applications

- 1 Subdivision plans are based on an accurate and up-to-date feature survey that includes existing ground levels relative to AHD or topography of the subject lot/s. A feature survey is not required for amalgamation approval.  yes
- 2 Relevant copies of the subdivision plans and supporting documentation or accompanying information are attached as indicated on the following table:  yes
- | Final no of lots proposed       | Copies of subdivision plan and supporting documentation or accompanying information |
|---------------------------------|---|
| 40 or less                      | 8 paper copies  |
| More than 40                    | 12 paper copies   |
| Large/bulky subdivision reports | 1 bound paper copy only and 10 CD copies  |
- 3 At least four copies of the subdivision plan are A3 or smaller.  yes
- 4 All subdivision plans are capable of being reproduced in black and white format.  yes
- 5 The subdivision plan is drawn to a standard scale (ie 1:100, 1:200, 1:500, 1:1000).  yes
- 6 All dimensions on the subdivision plan are in metric standard.  yes
- 7 The north point is shown clearly on the subdivision plan.  yes
- 8 The subdivision plan shows all lots or the whole strata plan (whichever is applicable).  yes
- 9 The subdivision plan shows all existing and proposed lot boundaries.  yes
- 10 The subdivision plan shows all existing and proposed lot dimensions (including lot areas).  yes
- 11 The subdivision plan shows the lot numbers and boundaries of all adjoining lots.  yes
- 12 For battleaxe lots, the subdivision plan shows the width and length of the access leg, the area of the access leg and the total area of the lot.  yes  
 n/a (battleaxe lot is not proposed)
- 13 The subdivision plan shows the name/s of existing road/s.  yes
- 14 The subdivision plan shows the width of proposed road/s.  yes  
 n/a (no road proposed)
- 15 The subdivision plan shows all buildings and/or improvements which are to be retained (including setbacks) or removed.  yes  
 n/a (the land is vacant)
- 16 The subdivision plan shows all physical features such as watercourses, wetlands, significant vegetation, flood plains and dams.  yes  
 n/a (the land does not contain such features)

### 17 Additional information required in the case of applications for residential infill subdivision within existing residential zoned areas

Applications which propose to create two or more residential lots in existing residential areas must show all existing features (in addition to item 16 above) located in the road reserve/s adjoining the subject land and all existing improvements on the subject land including:

- driveways
- kerb lines
- manholes
- bus stops
- gully pits
- boundary setbacks for dwelling/s to be retained
- fencing
- street trees
- water supply
- swimming pools
- pedestrian paths
- retaining walls
- telecommunication pillars
- electricity transmission lines and poles
- sewer, water and electricity connections

### Access to / from right-of-way or private road

Access is to be provided from an existing right of way or private road.  yes  
 no

If you indicate 'yes', you must provide a copy of the plan or diagram of survey on which the subject right-of-way was created to confirm its exact width and whether a right of access exists. Right of access may be an easement under section 167A of the *Transfer of Land Act 1893*, an implied easement for access or other arrangement.

### Contaminated sites

Information to assist applicants to respond to the following questions is on the Department of Environment and Conservation (DEC) website at [www.dec.wa.gov.au/contaminatedsites](http://www.dec.wa.gov.au/contaminatedsites).

- 1 Has the land ever been used for a potentially contaminating activity? Examples include: market garden or intensive agriculture, livestock dip or spray race, service station, fuel or waste oil storage, fill other than certified clean fill, landfill or waste disposal, chemical storage or manufacturing, metal works or scrap metal recovery, motor vehicle workshop, timber mill/preserving, pest control depot, dry cleaning establishment, industrial facility, rifle range, railway yards, port, sewerage treatment facility. Other examples are in the DEC guideline *Potentially Contaminating Activities, Industries and Landuses*.  yes  
 no

If yes, please attach details of the Activities/uses.

- 2 Does the land contain any site or sites that have been classified under the *Contaminated Sites Act 2003*?  yes  
 no
- 3 Does the land contain any site or sites that have been reported or are required to be reported under the *Contaminated Sites Act 2003*?  yes  
 no

**If you indicated 'yes' to question 2 or 3 you must provide a Basic Summary of Records (BSR).** Where a BSR is not available from the public Contaminated Sites Database, the form requesting a BSR from DEC is available from the DEC website at [www.dec.wa.gov.au/contaminatedsites](http://www.dec.wa.gov.au/contaminatedsites) or by calling DEC on 1 300 762 982.

If a BSR is not available, a copy of the letter from DEC notifying the applicant that the site or the sites are under assessment must be provided, followed by the BSR when available.

Is a BSR or letter from DEC attached?  yes  no

### Information requirements for Liveable Neighbourhoods

Subdivision applications proposing to create 20 or more lots on greenfield and urban infill sites will be assessed against the requirements of Liveable Neighbourhoods.

Such applications should be supported by documentation addressing the relevant criteria of Liveable Neighbourhoods, as identified in the application guidelines within the policy document.

Is this application to be assessed under the Liveable Neighbourhoods policy and is supporting documentation attached?  yes  
 no

### Acid sulfate soils

Is the land located in an area where site characteristics or local knowledge lead you to form the view that there is a significant risk of disturbing acid sulfate soils at this location?  yes  
 no

The WAPC has published a guide to applications and fees to assist applicants preparing to submit applications. The guide and other information about the planning system is available from the Planning WA website.

[www.planning.wa.gov.au](http://www.planning.wa.gov.au)

## Submission of application to WAPC through Department of Planning offices

Perth (All posted applications):	Perth (Lodgements in person):	Albany	Mandurah	Bunbury	Geraldton
Locked Bag J4747 Perth WA 6000	140 William Street Perth WA 6000 telephone: 655 19000 facsimile: 655 19001 NRS: 13 36 77	178 Stirling Terrace PO Box 1108 Albany WA 6331 telephone: 9892 7333 facsimile: 9841 8304	Shop 2B 11-13 Pinjarra Road Mandurah WA 6210 telephone: 9586 4680 facsimile: 9581 5491	6th Floor Bunbury Tower 61 Victoria Street Bunbury WA 6230 telephone: 9791 0577 facsimile: 9791 0576	65 Chapman Road PO Box 68 Geraldton WA 6531 telephone: 9956 0122 facsimile: 9956 0132

11 February 2011

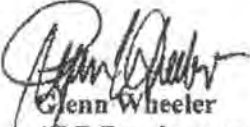
Chief Executive Officer  
Department of Planning and Infrastructure  
PO Box J747  
PERTH WA 6001

Dear Sir/Madam

**PROPOSED SUBDIVISION OF LOT 701 ON DEPOSITED PLAN 55142 - MAYOR  
ROAD, SOUTH COOGEE**

Please accept this correspondence as authority from ALB Developments Pty Ltd for Kimberley Morrison of 4 Jetty Road, Claremont to sign and lodge applications pertinent to the above property on our behalf.

Yours faithfully,

  
Glenn Wheeler  
ALB Developments Pty Ltd  
*Sae* DIRECTOR

WESTERN



AUSTRALIA

REGISTER NUMBER <b>701/D55142</b>	
DUPLICATE EDITION <b>3</b>	DATE DUPLICATE ISSUED <b>6/7/2007</b>

**RECORD OF CERTIFICATE OF TITLE**  
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **1934** FOLIO **499**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

REGISTRAR OF TITLES



**LAND DESCRIPTION:**

LOT 701 ON DIAGRAM 55142

**REGISTERED PROPRIETOR:**  
(FIRST SCHEDULE)

ALB DEVELOPMENTS PTY LTD OF SUITE 1, 1 CENTRO AVENUE, SUBIACO  
(T J990532 ) REGISTERED 17 NOVEMBER 2006

**LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:**  
(SECOND SCHEDULE)

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE. VOL 1934 FOL 499.
2. K242661 MORTGAGE TO BANK OF WESTERN AUSTRALIA LTD REGISTERED 26.6.2007.  
\*L272607 TRANSFER OF MORTGAGE K242661 , MORTGAGEE NOW GOLDBONDSUPER PTY LTD REGISTERED 30.3.2010.
3. K242662 MORTGAGE TO GOLDBONDSUPER PTY LTD REGISTERED 26.6.2007.
4. \*K652952 MORTGAGE TO GOLDBONDSUPER PTY LTD REGISTERED 10.7.2008.
5. \*L616408 MEMORIAL. CONTAMINATED SITES ACT 2003 REGISTERED 3.5.2011.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.

\* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.

Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

**STATEMENTS:**

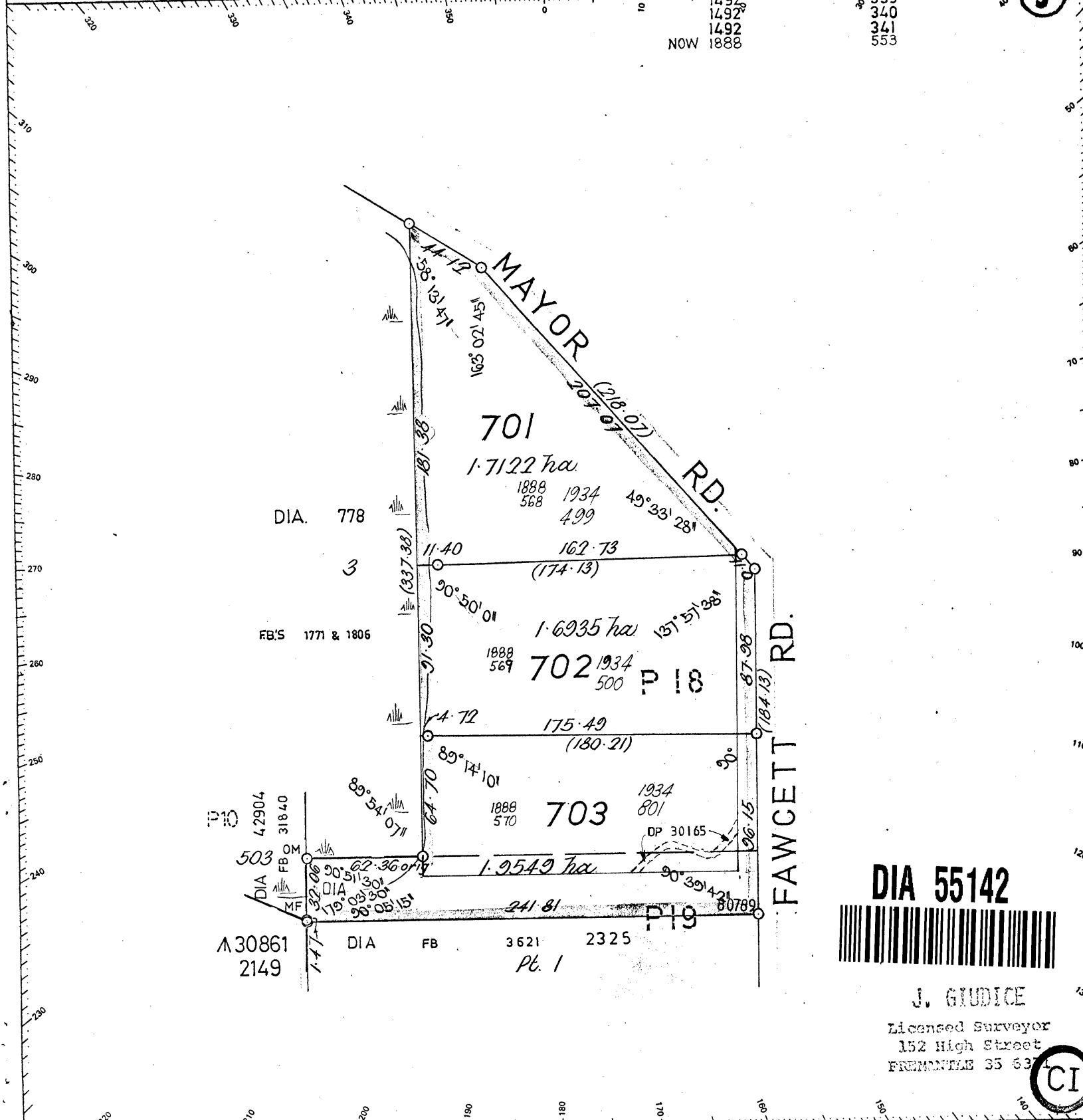
The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 1934-499 (701/D55142).  
PREVIOUS TITLE: 1888-568.  
PROPERTY STREET ADDRESS: LOT 701 MAYOR RD, MUNSTER.  
LOCAL GOVERNMENT AREA: CITY OF COCKBURN.

NOTE 1: DUPLICATE CERTIFICATE OF TITLE NOT ISSUED AS REQUESTED BY DEALING K242661



Town or District.	Number of Lot or Location.	Field Book.	Scale.	Certificate in which Land is Vested.	Area
COCKBURN SOUND	Pt Loc P19 & Lot 2 of Loc. P18	40652	1:2500	Vol. 1495	5.3606 ha Total
		41136		Fol... 51... 925 336 337 338	



**DIA 55142**

**J. GIUDICE**  
 Licensed Surveyor  
 152 High Street  
 FREMANTLE 35 63

<p><b>CERTIFICATE</b></p> <p>I hereby certify that this survey was performed by me personally (or under my own personal supervision, inspection and field check) in strict accordance with the Licensed Surveyors (Guidance of Surveyors) Regulations, 1961.</p> <p>Date: <u>1/8/78</u> <i>J. Giudice</i>        Licensed Surveyor</p>		<p>Approved by Town Planning Board</p> <p>TOWN PLANNING DEPARTMENT</p> <p>10 AUG 1978</p> <p>FILE: <u>41769</u></p> <p>Date: <u>15-8-78</u></p> <p><i>Paul Carr</i>        Chairman</p>	
<p>Approved: <i>[Signature]</i></p> <p>Inspector of Plans and Surveys</p> <p>Examined: <i>[Signature]</i>        T. ROBINSON 6/P37</p>	<p>On</p> <p>Plan: .....</p> <p>Diagram: <u>6155 778</u></p> <p>Index Plan: <u>6568</u></p> <p>PERTH 2000 08.05</p>	<p>Registered</p> <p>29518</p> <p>17.5.78</p>	<p>Diagram No.</p> <p><b>55142</b></p>

69314/8/77-4M-L271 DKT/PLAN. 7174.

788664



# APPENDIX A

## DEC – BASIC SUMMARY OF RECORDS



David Reynolds  
Taylor Burrell Barnett  
187 Roberts Rd  
Subiaco WA 6008

Dear Sir

### BASIC SUMMARY OF RECORDS REQUEST

Thank you for your Basic Summary of Records ("BSR") request for the site consisting of the following parcel(s) of land:

- LOT 701 ON DIAGRAM 55142 as shown on certificate of title 1934/499 known as 701 Mayor Rd, Munster WA 6166

which Department of Environment and Conservation ("DEC") received on 20/03/2013

A search of DEC's records of known and suspected contaminated sites was undertaken and the results of the search are attached for your information.

A guide on how to interpret the BSR response is also attached for your information.

General information on a Summary of Records and associated request forms is available from DEC's website on [www.dec.wa.gov.au/contaminatedsites](http://www.dec.wa.gov.au/contaminatedsites) or by contacting the Registrar on 1300 762982.

Yours sincerely

**Andrew Miller, Section Manager**

CONTAMINATED SITES BRANCH  
Delegated Officer under section 91  
of the *Contaminated Sites Act 2003*

26/03/2013

Enc. Basic Summary of Records  
Guide to interpreting the Basic Summary of Records  
Receipt Number DEC19294

**DIRECTOR GENERAL AND ENVIRONMENTAL SERVICES DIVISIONS:** The Atrium, 168 St Georges Terrace, Perth, Western Australia 6000  
Phone: (08) 6467 5000 Fax: (08) 6467 5562

**PARKS AND CONSERVATION SERVICES DIVISIONS:** Executive: Corner of Australia II Drive and Hackett Drive, Crawley, Western Australia 6009  
Phone: (08) 9442 0300 Fax: (08) 9386 1578 Operations: 17 Dick Perry Avenue, Technology Park, Kensington, Western Australia 6151  
Phone: (08) 9219 8000 Fax: (08) 9334 0498

Information Request  
CSSID = 2496

**POSTAL ADDRESS FOR ALL DIVISIONS:** Locked Bag 104, Bentley Delivery Centre, Western Australia 6983

[www.dec.wa.gov.au](http://www.dec.wa.gov.au)  
[wa.gov.au](http://wa.gov.au)



### Contaminated Sites Act 2003 Basic Summary of Records Search Response

Our environment, our future



Report generated at 03:15:24PM, 26/03/2013

Receipt No: DEC19294
ID No: 16031

#### Search Results

This response relates to a search request received for:

701 Mayor Rd  
Munster, WA, 6166

This parcel belongs to a site that contains 1 parcel(s).

According to Department of Environment and Conservation records, this land has been reported as a known or suspected contaminated site.

<b>Address</b>	701 Mayor Rd Munster, WA, 6166
<b>Lot on Plan Address</b>	Lot 701 On Diagram 55142
<b>Parcel Status</b>	<p><b>Classification:</b> 28/04/2011 - <i>Possibly contaminated - investigation required</i></p> <p><b>Nature and Extent of Contamination:</b></p> <p>The heavy metal chromium is present in surface soils and fragments of asbestos-containing material have been observed on the surface in portions of the site.</p> <p><b>Restrictions on Use:</b></p> <p>Please refer to Reasons for Classification for further information on the contamination present at the site.</p> <p><b>Reason for Classification:</b></p> <p>This site was reported to the Department of Environment and Conservation (DEC) as per reporting obligations under section 11 of the 'Contaminated Sites Act 2003', which commenced on 1 December 2006. The site was reported because an investigation undertaken in 2007 found elevated levels of zinc in surface soils. The site classification is based on information submitted to DEC by December 2007.</p> <p>A site investigation was carried out on the site in 2007 to assess the site's suitability for residential development. The assessment found that the heavy metal chromium was present in surface soils across the site at concentrations potentially exceeding Ecological Investigation Levels, as published in 'Assessment Levels for Soil, Sediment and Water' (DEC, 2010). The heavy metal zinc was present in surface soils in isolated areas of Lot 9500 Mayor Road at concentrations exceeding Ecological Investigation Levels, as published in 'Assessment Levels for Soil, Sediment and Water' (DEC, 2010).</p> <p>Fragments of asbestos-containing materials (ACM) were present on the soil surface at Lot 701, Lot 1 (east) and Lot 1 (west); however, at the time of classification the presence of ACM at the site has not been quantified. Further works at the site relating to asbestos should be undertaken in accordance with 'Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia' (Department of Health, May 2009).</p>

#### Disclaimer

This Summary of Records has been prepared by Department of Environment and Conservation (DEC) as a requirement of the Contaminated Sites Act 2003. DEC makes every effort to ensure the accuracy, currency and reliability of this information at the time it was prepared, however advises that due to the ability of contamination to potentially change in nature and extent over time, circumstances may have changed since the information was originally provided. Users must exercise their own skill and care when interpreting the information contained within this Summary of Records and, where applicable, obtain independent professional advice appropriate to their circumstances. In no event will DEC, its agents or employees be held responsible for any loss or damage arising from any use of or reliance on this information. Additionally, the Summary of Records must not be reproduced or supplied to third parties except in full and unabridged form.



### Contaminated Sites Act 2003 Basic Summary of Records Search Response

Our environment, our future



Report generated at 03:15:24PM, 26/03/2013

The site investigation also identified several locations across the site where general waste, including putrescible materials, had been dumped.

Groundwater investigations have not been carried out, and the quality of groundwater beneath the site is unknown.

Surface water investigations were not conducted as part of the investigation, and the quality of surface waters on the site is unknown.

Concentrations of contaminants have been found to exceed ecological investigation levels. A Screening Risk Assessment has therefore indicated that further investigation is required to determine the risk to human health, the environment and environmental values.

Based on the information available at the time of classification, the site is not suitable for residential development until further investigations have been undertaken.

As there are grounds to indicate possible contamination of the site, and since a suitable investigation of soil and groundwater and a risk assessment to determine the risk to human health, the environment, or any environmental value has not been carried out, further works are required to determine the contamination status of the site and the site is therefore classified as 'possibly contaminated - investigation required'.

When the results of further soil and groundwater investigations are submitted to DEC, these will be reviewed, and the site may be re-classified.

DEC, in consultation with the Department of Health, has classified this site based on the information available to DEC at the time of classification. It is acknowledged that the contamination status of the site may have changed since the information was collated and/or submitted to DEC, and as such, the usefulness of this information may be limited.

In accordance with Department of Health advice, if groundwater is being, or is proposed to be abstracted, DEC recommends that analytical testing should be carried out to determine whether the groundwater is suitable for its intended use.

**Certificate of Title Memorial**

Under the Contaminated Sites Act 2003, this site has been classified as "possibly contaminated - investigation required". For further information on the contamination status of this site, please contact the Contaminated Sites Branch of the Department of Environment & Conservation.

**Current Regulatory Notice Issued**

**Type of Regulatory Notice:** Nil

**Date Issued:** Nil

**General**

No other information relating to this parcel.

**Disclaimer**

This Summary of Records has been prepared by Department of Environment and Conservation (DEC) as a requirement of the Contaminated Sites Act 2003. DEC makes every effort to ensure the accuracy, currency and reliability of this information at the time it was prepared, however advises that due to the ability of contamination to potentially change in nature and extent over time, circumstances may have changed since the information was originally provided. Users must exercise their own skill and care when interpreting the information contained within this Summary of Records and, where applicable, obtain independent professional advice appropriate to their circumstances. In no event will DEC, its agents or employees be held responsible for any loss or damage arising from any use of or reliance on this information. Additionally, the Summary of Records must not be reproduced or supplied to third parties except in full and unabridged form.



**APPENDIX B**  
**MRS CLAUSE 42 CERTIFICATE**

# Metropolitan Region Scheme

Form 5

## Scheme Certificate

[ In accordance with the provisions of clause 42 of the Metropolitan Region Scheme text ]

The following information is furnished in respect of:

Lot: 701 Street: Mayor Road

Diagram: 55142 Locality: Munster

Certificate of title Vol: 1934 Folio: 499

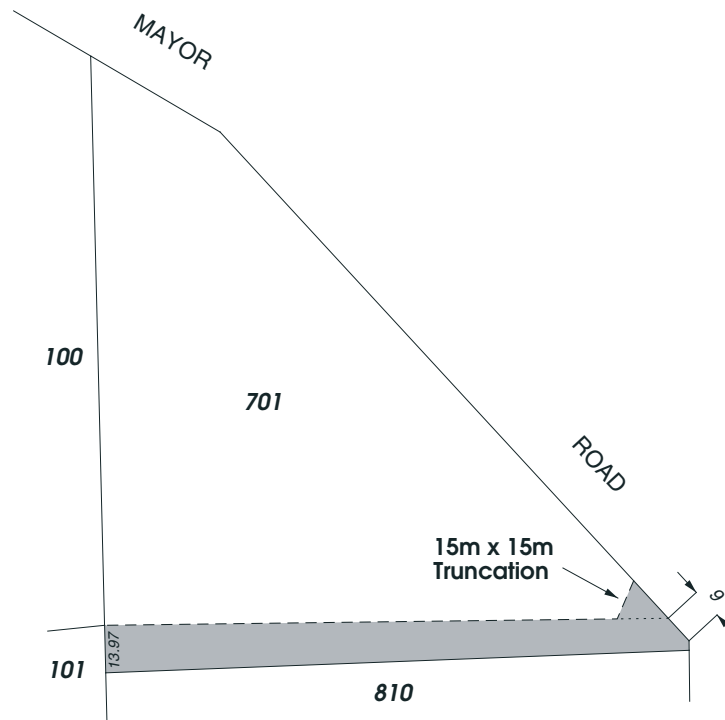
Request  
36552154

Receipt

Date  
21/4/2011

The land shaded on the sketch below is reserved  
**other regional roads (Beeliar Drive)**

The remainder of the land is zoned **urban**



All dimensions are in metres  
Subject to survey

This certificate relates only to the provisions  
of the approved Metropolitan Region Scheme  
and does not purport to indicate the land use allocation  
under any local government provision.

Produced by Mapping & GeoSpatial Data Branch,  
Department of Planning, Perth WA

Base information supplied by:  
Western Australian Land Information Authority LI 430-2009-4

Tony Evans  
Secretary  
Western Australian Planning Commission

### METROPOLITAN REGION SCHEME SCHEME CERTIFICATE

Lot 701 Mayor Road & Lot 9010 Fawcett Road, Munster  
A KJ & CP Morrison Project

0m 10 20 30m

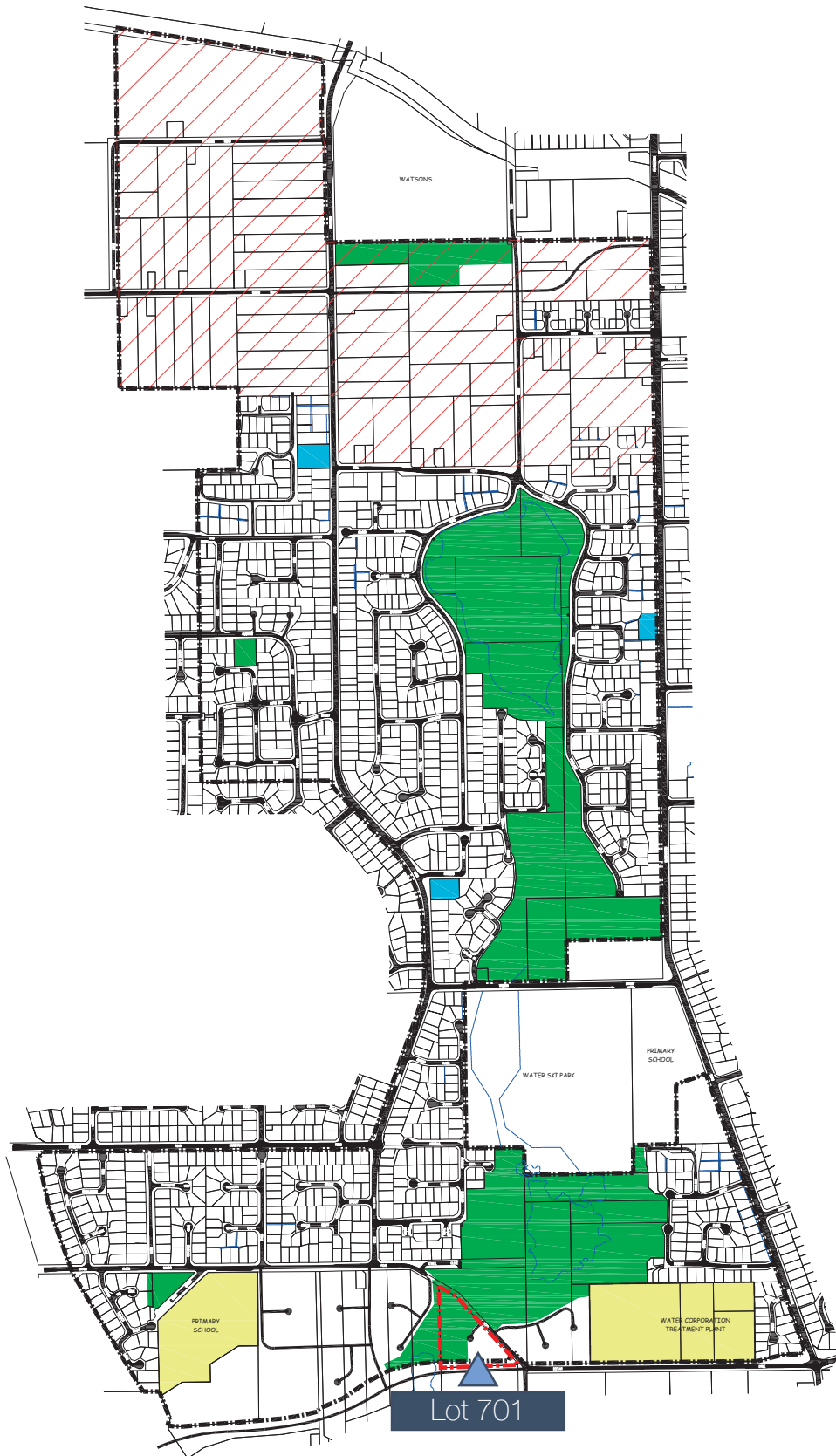
s: 1:NTS@A4  
d: April 2011  
j: 11/013



# APPENDIX C

## PACKHAM STRUCTURE PLAN





- Boundary
- Existing Road
- Future Road
- Subject to Review
- Public Open Space & Drainage
- Commercial
- Public Purposes

ADOPTED BY THE COUNCIL  
AT IT'S ORDINARY MEETING  
HELD ON 25 MAY 1999.

DIRECTOR PLANNING & DEVELOPMENT

DATE

# PACKHAM STRUCTURE PLAN

Lot 701 Mayor Road & Lot 9010 Fawcett Road, Munster  
A KJ & CP Morrison Project

0m 100 200 300m

s: 1:NTS@A4  
d: April 2011  
j: 11/013







## **APPENDIX D**

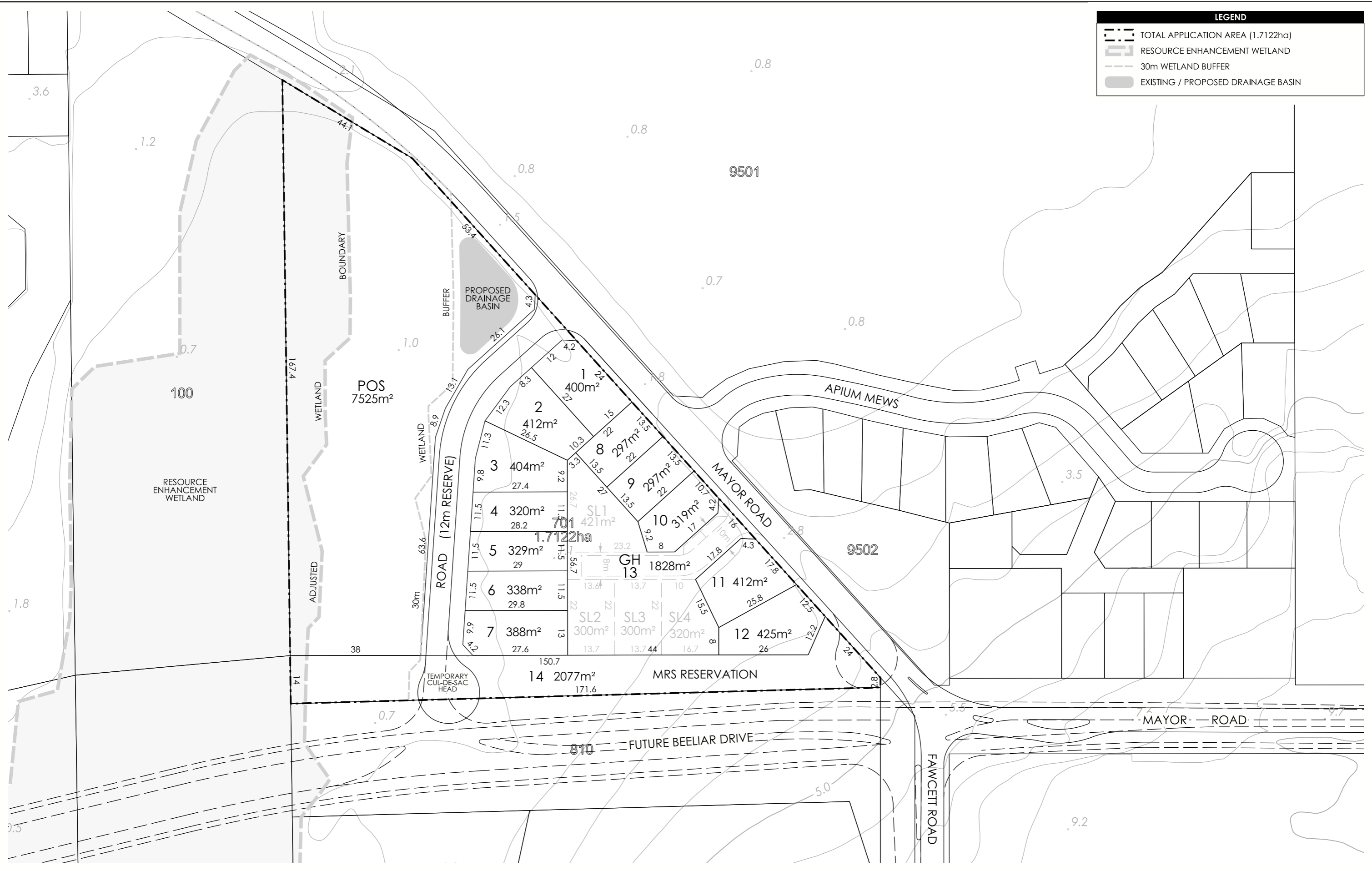
### **WETLAND ASSESSMENT AND BUFFER DEFINITION**



# PLAN OF SUBDIVISION


**LEGEND**

-  TOTAL APPLICATION AREA (1.7122ha)
-  RESOURCE ENHANCEMENT WETLAND
-  30m WETLAND BUFFER
-  EXISTING / PROPOSED DRAINAGE BASIN



**Plan of Subdivision**  
 LOT 701 MAYOR ROAD MUNSTER  
 AN AURA PTY LTD PROJECT

**Taylor Burrell Barnett**

date: 11/01/2013	designed: DR	scale: 1:1000@A3   1:500@A1
date: 11/04/2013	checked: SB	0 10 20m
projection: PCG 95	drawn: NM/DM	

**Taylor Burrell Barnett Town Planning & Design**  
 187 Roberts Road Subiaco, Western Australia 6008  
 p: (08) 9382 2911 f: (08) 9382 4586 e: admin@tbbplanning.com.au

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# **Attachment 2d**

**DEC Regional Parks Branch**  
.....**Advice**



Government of **Western Australia**  
Department of **Environment and Conservation**

Your ref: 147800  
Our ref: 2006/004246-20  
Enquiries: Catherine Prideaux  
Phone: 9219 9290  
Fax: 9219 9299  
Email: catherine.prideaux@dec.wa.gov.au

Ms Regan Douglas  
Western Australian Planning Commission  
Locked Bag 2506  
PERTH WA 6001



Dear Ms Douglas

**WAPC APPLICATION NO: 147800 – LOT 701 MAYOR ROAD, MUNSTER**

I refer to your letter dated 24 April 2013, referring the above proposed subdivision application to the Department of Environment and Conservation (DEC) for comment.

A large portion of Lot 701 is within a part of Beeliar Regional Park known as Market Garden Swamp. Market Garden Swamp contains a significant wetland and remnant vegetation. DEC has provided advice in relation to an earlier subdivision application over Lot 701 Mayor Road (WAPC Ref. 135712). The relevant aspects of this advice and additional comments are provided in the following information, which the proponent should be made aware of and provided a copy for their information.

**Wetland Management and Buffers**

A portion of Resource Enhancement management category sumpland (UFI 15167, Market Garden Swamp) occurs within Lot 701 Mayor Road, Munster. The wetland is also protected under the *Environmental Protection (Swan Coastal Plain Lakes) Policy (EPP) 1992*. Wetlands identified under this Policy are protected from land uses that will impact on their environmental values. Any development which is deemed to potentially adversely affect an EPP Lake is likely to require formal assessment by the EPA. The proponent was advised of the need to refer the proposal to the EPA on 24 May 2012, following a meeting at the offices of the City of Cockburn.

- Wetland Assessment

The *Application to Subdivide* proposes modifications to the management category of a portion of UFI 15167 within the *Geomorphic Wetlands Swan Coastal Plain* dataset (the dataset). DEC requests that proposed modifications to the dataset be submitted to the Wetlands Section and resolved prior to submission of a development proposal which may impact on wetlands. The proponent was also advised by DEC of the need to submit a modification to the dataset on 24 May 2012, following the meeting at the offices of the City of Cockburn.

DEC's Wetlands Section processes requests to modify the dataset in the order in which they are submitted. The modifications to the dataset proposed in Appendix D – *Wetland Assessment and Buffer Definition* (Bayley Environmental Services 2013) were added to the queue on 15 May 2013 upon receipt of Regional Park Unit's request for technical advice. A detailed assessment may take up to 90 days from the date it was received.

Based on an initial review of Appendix D – *Wetland Assessment and Buffer Definition* (Bayley Environmental Services 2013) and a site visit, it is possible that a portion of UFI 15167 on Lot 701

Regional Parks Unit  
7 Turner Avenue, Bentley  
Phone: (08) 9219 9290 Fax: (08) 9219 9299  
Postal Address: PO Box 1167, Bentley DC, Western Australia 6983  
www.dec.wa.gov.au

could be re-evaluated as Conservation management category and a portion as Multiple Use management category. DEC requests that WAPC defers consideration of this application until assessment of the wetland boundaries and management categories has been completed by DEC's Wetlands Section.

### **Recommendation**

That any relevant modifications to UFI 15167 within the *Geomorphic Wetlands Swan Coastal Plain* dataset be finalised prior to consideration of the proposed subdivision. The information contained within Appendix D should have been submitted to DEC's Wetlands Section prior to submission of the subdivision application to WAPC.

- Wetland Buffer

Appendix D – *Wetland Assessment and Buffer Definition* (Bayley Environmental Services 2013) includes a site specific buffer study. The buffer proposed in this document is applied to the proposed boundary of the Resources Enhancement management category portion of UFI 15167, not the current boundary of the Resource Enhancement management category wetland (whole of UFI 15176), as described in the dataset. As noted above, this proposed modification to the dataset has not yet been reviewed in detail by Wetlands Section, and therefore the Resource Enhancement management category boundary to which the buffer should be applied is yet to be determined.

The buffer study proposes a 30 metre buffer between the development and the proposed Resource Enhancement portion of UFI 15167. In accordance with *EPA Guidance Statement No. 33 – Environmental Guidance for Planning and Development (EPA 2008)* DEC's position is that a minimum 50m buffer is required to protect a wetland from proposed land use change and impacts such as weed invasion. DEC acknowledges the significant threat to the surrounding wetland posed by the highly invasive wetland weed *Juncus acutus*, and requests that a condition for the preparation and implementation of a Wetland Rehabilitation Strategy be imposed should development be approved.

- Wetland Rehabilitation Strategy

Following finalisation of any modifications to UFI 15167, DEC requests the WAPC impose a condition for the preparation and implementation of a Wetland Rehabilitation Strategy for the wetland and associated buffer within Lot 701, to the satisfaction of the City of Cockburn on the advice of DEC. It should address the impacts of the development on the wetland and include strategies to control *Juncus acutus* and other known weeds over a minimum 5 year period within the entire area of Lot 701, and to revegetate the buffer. The wetland and buffer should remain at natural ground level (without the use of fill) and revegetation should comprise local endemic species. The position of fences, gates, and management access requirements should also be addressed in the strategy. All infrastructure (including infiltration basins, grassed areas, pathways etc.) is to be located outside of the wetland and associated buffer.

DEC recommends consideration of the following condition (the City of Cockburn to be the clearing authority), following finalisation of any modification to UFI 15167:

*A Wetland Rehabilitation Strategy for the wetland and associated buffer, is to be submitted prior to the commencement of any site works, and implemented to the satisfaction of the City of Cockburn [on advice from the Department of Environment and Conservation]. (City of Cockburn)*

DEPARTMENT OF PLANNING	
12 JUN 2013	
FILE	147800

DEC recommends the following advice notes be included:

*The Wetland Rehabilitation Strategy is to include measures to control *Juncus acutus* and other known weeds, rehabilitate the buffer with native vegetation, address drainage and hydrology, management access requirements and installation of appropriate fencing or barriers.*

*The applicant is advised to apply the Guidelines Checklist for Preparing a Wetland Management Plan by the Department of Environment and Conservation (DEC). The guidelines are on the DEC internet site in the Wetlands section. The submitted plan [or rehabilitation strategy] is to clearly detail those actions that are to be implemented as part of the development.*

### **Public Open Space (POS)**

The *Beeliar Regional Park Management Plan 2006* indicates on page 11 that Market Garden Swamp 2 (area 36) is to be managed by the City of Cockburn. The relevant portion of Lot 701 Mayor Road should be ceded to the Crown for management by the City of Cockburn as a reserve for 'Conservation and Recreation' and as part of Beeliar Regional Park, to ensure the long term protection of the ecological linkage through Market Garden Swamp. This transfer should occur upon completion of the Wetland Rehabilitation Strategy, to the satisfaction of the City of Cockburn.

### **Drainage Management**

No development (including stormwater infrastructure) should be located within the wetland and associated buffer, nor should any stormwater drainage discharge directly into the adjoining wetland. Drainage design should aim to maintain natural drainage processes (where possible). This could include the use of flush kerbs with drainage infiltration swales adjacent to the road to maximise infiltration at source.

### **Midge and Mosquito Management**

There is potential for prospective purchasers of lots to be affected by midge and mosquito plagues from nearby wetlands. If requested by the City of Cockburn, notification should be placed on the Certificates of Title of the properties within the application area warning of possible midge and mosquito problems.

### **Boundary Interface Treatment and Management of Construction Activities**

The proposed subdivision encroaches on the existing boundary of Beeliar Regional Park. The management emphasis of this area within the 'Conservation and Protection' zone is to protect and where possible, enhance the biodiversity conservation values and landscape qualities of the park. DEC requests the WAPC impose a condition requiring the construction of uniform fencing along the boundary between the subdivision area and proposed POS, reserved for 'Conservation and Recreation', to the specification of the City of Cockburn. Additionally, there is to be no vegetation, earth spoil or any other debris disposed of within the boundary of the POS.

DEC recommends consideration of the following condition (the City of Cockburn to be the clearing authority):

DEPARTMENT OF PLANNING	
12 JUN 2013	
FILE	147800



*Uniform fencing to be constructed along the common boundary between the subdivision area and the Public Open Space reserved for 'Conservation and Recreation' at the completion of subdivision to protect the native vegetation rehabilitation. (City of Cockburn)*

#### **Acid Sulphate Soil Management**

DEC advice not provided, in accordance with procedures outlined in the Memorandum of Understanding between the Department of Planning and DEC.

#### **Weed Control**

In order to protect the conservation values of Beeliar Regional Park, the proponent should ensure that flora species known to be invasive or environmentally damaging are not used in any landscaping, where they may spread into the adjoining park.

#### **Fire Management**

All necessary fire management requirements should be provided for within the subdivision site, in accordance with the (Interim) *Planning for Bushfire Protection Guidelines Edition 2* (WAPC and Fire and Emergency Services Authority, May 2010) and any other relevant policies.

#### **Potentially Contaminated Site**

The site is currently classified as "possibly contaminated – investigation required" and a memorial is placed on the Certificate of Title as a result of a preliminary site investigations carried out in 2007 to assess the site's suitability for residential development. Given the uncertainties associated with the current contamination status of Lot 701, DEC's Contaminated Sites Branch cannot comment on the suitability of Lot 701 for the proposed subdivision (refer CSB advice attached). DEC therefore recommends that contamination condition EN9 and advice ENa2 should be applied to the approval, as published in 'Model Subdivision Conditions Schedule' (Department of Planning and WAPC, October 2012).

Should you have any queries regarding this application please contact Planning Officer, Catherine Prideaux of this office on telephone number 9219 9290.

Yours sincerely



Renee Evans  
A/Manager, Regional Parks Unit

10 June 2013



# **Attachment 2e**

**DEC Contaminated Sites Branch  
Advice**



Government of **Western Australia**  
Department of **Environment and Conservation**

Your ref: WAPC 147800  
Our ref: DEC5452 & 2012/3018  
Enquiries: Ross Van Amsterdam  
Phone: (08) 9333 7577  
Fax: (08) 9333 7575  
Email: ross.vanamsterdam@dec.wa.gov.a

The Secretary  
Western Australian Planning Commission  
Locked Bag 2506  
PERTH WA 6001

DEPARTMENT OF PLANNING	
12 JUN 2013	
FILE	147800

Dear Sir/Madam

**WAPC APPLICATION NUMBER 147800 – PROPOSED SUBDIVISION OF LOT 701  
MAYOR ROAD, MUNSTER**

The Department of Environment and Conservation (DEC), Contaminated Sites Branch (CSB) has reviewed the information submitted in regard to the proposed subdivision of the above-mentioned lot (WAPC Application Number 147800).

As per the requirements under section 58(6) (a) of the *Contaminated Sites Act 2003* (CS Act), advice is required with regard to the suitability of the land at Lot 701 on Diagram 55142 as shown on Certificate of Title 1934/499 for the proposed subdivision.

DEC understands that the above lot will be subdivided to create fourteen residential lots. DEC understands that the lot is currently zoned as 'residential' by the Local Government Authority, the City of Cockburn, and is zoned as 'Urban' under the Metropolitan Regional Scheme.

Under the CS Act, DEC classified land at Lot 701 on Diagram 55142, as shown on Certificate of Title 1934/499, as *possibly contaminated – investigation required* on 28 April 2011 and a memorial (reference number L616408 ML) was placed on the Certificate of Title.

The classification was based on site investigations carried out on the site in 2007 to assess the site's suitability for residential development. These investigations identified several locations across the site where general waste, including putrescible materials had been dumped.

The assessment found that the metal chromium was present in surface soils across the site at concentrations potentially exceeding Ecological Investigation Levels, as published in 'Assessment Levels for Soil, Sediment and Water' (DEC, 2010).

Fragments of asbestos-containing materials (ACM) were present on surface soils at Lot 701; however, at the time of this advice the amount of ACM at the site has not been quantified.

Groundwater investigations have not been carried out and the quality of groundwater beneath the site is unknown.

Given the uncertainties associated with the current contamination status of Lot 701, DEC cannot comment on the suitability of Lot 701 for the proposed subdivision. DEC therefore recommends that contamination condition EN9 and advice ENa2 should be applied to the approval, as published in 'Model Subdivision Conditions Schedule' (Department of Planning and WAPC, October 2012).

If you have any further queries please do not hesitate to contact Ross Van Amsterdam, Environmental Officer, on 9333 7577.

Yours faithfully



Kerry Laszig  
**MANAGER**  
**CONTAMINATED SITES BRANCH**  
**Delegated Officer under Section 91**  
**of the *Contaminated Sites Act 2003***

27 May 2013

Copy to: DEC Swan Region Land Use Planning

DEPARTMENT OF PLANNING	
12 JUN 2013	
FILE	147300