

# **Residential subdivision of Lots 5,8,9,10,15 and 16 Haigh (Garden), Bridge and Shreeve Roads**

---

**Term Pty Ltd**

**Report and recommendations  
of the Environmental Protection Authority**

**Environmental Protection Authority  
Perth, Western Australia  
Bulletin 923  
January 1999**

ISBN. 0 7309 8125 8

ISSN. 1030 - 0120

Assessment No.1234

## **Summary and recommendations**

Term Pty Ltd proposes to subdivide for residential purposes Lots 5, 8, 9 and 10 Haigh Road (Garden Street) and Lots 15 and 16 Shreeve Road, Canning Vale. This report provides the Environmental Protection Authority's (EPA's) advice and recommendations to the Minister for the Environment on the environmental factors, conditions and procedures relevant to the proposal.

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and on the conditions and procedures to which the proposal should be subject, if implemented. In addition, the EPA may make recommendations as it sees fit.

### **Relevant environmental factors**

Although a number of environmental factors were considered by the EPA in the assessment, it is the EPA's opinion that there is one environmental factor relevant to the proposal, which requires detailed evaluation in the EPA's report. This is the factor surface water quality.

### **Conclusion**

The EPA has considered the proposal by Term Pty Ltd to subdivide Lots 5, 8, 9 and 10 Haigh Road (Garden Street) and Lots 15 and 16 Shreeve Road, Canning Vale, for residential purposes, and has concluded that the proposal can be managed to meet the EPA's objectives, provided that the conditions recommended in Section 4 and set out in Appendix 2 are imposed.

### **Recommendations**

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister notes that the proposal being assessed is for the subdivision of Lots 5, 8, 9 and 10 Haigh Road (Garden Street) and Lots 15 and 16 Shreeve Road, Canning Vale, for residential purposes, and that this proposal covers land affected by the City of Gosnells Town Planning Scheme Amendment No.478 which has recently been assessed by the EPA (Bulletin 921).
2. That the Minister considers the report on the relevant environmental factor of surface water quality as set out in Section 3.
3. The Minister notes that the EPA has concluded that the proposal can be managed to meet the EPA's objectives provided there is satisfactory implementation of the recommended conditions set out in Section 4.
4. That the Minister imposes the conditions and procedures recommended in Appendix 2 of this report.
5. That the Minister notes that the recommendations for the proposal the subject of this Bulletin are consistent with the recommendations set out in Bulletin 921.

### **Conditions**

Having considered the information provided in this report, the EPA has developed a set of conditions which the EPA recommends be imposed if the proposal by Term Pty Ltd to subdivide Lots 5, 8, 9 and 10 Haigh Road (Garden Street) and Lots 15 and 16 Shreeve Road, Canning Vale, for residential purposes, is approved for implementation. These conditions are presented in Appendix 2. Matters addressed in the conditions include the requirement that the proponent prepare and implement a Drainage and Nutrient Management Plan.

# Contents

## Page

|  |           |
|--|-----------|
| <b>Summary and recommendations.....</b>  | <b>i</b>  |
| <b>1. Introduction and background .....</b>  | <b>1</b>  |
| <b>2. The proposal .....</b>   | <b>1</b>  |
| <b>3. Environmental factors .....</b>  | <b>5</b>  |
| 3.1 Relevant environmental factors .....   | 5         |
| 3.2 Surface water quality - excess nutrients entering the Swan Canning rivers system ..... | 12        |
| <b>4. Conditions.....</b>  | <b>13</b> |
| <b>5. Conclusions .....</b>  | <b>14</b> |
| <b>6. Recommendations.....</b>   | <b>14</b> |

### Tables

|  |    |
|--|----|
| 1. Summary of key proposal characteristics .....                 | 5  |
| 2. Identification of Relevant Environmental Factors .....        | 6  |
| 3. Summary of Assessment of Relevant Environmental Factors ..... | 10 |

### Figures

|  |   |
|--|---|
| 1. Location Plan .....                                     | 2 |
| 2. Outline Development Plan (TPS Amendment 478 Area) ..... | 3 |
| 3. Proposed Subdivision .....                              | 4 |

### Appendices

1. References
2. Recommended Environmental Conditions

## **1. Introduction and background**

Term Pty Ltd, the proponent, proposes to subdivide for residential purposes Lots 5, 8, 9 and 10 Haigh Road (Garden Street) and Lots 15 and 16 Shreeve Road, Canning Vale. (Figure 1).

The subdivision has a gross area of approximately 12 hectares. It includes approximately 150 single residential lots ranging in size from between 480m<sup>2</sup> and 815m<sup>2</sup>, several duplex size lots, public open space, and roads.

The land is located within the area the subject of Amendment No. 478 to the City of Gosnells Town Planning Scheme No. 1 which proposes to rezone approximately 456 hectares from "Rural" to "Residential Development" (see Outline Development Plan in Figure 2). Amendment 478 has been formally assessed by the EPA and is the subject of EPA Bulletin No. 921.

In August 1998, the subdivision was referred by the Ministry for Planning to the EPA under Section 38 of the *Environmental Protection Act 1986* in accordance with Department of Environmental Protection (DEP) advice which establishes the circumstances for subdivision referral to the EPA. This advice stipulates that subdivision applications should be referred to the EPA where the land is subject to a Town Planning Scheme Amendment which is currently being formally assessed by the EPA. This ensures that the subdivision cannot inadvertently proceed in advance of incorporating Environmental Conditions into the Planning Scheme Amendment.

The EPA set the level of assessment as Formal under Part IV of the *Environmental Protection Act 1986* in order to ensure that the proposal will be subject to environmental conditions which are consistent with those which are likely to apply to the land subject to Amendment No. 478.

The proponent was advised that no environmental review documents would be required, that the environmental assessment would be undertaken simultaneously with the assessment by the EPA of Amendment No. 478, and that further advice may be sought in relation to relevant environmental factors if needed.

Further details of the proposal are presented in Section 2 of this report. Section 3 discusses the environmental factor relevant to the proposal. Conditions and procedures to which the proposal should be subject if the Minister determines that it may be implemented are set out in Section 4, Section 5 presents the EPA's conclusion and Section 6, the EPA's recommendations.

References are listed in Appendix 1 and recommended conditions and procedures are provided in Appendix 2.

## **2. The proposal**

The proposal to subdivide for residential purposes Lots 5, 8, 9 and 10 Haigh Road (Garden Street) and Lots 15 and 16 Shreeve Road, Canning Vale.

The proposed subdivision creates approximately 150 single residential lots and several duplex size lots at a density of R17.5 (approximately 17.5 lots per hectare) as well as public open space and subdivisional roads. (See Figure 3)

Surrounding land uses include residential development in Thornlie to the immediate north and rural residential living and animal agistment on the other sides.

Public submissions relating to subdivision of the land were considered as part of an eight week public submission period for the Environmental Review (ER) of Amendment No. 478. This commenced on 15 September 1998 and ended on 10 November 1998. The City of Gosnells forwarded twelve submissions addressing environmental considerations to the Department of Environmental Protection (DEP). Whilst no submissions were specific to the site, a number raised general concerns relating to the site such as its use for rural residential living and animal agistment purposes resulting in the land being substantially cleared.

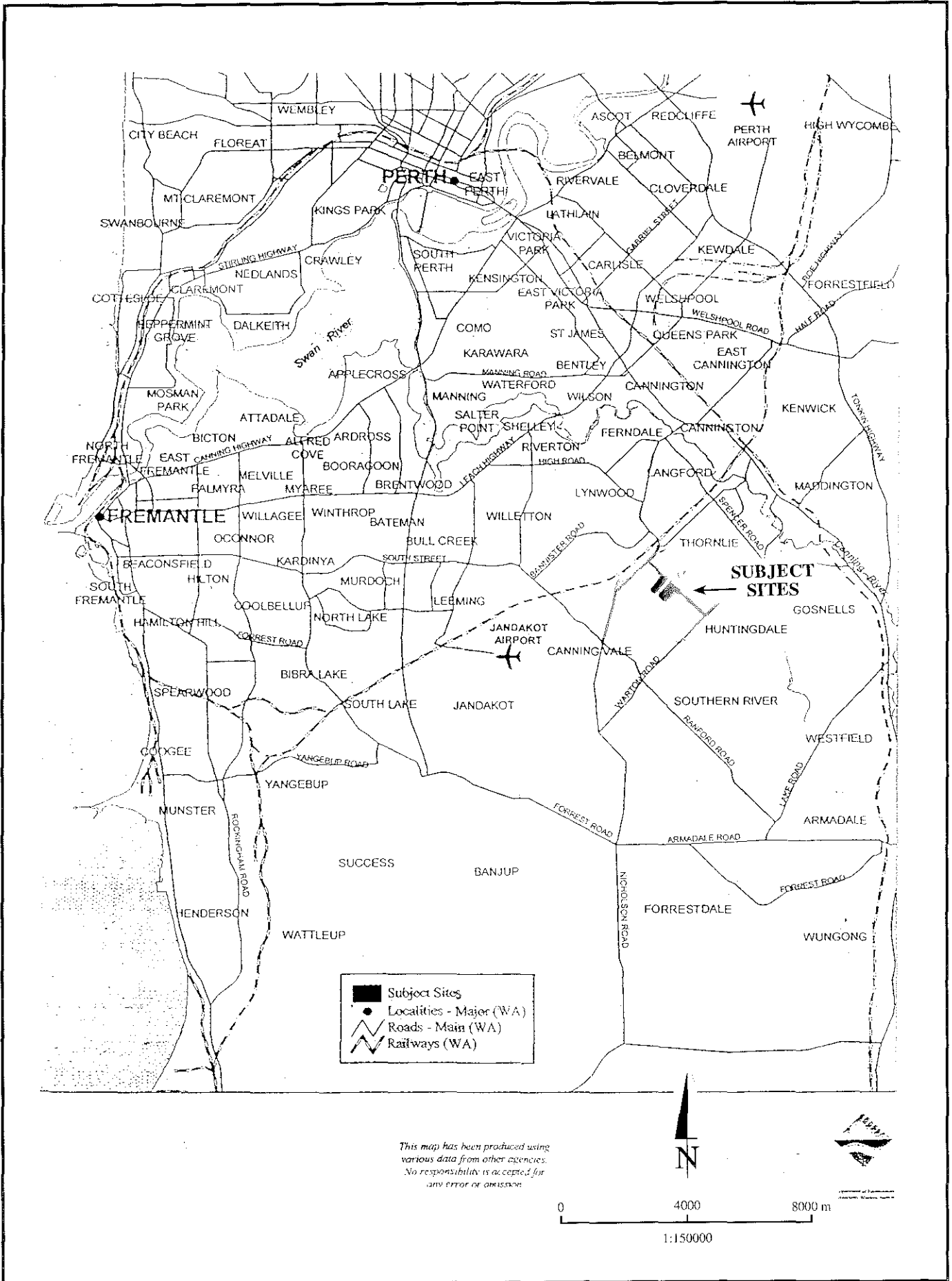


Figure 1. Location Plan.



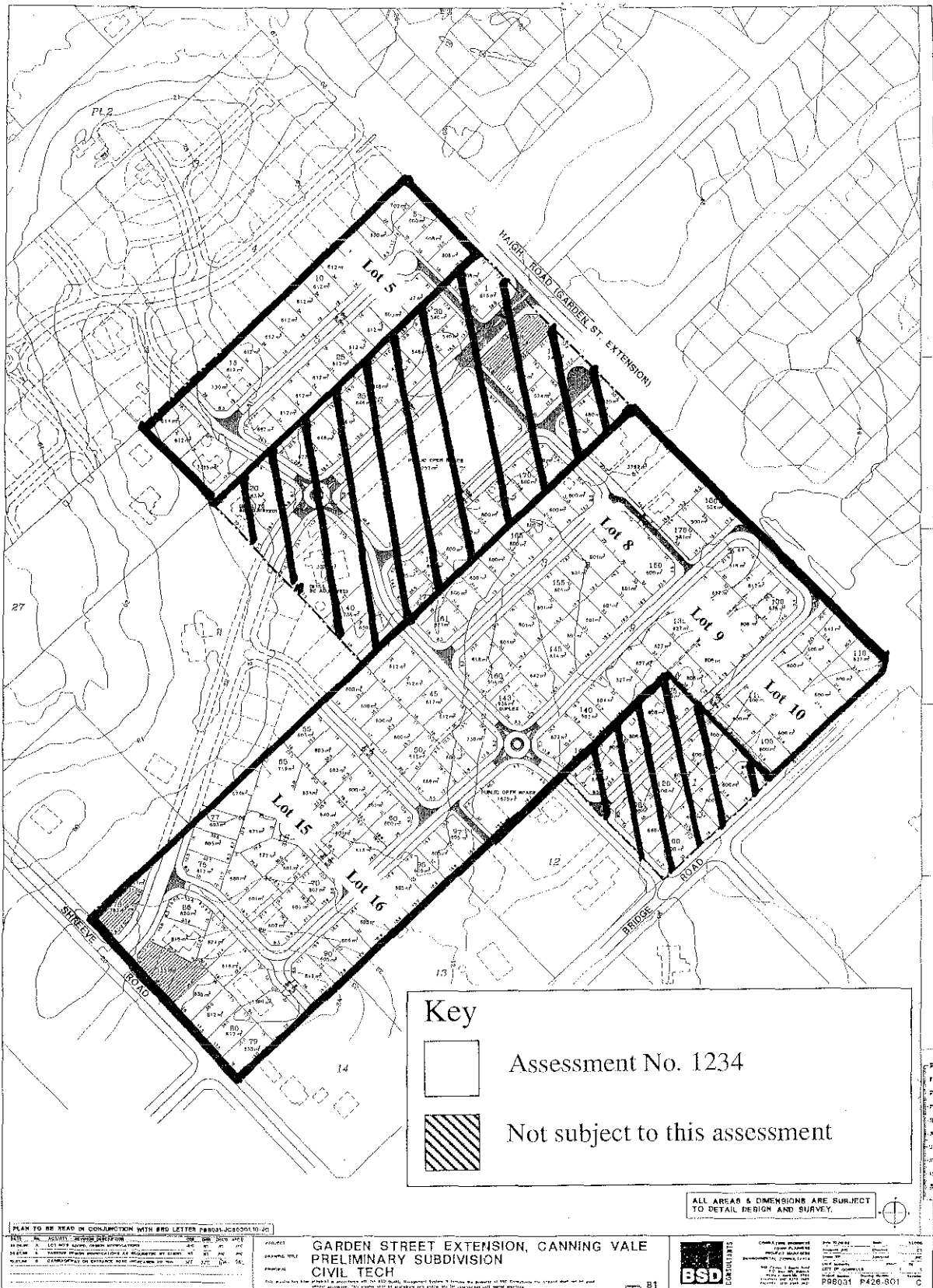


Figure 3. Proposed Subdivision.



A tongue of dampland extends through the site and some trees and small patches of remnant vegetation remain. Extensive earthworks have already occurred on Lot 5 which has included filling part of this dampland. The Water and Rivers Commission's (WRC) preliminary wetland management category for the dampland is resource enhancement (Hill *et al.*, 1996).

The proposal is located within the Swan and Canning Rivers surface water catchment and is subject to the Environmental Protection (Swan and Canning Rivers) Policy 1997. The site also lies within the Middle Canning Catchment area which has been subject of a stormwater management study by the WRC.

The main characteristics of the proposal and the site area are summarised in Table 1 below. Further details are provided in the documentation for Town Planning Scheme Amendment 478 (City of Gosnells, July 1998) and the City of Gosnells' Environmental Review document (BSD Consultants Pty Ltd, October 1997).

**Table 1: Summary of key proposal characteristics**

| Element                    | Description   |
|----------------------------|---|
| Total area of land         | 12.0165 hectares  |
| Approximate number of lots | 150 (single residential) plus several duplex size lots  |
| Size of lots               | between 480m <sup>2</sup> and 815m <sup>2</sup>   |
| Purpose of subdivision     | Residential   |
| Soil and landforms         | Bassendean Dune System with gently undulating sandy rises and intervening swampy areas            |
| Water catchment            | Southern River/Wungong subcatchment within the surface water catchment of the Swan-Canning system |
| Existing land use          | Rural residential, horse agistment, horticulture  |

### 3. Environmental factors

#### 3.1 Relevant environmental factors

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and on the conditions and procedures to which the proposal should be subject, if implemented. In addition, the EPA may make recommendations as it sees fit.

It is the EPA's opinion that the following is the environmental factor relevant to the proposal, which requires detailed evaluation in this report:

- (a) Surface water quality - excess nutrients entering the Swan-Canning rivers system.

The above relevant factor was identified from the EPA's consideration and review of all environmental factors (preliminary factors) in conjunction with the proposal characteristics, factors relevant to the site as addressed in the Environmental Review document prepared for the City of Gosnells for Amendment No. 478 to the City of Gosnells Town Planning Scheme No. 1 and the submissions received during the public review period for that Amendment. On this basis, the EPA considers that other issues raised during the assessment, including vegetation communities, terrestrial fauna, specially protected (threatened) fauna, wetlands, groundwater quality, odour, noise and public health do not require further evaluation by the EPA. The identification process is summarised in Table 2.

The relevant environmental factor is discussed in Section 3.2 of this report and summarised in Table 3.

**Table 2: Identification of Relevant Environmental Factors**

| FACTOR                 | PROPOSAL COMPONENT WITH POSSIBLE IMPACT  | GOVERNMENT AGENCY AND PUBLIC COMMENTS FOR AMENDMENT 478   | IDENTIFICATION OF RELEVANT ENVIRONMENTAL FACTORS   |
|------------------------|--|---|--|
| <b>BIOPHYSICAL</b>     |  |   |  |
| Vegetation communities | <p>The site is largely cleared with some pockets of remnant vegetation of the Southern River complex and the Bassendean Complex - Central and South (Department of Conservation and Environment 1980) remaining in dryland and wetland locations.</p> <p>There is no bushland identified by Perth's Bushplan (Western Australian Government, 1998) as regionally significant bushland on the site.</p> <p>Residential development will involve the clearing and filling of land.</p> | <p><b>Public submissions</b></p> <ol style="list-style-type: none"> <li>1. Flora surveys should be done prior to proceeding further. When detailed studies are lacking environmental values tend to be underrated. A botanical survey should be done as the Canning Vale area is noted for its species richness, in particular native orchids.</li> <li>2. The clearing of remnant vegetation whether local or regional is opposed. Far too much clearing has already occurred in Canning Vale. The protection of remnant vegetation is supported.</li> <li>3. All regionally significant bushland (as identified in a survey) should be protected.</li> <li>4. Incorporation of the significant stands of remnant vegetation into Public Open Space is supported.</li> <li>5. The vegetation ratings given to the remaining bushland shown on Plan 6 of the Environmental Review are queried, including the vegetation adjacent to Nicholson Road which is in excellent condition, not degraded as shown.</li> <li>6. Corridors along which wildlife can travel should be created.</li> </ol> <p><b>Water and Rivers Commission submission</b></p> <ol style="list-style-type: none"> <li>1. The Water and Rivers Commission recommends that clearing be kept to an absolute minimum with the retention of as much native vegetation as possible.</li> </ol> | <p>In the absence of regionally significant bushland on the site, the factor of "vegetation communities" is considered an issue to be resolved at the local level.</p> <p>This factor does not require further EPA evaluation.</p> |

| FACTOR                                 | PROPOSAL COMPONENT WITH POSSIBLE IMPACT   | GOVERNMENT AGENCY AND PUBLIC COMMENTS FOR AMENDMENT 478   | IDENTIFICATION OF RELEVANT ENVIRONMENTAL FACTORS  |
|--|---|---|---|
| Terrestrial Fauna                      | The subdivision if implemented would allow residential development to proceed. Clearing, filling of land and residential development will impact on fauna.  | <p><b>Public submissions</b></p> <ol style="list-style-type: none"> <li>1. A thorough fauna survey of the area should be undertaken prior to proceeding further. The area obviously supports a range of native fauna which would be displaced and subsequently die if the area was urbanised. When detailed studies are lacking environmental values tend to be underrated.</li> <li>2. Fauna information should cover invertebrate fauna.</li> <li>3. Corridors along which wildlife can travel should be created.</li> </ol> <p><b>CALM submission</b></p> <ol style="list-style-type: none"> <li>1. All potential habitat for the freckled duck is very valuable and the shy nature of the duck means that disturbance from human activity or pets should be avoided. CALM will be pleased to discuss ongoing management arrangements with Council.</li> </ol> | <p>In the absence of regionally significant fauna issues associated with the proposal, this factor is considered to be a matter to be resolved at the local level.</p> <p>This factor does not require further EPA evaluation.</p>                                |
| Specially Protected (Threatened) Fauna | At the time of preparation of the Environmental Review document, CALM supplied written advice that in the Warton Road area the following rare and otherwise specially protected fauna may occur - quenda, Carnaby's cockatoo, freckled duck (sighted just to the east in 1986), and the peregrine falcon. | The submissions on "terrestrial fauna" also relate to this factor.  | <p>The quenda and freckled duck are no longer listed on the Wildlife Conservation (Specially Protected Fauna) notice 1998, while the other species are not specifically associated with the area.</p> <p>This factor does not require further EPA evaluation.</p> |

| FACTOR           | PROPOSAL COMPONENT WITH POSSIBLE IMPACT   | GOVERNMENT AGENCY AND PUBLIC COMMENTS FOR AMENDMENT 478   | IDENTIFICATION OF RELEVANT ENVIRONMENTAL FACTORS   |
|------------------|---|---|--|
| Wetlands         | <p>Approximately 20% of the site is classified as "dampland - preliminary wetland management category resource enhancement", by the WRC's wetland mapping work (Hill, AL et al, 1996).</p> <p>There are no sites identified as Bushplan sites in the area (Western Australian Government November, 1998).</p> | <p><b>Public submissions</b></p> <ol style="list-style-type: none"> <li>1. The loss of wetland is inconsistent with State and Commonwealth Government policies and Local Agenda 21.</li> <li>2. EPA Bulletins do not condone the loss of any wetlands and require wetlands to be replaced. .</li> <li>3. The restoration and rehabilitation of wetlands is supported.</li> <li>4. Paperbarks cannot survive unless they dry out on a seasonal basis. Where they are preserved as part of a compensating basin this requirement must be met.</li> <li>5. .Bushland in wetlands in the metropolitan area should not be cleared.</li> <li>6. The description "downgraded" as applied to wetlands is often very misleading. Wetlands with high levels of weed infestation may provide outstanding fauna habitat.</li> <li>7. Compensating basins are often substituted for natural wetlands, but in ecological terms the exchange is not a fair one. Compensating basins lack the seasonal habitat variations of natural wetlands.</li> </ol> | <p>In the absence of regionally significant wetland issues associated with the proposal, this factor is considered to be a matter to be resolved at the local level.</p> <p>This factor does not require further EPA evaluation.</p> |
| <b>POLLUTION</b> |   |   |  |

| FACTOR                  | PROPOSAL COMPONENT WITH POSSIBLE IMPACT   | GOVERNMENT AGENCY AND PUBLIC COMMENTS FOR AMENDMENT 478   | IDENTIFICATION OF RELEVANT ENVIRONMENTAL FACTORS  |
|-------------------------|---|---|---|
| Surface water quality   | <p>Increased runoff and a rise in the water table normally associated with urban development may lead to excess nutrients draining towards wetlands on the site, and the export of excess nutrients from the Amendment area ultimately discharging into the Swan-Canning system.</p> <p>The site contains a network of seasonally waterlogged wetlands.</p> | <p><b>Water and Rivers Commission Submission</b></p> <ol style="list-style-type: none"> <li>1. Water conservation and water sensitive design are strongly recommended as features of this development.</li> <li>2. The Water and Rivers Commission will not accept any lowering of the groundwater as this will lead to an export of nutrients off the site and will also adversely impact upon remnant vegetation. Subsoil drains may be installed to control rises in groundwater as a result of urbanisation but should be located no lower than the AAMGL.</li> <li>3. The use of bores for domestic purposes, in accordance with the Commission's policy, is also encouraged as a means of reducing the importation of scheme water and controlling groundwater rise.</li> <li>4. The Commission applauds the proponent's decision to provide drainage within Multiple Use Corridors, as recommended by Stage 2 of the Middle Canning Catchment Study. The corridors are recommended to be a minimum width of 30 metres.</li> <li>5. Nutrient stripping basins and/or detention basins must have the capacity to contain runoff from a 1 in 10 year average recurrence internal storm.</li> </ol> <p><b>Public submissions</b></p> <ol style="list-style-type: none"> <li>1. Compensating basins must be cleared out regularly, or become polluted waterbodies which kill wildlife.</li> <li>2. The design of compensating basins should be such that nutrients and pollutants can be physically removed.</li> </ol> | <p>The factor surface water quality is considered to be a relevant environmental factor.</p>  |
| <b>SOCIAL SURROUNDS</b> |   |   |   |
| Public Health           | <p>Much of the site is low lying and may require fill to ensure a satisfactory separation between floor levels and groundwater.</p>   | <p><b>Water and Rivers Commission submission</b></p> <ol style="list-style-type: none"> <li>1. Separation between the building pad and Annual Average Maximum Groundwater level (AAMGL) should comply with local authority and Health Department of WA regulations, however, a minimum building floor level of 1.2 metres above the AAMGL is recommended.</li> </ol>  | <p>The height of floor levels above the groundwater table is a matter dealt with by other legislation. This factor does not require further EPA evaluation.</p> |

**Table 3: Summary of Assessment of Relevant Environmental Factors**

| RELEVANT FACTOR                                    | RELEVANT AREA          | EPA OBJECTIVES   | EPA ASSESSMENT   | EPA ADVICE  |
|--|------------------------|--|--|---|
| Surface water quality - Swan Canning rivers system | Swan Canning catchment | To maintain or enhance the quality of water so that existing and potential uses, including ecosystem maintenance, are protected consistent with the Environmental Protection (Swan and Canning Rivers) Policy 1997, and West Australian Water Quality Guidelines for Fresh and Marine Waters (EPA Bulletin 711). | <p>The Environmental Protection (Swan and Canning Rivers) Policy 1997 as gazetted in July 1998 applies. Within the environmental protection policy area, State and local authorities are required to take decisions and actions that are consistent with the objective to protect the water quality of the Swan Canning river systems for specified beneficial uses.</p> <p>To achieve the environmental quality objectives for the policy area:</p> <ul style="list-style-type: none"> <li>• drainage systems should be designed, constructed and operated in accordance with best management practices, and in order to prevent and mitigate land degradation; and</li> <li>• strategies should be developed and implemented to prevent litter from entering drainage systems.</li> <li>• regard shall be had for maintaining the natural landscape amenity of the policy area.</li> </ul> <p>Water quality targets for the Swan-Canning system are included in the Swan River Trust's "Swan-Canning Cleanup Program Draft Action Plan" 1998. The West Australian Water Quality Guidelines for Fresh and Marine Waters provide criteria for protecting aquatic ecosystems.</p> <p>The sites lie within a drainage catchment has been investigated as part of the Middle Canning Catchment Study commissioned by the former Water Authority of Western Australia.</p> <p>Recommendations for stormwater management were prepared for the Middle Canning Catchment as a demonstration case study for water sensitive design. The Middle Catchment Study promotes the use of multiple use corridors linked wherever possible to areas</p> | <p>Having particular regard for:</p> <ol style="list-style-type: none"> <li>a) the high nutrient status of the Swan-Canning system;</li> <li>b) the high water table under much of the sites;</li> <li>c) the location of part of the sites in a sub-catchment of the Swan-Canning system known to be a major contributor of nutrients;</li> <li>d) the provisions of the Environmental Protection (Swan and Canning Rivers) Policy 1997;</li> <li>e) the likely reduction in nutrient loads from the sites compared with current land uses;</li> <li>f) the EPA recommendation for Amendment 478 that requires the preparation of a Drainage and Nutrient Plan; and,</li> <li>g) WRC advice;</li> </ol> <p>it is the EPA's opinion that the proposal can be managed to meet the EPA's objective, subject to the condition, as follows.</p> |

|  |  |  |  |   |
|--|--|--|--|---|
|  |  |  | <p>of remnant vegetation and does not accept the export of groundwater below the predevelopment average annual maximum groundwater level (AAMGL) as this will lead to an export of nutrients. The Middle Canning Catchment recommendations encompass nutrient stripping and flow attenuation, and subsoil drains to control water table (provided no lower than AAMGL).</p> <p>As part of the Environmental Review for amendment No. 478 a study was done comparing estimated nutrient export from the Amendment area before and after development. The study showed that a reduction in phosphorous export from the site could be met.</p> <p>The draft Amendment provisions refer to the use of water sensitive design principles and best management practices including swales, detention basins, artificial wetlands and gross pollutant traps the main drainage system as a series of compensating basins in multiple use corridors, and drainage plans. Water quality testing of the drainage system by the City of Gosnells is proposed.</p> | <ul style="list-style-type: none"><li>• The proponent should be required to develop consistent with the Drainage and Nutrient Management Plan and/or any other relevant environmental conditions that will apply to the sites in relation to Amendment No. 478.</li></ul> |
|--|--|--|--|---|

### **3.2 Surface water quality - excess nutrients entering the Swan Canning rivers system**

#### **Description**

The land subject to this assessment is within the area affected by the City of Gosnells Town Planning Scheme No.1 Amendment No. 478. It is located within the Swan and Canning Rivers surface water catchment and is subject to the Environmental Protection (Swan and Canning Rivers) Policy 1997.

The land is generally low lying with approximately 20% per cent of the subdivision site identified as dampland (seasonally inundated basin) on the map entitled "Wetlands of Mapsheet 2033 1 NE - Wetland Mapping Classification and Evaluation" plotted from the Water and Rivers Commission's Wetland Mapping System for the Swan Coastal Plain March 1998.

The Environmental Review document for Amendment No.478 identifies three main drainage sub-catchments in the Amendment area, generally aligned in a north south direction and draining towards the north. The proposal lies within the eastern sub-catchment. The Environmental Review indicates that this catchment will discharge compensated drainage into existing drains under the control of the Water Corporation. These drains ultimately drain into the Canning River.

The proposal is in the Southern River/Wungong sub-catchment. This catchment is considered to be one of the four most significant contributors of nutrients to the Swan-Canning system (Swan River Trust, 1998).

The residential development resulting from this proposed subdivision is to be seweraged.

The submission made by the WRC relevant to the surface water quality of the Swan-Canning system is summarised below:

- Water conservation and water sensitive design are strongly recommended as features of this development. The WRC applauds the decision to provide drainage within multiple use corridors. These corridors should be a minimum width of 30 metres;
- WRC will not accept any lowering of the groundwater as this will lead to an export of nutrients off the site;
- Subsoil drains should be located no lower than the annual average maximum groundwater level (AAMGL);
- The WRC encourages the use of bores for domestic purposes as a means of controlling groundwater rise; and
- WRC recommends that as much remnant vegetation be retained as possible.

#### **Assessment**

The area considered for assessment of this factor is the surface water catchment of the Swan - Canning system.

The EPA's objective in regard to this environmental factor is to maintain or enhance the quality of surface water so that existing and potential uses, including ecosystem maintenance, are protected consistent with the Environmental Protection (Swan and Canning Rivers) Policy 1997, and the Western Australian Water Quality Guidelines for Fresh and Marine Waters (Environmental Protection Authority, October 1993).

The potential environmental impacts of subdivision of the site include the export of excessive levels of nutrients from the site in drainage water to be discharged ultimately into the Swan-Canning system. This river system experiences a water quality problem fuelled by high concentrations of nutrients entering from its catchment.



The Environmental Protection (Swan and Canning Rivers) Policy 1997 gazetted in July 1998 applies to the proposal, and recognises the degradation of water quality in the Policy area as a significant issue. Within the Policy area, State and local authorities are required to take decisions and actions that are consistent with the objective to protect the water quality of the Swan-Canning system. The Policy states that drainage systems should be designed, constructed and operated in accordance with best management practices.

To provide guidelines and practices to reduce nutrient inputs to stormwater drainage schemes, the WRC and other authorities commissioned the preparation of manuals containing water sensitive urban design principles and best management practices (Whelans et al, 1993, and Evangelisti & Associates, 1998).

The Environmental Review includes calculations for loadings of the nutrients phosphorus and nitrogen produced by landuses within the Amendment area before and after development (BSD Consultants Pty Ltd, October 1997). The WRC has confirmed that the finding of the BSD study that there will be a reduction in the export of nutrients when the Amendment area is redeveloped as residential is correct (fax from WRC 8 October 1998).

In Bulletin 921 (the EPA's report on Amendment 478), the EPA recommends that a condition be imposed that requires the preparation and implementation of Drainage and Nutrient Management Plans prior to development within any sub-catchment of the Amendment area. These plans should incorporate water sensitive urban design principles and best management practices, monitoring requirements and contingency provisions in the event that the criteria established for water quality and quantity are not met.

In the event that this subdivision proposal is approved prior to Amendment 478 being finalised and gazetted, the EPA recommends that an Environmental Condition be imposed in relation to this factor to ensure the proposal will be consistent with the recommendations associated with Amendment 478 (Appendix 3 of the EPA's Bulletin 921).

Specifically, the EPA recommends that a condition is imposed that requires the preparation and implementation of a Drainage and Nutrient Management Plan for the subcatchment within the area subject to Amendment 478 containing the subdivision proposal prior to implementation of the proposal. This Drainage and Nutrient Management Plan should be prepared to incorporate water sensitive urban design principles and best management practices, monitoring requirements and contingency provisions in the event that the criteria established for water quality and quantity are not met as set out in Appendix 2.

Having particular regard to the:

- (a) the high nutrient status of the Swan-Canning system;
- (b) the high water table under much of the site;
- (c) the location of part of the site in a sub-catchment of the Swan-Canning system known to be a major contributor of nutrients;
- (d) the provisions of the Environmental Protection (Swan and Canning Rivers) Policy 1997;
- (e) the likely reduction in nutrient loads from the site compared with current land uses;
- (f) the EPA recommendation for Amendment 478 that requires the preparation of a Drainage and Nutrient Plan; and
- (g) WRC advice;

it is the EPA's opinion that the proposal if implemented can meet the EPA's environmental objective for surface water quality, provided that a condition requiring the preparation and implementation of a Drainage and Nutrient Management Plan is imposed as set out in Appendix 2.

## **4. Conditions**

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and on the conditions and procedures to which the proposal should be subject, if implemented. In addition, the EPA may make recommendations as it sees fit.

Having considered the information provided in this report, the EPA has developed a set of conditions which the EPA recommends be imposed if the proposal by Term Pty Ltd to subdivide for residential purposes Lots 5, 8, 9 and 10 Haigh Road (Garden Street) and Lots 15 and 16 Shreeve Road, Canning Vale is approved for implementation. These conditions are presented in Appendix 2. Matters addressed in the conditions include the requirement that the proponent prepare and implement a Drainage and Nutrient Management Plan.

## **5. Conclusions**

The EPA has considered the proposal by Term Pty Ltd to subdivide Lots 5, 8, 9 and 10 Haigh Road (Garden Street) and Lots 15 and 16 Shreeve Road, Canning Vale, for residential purposes, and has concluded that the proposal can be managed to meet the EPA's objectives, provided that the conditions recommended in Section 4 and set out in Appendix 2 are imposed.

## **6. Recommendations**

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and on the conditions and procedures to which the proposal should be subject, if implemented. In addition, the EPA may make recommendations as it sees fit.

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister notes that the proposal being assessed is for the subdivision of Lots 5, 8, 9 and 10 Haigh Road (Garden Street) and Lots 15 and 16 Shreeve Road, Canning Vale, for residential purposes, and that this proposal covers land affected by the City of Gosnells Town Planning Scheme Amendment No.478 which has recently been assessed by the EPA (Bulletin 921).
2. That the Minister considers the report on the relevant environmental factor of surface water quality as set out in Section 3.
3. The Minister notes that the EPA has concluded that the proposal can be managed to meet the EPA's objectives provided there is satisfactory implementation of the recommended conditions set out in Section 4.
4. That the Minister imposes the conditions and procedures recommended in Appendix 2 of this report.
5. That the Minister notes that the recommendations for the proposal the subject of this Bulletin are consistent with the recommendations set out in Bulletin 921.

**Appendix 1**  
**References**

- BSD Consultants Pty Ltd October 1997, *Canning Vale Environmental Review: Completed for the City of Gosnells' Town Planning Scheme No. 1 - Amendment No. 478*, Prepared for City of Gosnells, BSD Consultants Pty Ltd, Subiaco WA
- City of Gosnells January 1998, *City of Gosnells Town Planning Scheme No. 1*, City of Gosnells, Perth WA
- City of Gosnells July 1998, *Canning Vale Scheme Amendment No. 478 - Report and Structure Plan*, City of Gosnells, Perth WA
- Environmental Protection Authority October 1993, *Draft Western Australian Water Quality Guidelines for Fresh and Marine Waters*, Bulletin 711, Environmental Protection Authority, Perth WA
- Evangelisti & Associates et al 1996a, *Water Resources Management Study; Middle Canning Catchment (Stage 1 - Volume 1)*, prepared for the Water Authority of Western Australia, Perth WA
- Evangelisti & Associates et al 1996b, *Water Resources Management Study: Middle Canning Catchment (Stage 2 - Volume 1) Stormwater Management Plan for Forrestdale, Banjup and Huntingdale Areas*, prepared for the Water and Rivers Commission and Water Corporation, Perth WA
- Evangelisti & Associates 1998, *A Manual for Managing Urban Stormwater Quality in Western Australia*, prepared for the Water and Rivers Commission, Perth WA
- Hill, A.L.; Semeniuk, C.A.; Semeniuk, V. and Del Marco, A. 1996, *Wetlands of the Swan Coastal Plain, Volume 2B Wetland Mapping, Classification and Evaluation, Wetland Atlas*, Water and Rivers Commission and the Department of Environmental Protection, Perth WA
- Swan River Trust 1998, *Swan-Canning Cleanup Program: Draft Action Plan: An Action Plan to Clean Up the Swan-Canning Rivers and Estuary*, Water and Rivers Commission, Perth WA
- Western Australian Government July 1998, *Environmental Protection (Swan and Canning Rivers) Policy Approval Order 1998: Environmental Protection Act 1986*, Western Australian Government Gazette No. 140, 10 July 1998, Perth WA
- Whelans and Halpern Glick Maunsell 1993, *Planning and Management Guidelines for Water Sensitive Urban (Residential) Design*, prepared for the Department of Planning and Urban Development, the Water Authority of Western Australia and the Environmental Protection Authority, Whelans, Mount Hawthorn WA

## **Appendix 2**

### **Recommended Environmental Conditions**

**RESIDENTIAL SUBDIVISION OF LOTS 5, 8 AND 9 HAIGH ROAD  
(GARDEN STREET) AND LOTS 15 AND 16 SHREEVE ROAD,  
CANNING VALE (CITY OF GOSNELLS)**

**Proposal:** To subdivide for residential purposes Lots 5, 8, 9 and 10 Haigh Road (Garden Street) and Lots 15 and 16 Shreeve Road, Canning Vale (City Of Gosnells) located as shown on Figure 1 attached. The subdivision has a gross area of approximately 12 hectares. It includes approximately 150 single residential lots ranging in size from between 480m<sup>2</sup> and 815m<sup>2</sup>, several duplex size lots, public open space, and roads.

**Proponent:** Term Pty Ltd

**Proponent Address:** PO Box 1504, Canning Vale WA 6970

**Assessment Number:** 1234

**Report of the Environmental Protection Authority:** Bulletin 923

The proposal to which the above report of the Environmental Protection Authority relates may be implemented subject to the following conditions and procedures:

**1 Drainage and Nutrient Management Plan**

1-1 Prior to implementation of the proposal (ie commencement of earthworks) and in the event that the site is not zoned for the purposes of residential development, the proponent shall prepare a Drainage and Nutrient Management Plan for the subcatchment containing the subdivision proposal contained within the area defined by the proposed City of Gosnells Town Planning Scheme Amendment 478, to meet the following objective:

- to maintain or enhance the quality of water so that existing and potential uses, including ecosystem maintenance, are protected consistent with the Environmental Protection (Swan and Canning Rivers) Policy 1997, and the Western Australian Water Quality Guidelines for Fresh and Marine Waters (Environmental Protection Authority Bulletin 711);

to the requirements of the Environmental Protection Authority on advice of the Water and Rivers Commission, the City of Gosnells, the Water Corporation and the local Catchment Management Group.

The Plan shall include:

1. management actions and objectives consistent with the Environmental Protection (Swan and Canning Rivers) Policy, relevant subregional drainage and catchment management plans, and water sensitive urban design principles and best management practices;
2. mechanisms to minimise erosion during and after the development phase;
3. a monitoring program including definition of performance criteria and analysis procedures to demonstrate whether the objectives of the Plan are being met;
4. contingency measures to be implemented in the event that the performance criteria are not met; and
5. identification of responsibilities for implementation of the Plan.

- 1-2 The proponent shall implement the Drainage and Nutrient Management Plan referred to in condition 1-1 to the extent specified in the Plan, to the requirements of the Environmental Protection Authority.

## **2 Proponent**

- 2-1 The proponent for the time being nominated by the Minister for the Environment under section 38(6) or (7) of the Environmental Protection Act 1986 is responsible for the implementation of the proposal until such time as the Minister for the Environment has exercised the Minister's power under section 38(7) of the Act to revoke the nomination of that proponent and nominate another person in respect of the proposal.
- 2-2 Any request for the exercise of that power of the Minister referred to in condition 2-1 shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the proposal in accordance with the conditions and procedures set out in the statement.
- 2-3 The proponent shall notify the Department of Environmental Protection of any change of proponent contact name and address within 30 days of such change.

## **3 Commencement**

- 3-1 The proponent shall provide evidence to the Minister for the Environment within five years of the date of this statement that the proposal has been substantially commenced.
- 3-2 Where the proposal has not been substantially commenced within five years of the date of this statement, the approval to implement the proposal as granted in this statement shall lapse and be void. The Minister for the Environment will determine any question as to whether the proposal has been substantially commenced.
- 3-3 The proponent shall make application to the Minister for the Environment for any extension of approval for the substantial commencement of the proposal beyond five years from the date of this statement at least six months prior to the expiration of the five year period referred to in conditions 3-1 and 3-2.
- 3-4 Where the proponent demonstrates to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority that the environmental parameters of the proposal have not changed significantly, then the Minister may grant an extension not exceeding five years for the substantial commencement of the proposal.

## **4 Compliance Auditing**

- 4-1 The proponent shall submit periodic Performance and Compliance Reports, in accordance with an audit program prepared in consultation between the proponent and the Department of Environmental Protection.
- 4-2 Unless otherwise specified, the Chief Executive Officer of the Department of Environmental Protection is responsible for assessing compliance with the conditions, procedures and commitments contained in this statement and for issuing formal clearances.
- 4-3 Where compliance with any condition, procedure or commitment is in dispute, the matter will be determined by the Minister for the Environment.

## **Note**

1. Unless otherwise specified, the Department of Environmental Protection is responsible for assessing compliance with the conditions contained in this statement and for issuing formal clearance to these conditions. Ongoing auditing by the Department of Environmental Protection will not be required after the land is appropriately zoned for residential development.
2. Where compliance with any condition is in dispute, the matter will be determined by the Minister for the Environment.