

**City of Gosnells Town Planning Scheme No. 1
Amendment No. 478 - Residential Development
Zone Canning Vale**

City of Gosnells

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

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Summary and recommendations

The City of Gosnells has initiated Amendment No. 478 to the City of Gosnells Town Planning Scheme No. 1 for the purposes of rezoning an area of approximately 465 hectares in Canning Vale from “Rural” zone to “Residential Development” zone and “Public Purposes High School” reserve. This report provides the Environmental Protection Authority’s (EPA’s) advice and recommendations to the Minister for the Environment on the environmental factors and conditions relevant to the Amendment.

Section 48D of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the Amendment and on the conditions to which the Amendment 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 the following are the environmental factors relevant to the Amendment, which require detailed evaluation in the report:

- (a) Wetlands - protection of conservation category wetlands; and
- (b) Surface water quality - excess nutrients entering the Swan-Canning system and conservation category wetlands.

The EPA has also provided advice in relation to groundwater quality, noise and odour in Section 5.

Conclusion

The EPA has concluded that Amendment No. 478 to the City of Gosnells Town Planning Scheme No. 1 to rezone the land generally bounded by Haigh Road (Garden Street), Nicholson Road, Lansdowne Entrance, Nicholson Court, Fraser Road, Dumbarton Road, Campbell Road, Amherst Road and Warton Road from “Rural” zone to “Residential Development” zone and “Public Purposes High School” reserve can be implemented to meet the EPA’s objectives, provided the conditions recommended in Section 4 and set out in Appendix 3 are imposed and enforced.

Recommendations

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

1. That the Minister notes the Planning Scheme Amendment being assessed is for the purpose of rezoning an area of approximately 465 hectares in Canning Vale from “Rural” zone to “Residential Development” zone and “Public Purposes High School” reserve.
2. That the Minister considers the report on the relevant environmental factors of wetlands and surface water quality, as set out in Section 3.
3. That the Minister notes the EPA has concluded that the Amendment could be implemented 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 recommended in Appendix 3.

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 Amendment is approved. These conditions are presented in Appendix 3. Matters addressed in the conditions include the following:

- (a) the setting aside of land for public open space reserve (conservation) purposes to protect the conservation category wetlands in the Amendment area;
- (b) the boundary of the public open space (conservation) reserve around the wetland that includes the existing Shreeve Road reserve 38134 be at least 50 metres from the edge of the wetland dependant vegetation, wherever practical;
- (c) a Wetland Management Plan be prepared and implemented for each conservation category wetland and its buffer; and
- (d) a Drainage and Nutrient Management Plan be prepared and implemented for each drainage sub-catchment in the Amendment area.

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1. Introduction and background

The City of Gosnells initiated Amendment No. 478 to the City of Gosnells Town Planning Scheme No. 1 for the purposes of rezoning an area of approximately 465 hectares in Canning Vale from “Rural” zone to “Residential Development” zone and “Public Purposes High School” reserve. The location of the Amendment area is shown on Figure 1. The area is currently zoned “Urban” and “Public Purposes High School” reserve under the Metropolitan Region Scheme.

Amendment No. 478 was initiated to bring the zoning under the local town planning scheme into conformity with the Metropolitan Region Scheme, as required by the *Metropolitan Region Town Planning Scheme Act 1959*.

The Amendment was referred to the EPA on 1 April 1997 and the level of assessment was set at Environmental Review on 24 April 1997.

The eight week public submission period for the Environmental Review commenced on 15 September 1998 and ended on 10 November 1998.

The purpose of undertaking an environmental impact assessment on planning schemes and planning scheme amendments is to identify if the intended land use is environmentally acceptable in conjunction with planning mechanisms, and if so, what environmental conditions/scheme provisions should apply, and when these should be addressed or implemented.

Further details on the Amendment are presented in Section 2 of this report. Section 3 discusses environmental factors relevant to the Amendment. Conditions to which the Amendment should be subject if it is to be implemented are set out in Section 4. The EPA provides other advice in Section 5. Section 6 presents the EPA’s conclusion, and Section 7, the EPA’s recommendations.

A list of people and organisations that made submissions is included in Appendix 1. References are listed in Appendix 2, and recommended conditions are provided in Appendix 3.

The Department of Environmental Protection’s (DEP) summary of submissions has been published separately and is available in conjunction with this report. The City of Gosnells did not formally respond to the environmental issues raised in the submissions that were lodged during the public review period, but did provide some comment.

2. The Amendment

Amendment No. 478 to the City of Gosnells Town Planning Scheme No. 1 was initiated to:

- rezone the land generally bounded by Haigh Road (Garden Street), Nicholson Road, Lansdowne Entrance, Nicholson Court, Fraser Road, Dumbarton Road, Campbell Road, Amherst Road and Warton Road from “Rural” zone to “Residential Development” zone;
- reclassify land bounded by Dumbarton Road, Fraser Road and Comrie Road to “Public Purpose High School” reserve; and
- amend the City of Gosnells Town Planning Scheme No. 1 Scheme Text by introducing the “Residential Development” zone and associated provisions, including special provisions to apply to the subject land.

The Amendment documentation together with the Environmental Review document and an Outline Development Plan for the Amendment area was released for public comment on 15 September 1998. The public comment period ended on 10 November 1998.

The Outline Development Plan, as shown in Figure 2, provides for residential development over most of the Amendment area at a density of R17.5 (equates to approximately 12 lots per hectare), nodes of higher density, a mixed use area in the centre of each neighbourhood unit, public open space, schools, a church precinct and a road hierarchy.

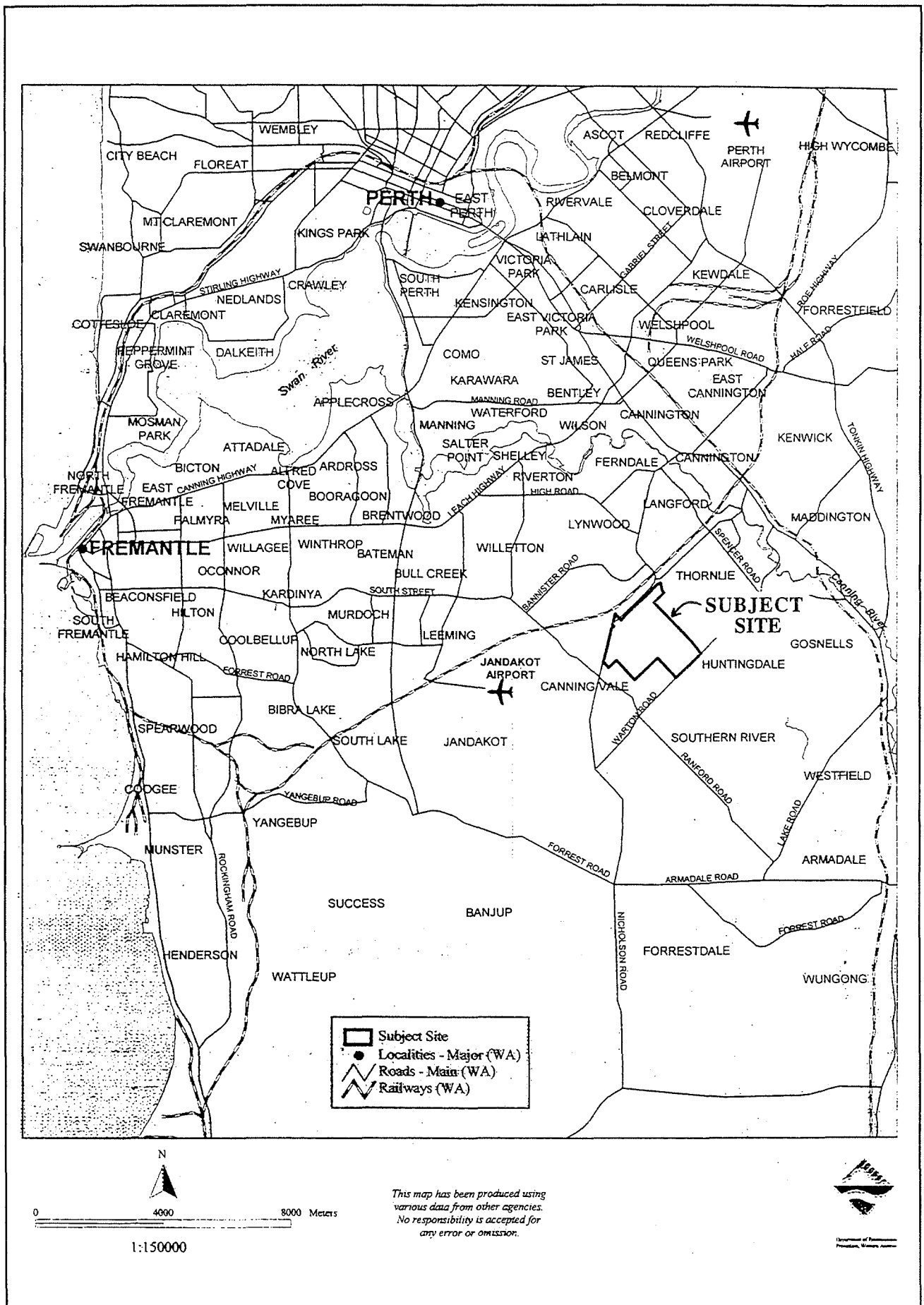


Figure 1. Location of Amendment area.

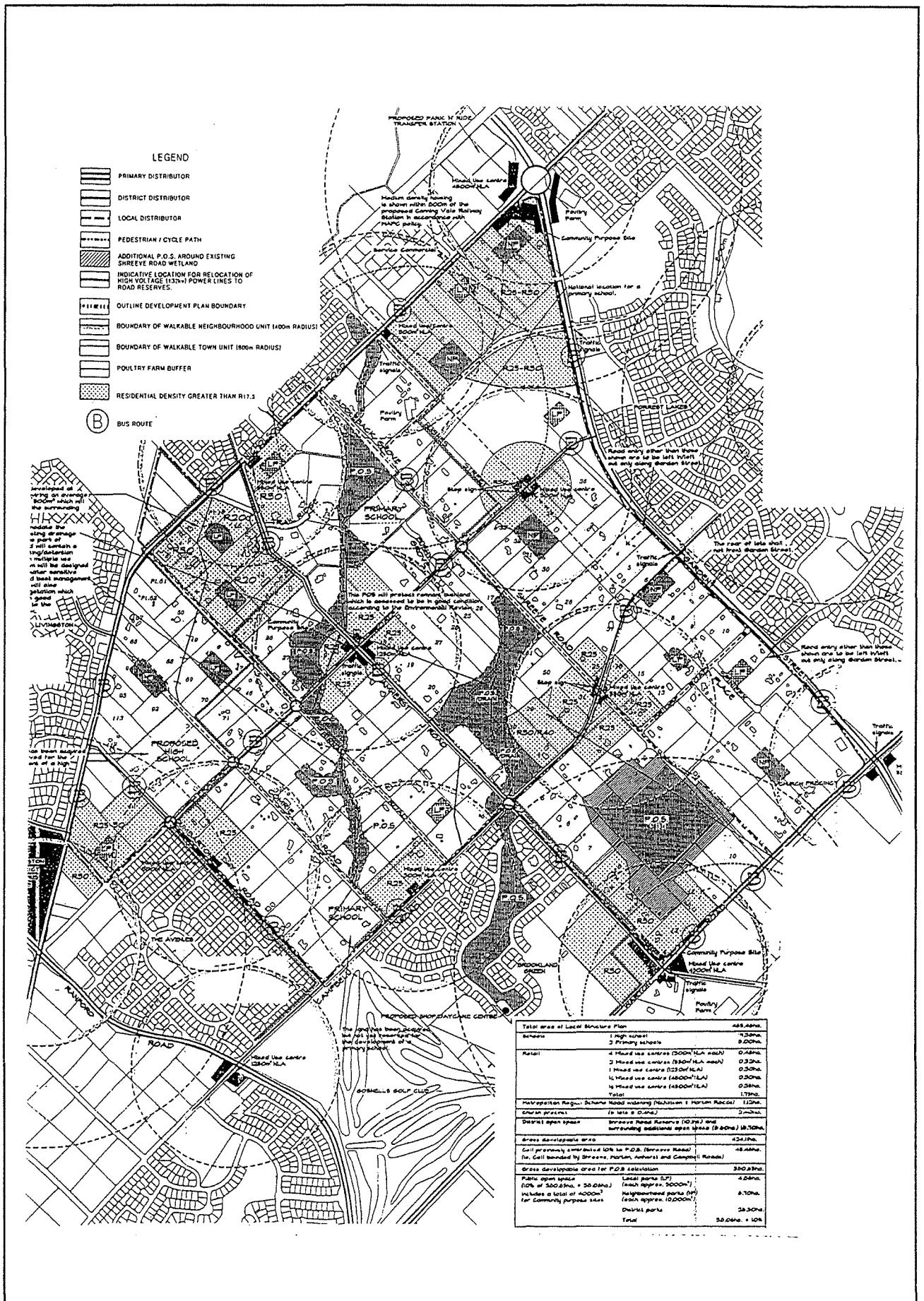


Figure 2. Outline Development Plan.

The proposed public open space comprises two multiple purpose corridors to be used for recreation, drainage purposes and retention of remnant vegetation; an 18.7 ha area to protect the Shreeve Road wetland; and smaller pockets of public open space for local and neighbourhood park purposes.

The Amendment area comprises approximately 465 ha of "Rural" zoned land in numerous ownerships currently used for a range of purposes including rural residential living, horse agistment, horticulture, a public recreation reserve, a reception centre, a poultry farm, churches and nurseries.

Land uses surrounding the Amendment area include residential development in Thornlie and Canning Vale, Gosnells Golf Course, and rural land to the east. Two poultry farms are located within 500 metres of the site as shown on Figure 3.

The westernmost portion of the site is affected by the 20-25 Australian Noise Exposure Forecast (ANEF) zone around Jandakot Airport.

The environmental features of the site as identified in the City of Gosnells' Environmental Review document are shown on Figure 3.

Dampland and sumpland cover over 60 per cent of the Amendment area. Conservation category wetlands (damplands) have been identified on the site by the Water and Rivers Commission (WRC) as shown in "Perth's Bushplan" Volume 2 Part C (Western Australian Planning Commission et al, 1998). The largest of these abuts Shreeve Road and is mostly in existing reserve 38134 .

There are numerous small patches of remnant vegetation on the site. The Shreeve Road reserve contains the largest area of remnant vegetation.

The Amendment area does not contain any regionally significant vegetation as identified by Perth's Bushplan (Western Australian Government 1998) nor any lakes protected by the Environmental Protection (Swan Coastal Plain Lakes) Policy 1992.

Amendment No. 478 is located within the Swan and Canning Rivers surface water catchment and is subject to the Environmental Protection (Swan and Canning Rivers) Policy 1997. Part of the site lies within the Middle Canning Catchment area which has been subject of a stormwater management study by the WRC.

The main characteristics of the Amendment and the site are summarised in Table 1 below. More details on the Amendment are provided in the Amendment documentation (City of Gosnells, July 1998) and the City of Gosnells' Environmental Review document (BSD Consultants Pty Ltd, October 1997).

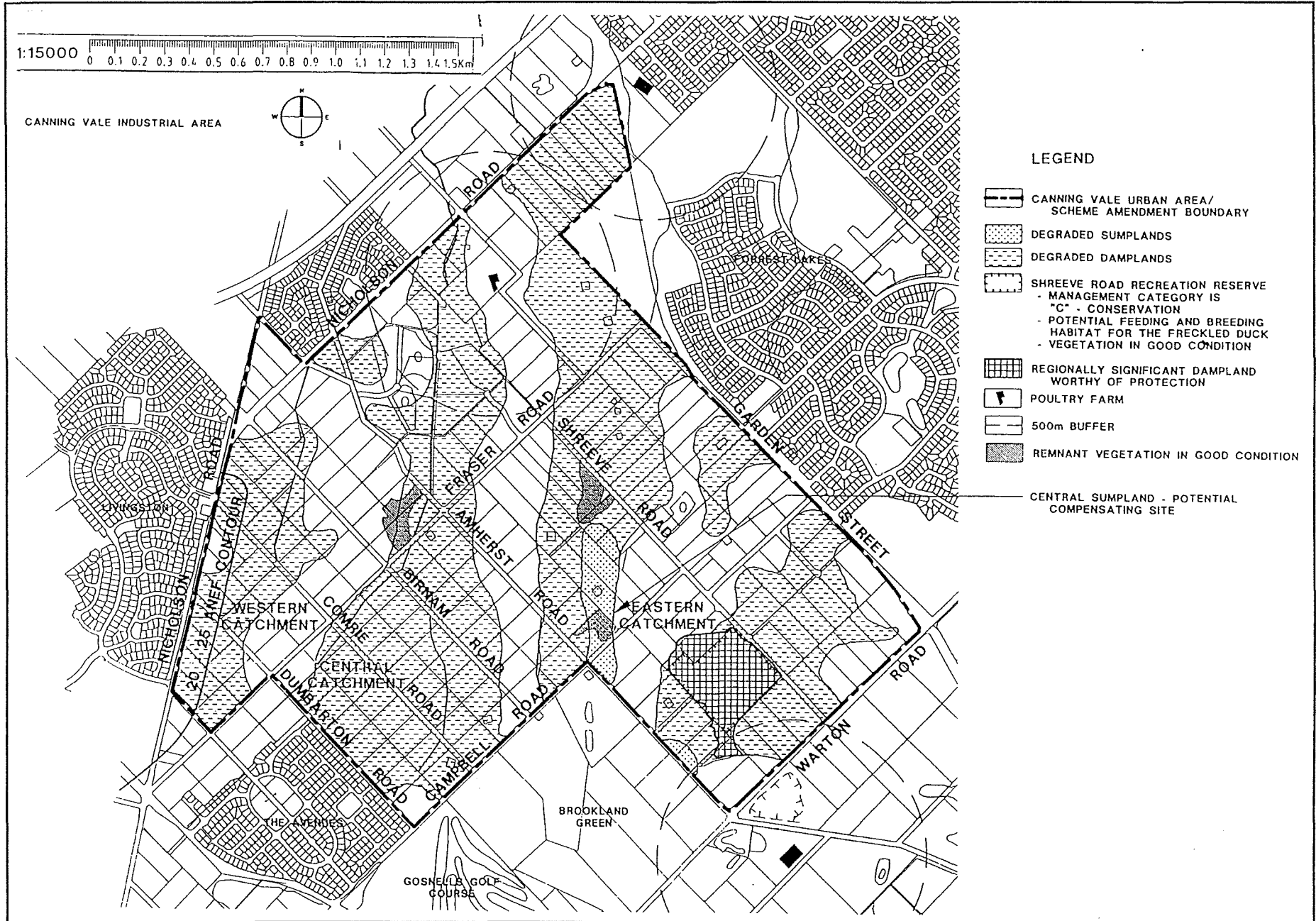
Table 1 - Key characteristics of the Amendment and the site

ELEMENT	DESCRIPTION
THE SITE	
Existing zoning: Local scheme Metropolitan Region Scheme	"Rural" "Urban" and "Public Purposes High School" reserve
Total area of land	approximately 465 hectares
Existing landuse	rural residential living, horse agistment, horticulture, public open space, a reception centre, poultry farm, churches, a nursery
Soils and landforms	the site is within the Bassendean Dune System with gently undulating sandy rises and intervening swampy areas
Water catchment	ponding catchment within the surface water catchment of the Swan-Canning system
Wetlands	over 60 per cent of the site comprises damplands and sumpland

Table 1 - Key characteristics of the Amendment and the site (continued)

THE AMENDMENT	
Proposed Scheme Map modifications	The Amendment rezones the site to “Residential Development” zone and “Public Purpose High School” reserve
Proposed Scheme Text modifications	<p>The Amendment introduces:</p> <ul style="list-style-type: none"> • the “Residential Development” zone, with provisions to include the requirements that an Outline Development Plan (ODP) must be prepared before subdivision occurs, and that development must comply with the approved ODP; • a new schedule “Infrastructure Provisions Relating to the ODP Area”; and • an attachment A to the above schedule to introduce specific infrastructure works and environmental management measures to be carried out in the Amendment area, including the provision of additional public open space around the existing Shreeve Road reserve (38134).
Proposed environmental management measures	<p>The existing Shreeve Road reserve 38134 and additional public open space around the Shreeve Road reserve are not to be used as part of the urban drainage system.</p> <p>Existing drainage entering reserve 38134 is to be maintained.</p> <p>Invert levels for drains in the central catchment are to be as close as possible to existing invert levels.</p> <p>City of Gosnells is to monitor water quality.</p> <p>The principle drainage system is to be consistent with water sensitive urban design practices.</p> <p>An odour study is required before land may be subdivided within 500 metres of poultry farms.</p> <p>Memorials are to be placed on new titles affected by the 20-25 ANEF noise contour.</p>
OUTLINE DEVELOPMENT PLAN PROPOSALS	
Density of development	R17.5 and nodes of higher density (up to R30/40)
Public Open Space (POS)	10 per cent of developable area plus additional open space around the Shreeve Road reserve is to be set aside as POS. Some POS will be provided in two multiple purpose open space corridors.
Other	The ODP also makes provision for schools, a church precinct, a road hierarchy and mixed use local centres.
PROPOSED SERVICING OF RESIDENTIAL DEVELOPMENT	
Services	Reticulated water supply, sewerage, power, telecommunications, drainage

Figure 3. Site Features.



3. Environmental factors

3.1 Relevant environmental factors

Section 48D of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the Amendment and on the conditions to which the Amendment 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 are the environmental factors relevant to the Amendment, which require detailed evaluation in this report:

- (a) Wetlands - protection of conservation category wetlands; and
- (b) Surface water quality - excess nutrients entering the Swan-Canning system and conservation category wetlands.

The above relevant factors were identified from the EPA's consideration and review of all environmental factors (preliminary factors) generated from the Environmental Review document and the submissions received, in conjunction with the Amendment characteristics, and alternative approval processes which ensure that the factors will be appropriately managed. On this basis, the EPA considers that the preliminary factors and other issues raised in the submissions (vegetation communities, terrestrial fauna, specially protected (threatened) fauna, wetlands other than conservation category wetlands, noise, odour, groundwater quality and public health) do not require further evaluation by the EPA because it is considered that they will be adequately managed. The identification process is summarised in Table 2.

The relevant environmental factors are discussed in Sections 3.2 to 3.3 of this report and are summarised in Table 3.

3.2 Wetlands - Protection of conservation category wetlands

Description

Portions of the Amendment area have been mapped as conservation category wetlands by the Water and Rivers Commission (WRC) as shown in "Perth's Bushplan" Volume 2 Part C (Western Australian Planning Commission et al, 1998) (see Figure 4). These sites are classified as dampland by the Water and Rivers Commission's Wetland Mapping System for the Swan Coastal Plain.

The largest area of conservation category wetland is in the eastern portion of the Amendment area, mostly within existing reserve 38134 on Shreeve Road (see Figures 4 and 5). This "C" class reserve is set aside for the purpose of public recreation. A report prepared for the WRC and the DEP on the wetlands of the Swan Coastal Plain establishes that the area of the remnant vegetation in this wetland is approximately 12 hectares (Hill, A.L. et al, 1996).

The conservation value of the Shreeve Road reserve is supported in a report on a survey of the remnant vegetation of the City of Gosnells by M. Trudgen and B. Keighery for the City of Gosnells. The report on the survey refers to "the variety of the vegetation on the reserve, the good shape of the reserve (for management) and the very good to pristine condition of the vegetation" (Trudgen and Keighery, 1995 page 102).

Table 2: Identification of Relevant Environmental Factors

FACTOR	PROPOSAL COMPONENT WITH POSSIBLE IMPACT	GOVERNMENT AGENCY AND PUBLIC COMMENTS	IDENTIFICATION OF RELEVANT ENVIRONMENTAL FACTORS
BIOPHYSICAL			
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>The Outline Development Plan for the Amendment area advertised concurrently with Amendment No. 478 shows that some pockets of remnant vegetation will be retained in public open space.</p> <p>The Environmental Review document suggests that other means of retaining remnant vegetation include minimising clearance of remnant vegetation for house and road construction and revegetation of cleared pockets of land.</p>	<p>Public submissions</p> <ol style="list-style-type: none"> 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. 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. 3 All regionally significant bushland (as identified in a survey) should be protected. 4 Incorporation of the significant stands of remnant vegetation into Public Open Space is supported. 5 The Nicholson Road site (as shown on Plan 6 of the Environmental Review) should be protected for its high conservation values. Protection should include immediate fencing. 6 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. 7 Corridors along which wildlife can travel should be created. 8 Lot 10 Amherst Road which includes over 100 fruit trees is shown as POS remnant bushland in good condition. The rationale for siting POS should be reassessed. <p>Water and Rivers Commission submission</p> <ol style="list-style-type: none"> 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. 	<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	IDENTIFICATION OF RELEVANT ENVIRONMENTAL FACTORS
Terrestrial Fauna	<p>The Amendment if implemented would allow residential development to proceed. Clearing, filling of land and residential development will impact on fauna.</p> <p>The Outline Development Plan for the Amendment area advertised concurrently with Amendment no. 478 proposes that some public open space will be provided in corridor form and that some remnant vegetation will be retained .</p>	<p>Public submissions</p> <p>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.</p> <p>2 Fauna information should cover invertebrate fauna.</p> <p>3 Corridors along which wildlife can travel should be created.</p> <p>CALM submission</p> <p>1 CALM believes a minimum 50 metre buffer around the fringing vegetation for the Shreeve Road wetland should be protected from development. 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</p>	<p>In the absence of regionally significant fauna issues associated with the Amendment area, 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	<p>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.</p>	<p>The submissions on "terrestrial fauna" also relate to this factor.</p>	<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	IDENTIFICATION OF RELEVANT ENVIRONMENTAL FACTORS
Wetlands	<p>More than half 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 also wetlands classified as "dampland - preliminary management category conservation" on the site, and an area categorised as "sumpland - preliminary wetland management categories multiple use and resource enhancement".</p> <p>There are no sites identified as Bushplan sites in the Amendment area (Western Australian Government November, 1998).</p> <p>The conservation category wetlands may potentially be adversely affected by drainage, clearing and filling if the Amendment is implemented.</p> <p>The Outline Development Plan as advertised includes the expansion of the existing Shreeve Road reserve (the largest conservation category wetland on the site) and the inclusion of two of the smaller conservation category wetland (dampland) sites into public open space corridors.</p> <p>Th Amendment provisions propose the use of water sensitive urban design principles, and measures to protect the water regime of the Shreeve Road reserve.</p>	<p>Public submissions</p> <p>1 A huge and unacceptable wetland loss of approximately 290 ha will occur and should be reviewed.</p> <p>2 The loss of wetland is inconsistent with State and Commonwealth Government policies and Local Agenda 21.</p> <p>3 EPA Bulletins do not condone the loss of any wetlands and require wetlands to be replaced. .</p> <p>4 The restoration and rehabilitation of wetlands is supported.</p> <p>5 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.</p> <p>6 .Bushland in wetlands in the metropolitan area should not be cleared.</p> <p>7 The description "downgraded" as applied to wetlands is often very misleading. Wetlands with high levels of weed infestation may provide outstanding fauna habitat.</p> <p>8 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.</p> <p>9 The protection of the Shreeve Road dampland area is essential, and is considered regionally significant.</p> <p>10 The 50 metre buffer around the Shreeve Road wetland is supported. This width is considered to be consistent with recent DEP recommendations and policy, and will ensure that the wetland will be adequately protected given the proposed drainage management system.</p> <p>11 The structure plan should not include more than the 50 metre buffer shown around the Shreeve Road Public Open Space.</p> <p>12 It would not be sensible to take more land as the Shreeve Road crown land has been left unmanaged, an eye-sore and a fire hazard. The POS is home to foxes. There is very little good bush. This will be a breeding ground for disease carrying mosquitoes. The buffer includes ploughed paddock. A developed lake with a grassed centre for the ducks and other water creatures would ensure that the wildlife would always be protected.</p> <p>13 The Shreeve Road wetland should be fenced immediately..</p> <p>14 The purpose of the Shreeve Road reserve should be Conservation of Flora and Fauna. The reserve should be vested in the National Parks and Nature Conservation Authority to be managed by the Department of Conservation and Land Management.</p>	<p>This factor is considered to be a relevant environmental factor.</p>

FACTOR	PROPOSAL COMPONENT WITH POSSIBLE IMPACT	GOVERNMENT AGENCY AND PUBLIC COMMENTS	IDENTIFICATION OF RELEVANT ENVIRONMENTAL FACTORS
POLLUTION			
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>The Amendment provisions and Outline Development Plan as advertised propose multiple use corridors with a series of local compensating basins along the major drainage lines, and the adoption of water sensitive urban design principles. Around the Shreeve Road wetland a 50 metre dryland buffer (where practical) is proposed, The Amendment provisions include measures to protect the Shreeve Road wetland from urban drainage.</p>	<p>Water and Rivers Commission Submission</p> <ol style="list-style-type: none"> 1 Water conservation and water sensitive design are strongly recommended as features of this development. 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. 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. 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. 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. <p>Water Corporation Submission</p> <ol style="list-style-type: none"> 1 Drainage from the western catchment requires compensation before being discharged into the Amherst Branch Drain. <p>Public submissions</p> <ol style="list-style-type: none"> 1 Compensating basins must be cleared out regularly, or become polluted waterbodies which kill wildlife. 2 The design of compensating basins should be such that nutrients and pollutants can be physically removed. 	The factor surface water quality is considered to be a relevant environmental factor.

FACTOR	PROPOSAL COMPONENT WITH POSSIBLE IMPACT	GOVERNMENT AGENCY AND PUBLIC COMMENTS	IDENTIFICATION OF RELEVANT ENVIRONMENTAL FACTORS
Groundwater quality	<p>The submission lodged by the WRC during the public submission period advised that the WRC is aware of a source of groundwater contamination immediately outside the western most part of the site.</p> <p>Groundwater may be used by future residents to supplement the reticulated water supply.</p>	<p>Water and Rivers Commission submission</p> <p>1 The Water and Rivers Commission is aware of contaminated groundwater on the opposite side of Nicholson Road. WRC recommends that appropriate investigations be conducted, and that all groundwater users in the area be cautioned to avoid drinking untreated bore water.</p> <p>2 The Water and Rivers Commission requests that it be noted that the site is in the Perth Groundwater Area where a groundwater well licence may be required for irrigation projects greater than 0.2 ha</p>	<p>The EPA considers that the matter raised by the WRC should be further investigated prior to subdivision. The EPA is satisfied that appropriate conditions can be imposed by the Western Australian Planning Commission on preliminary subdivision approvals to address this matter. The EPA has provided advice on this matter.</p> <p>This factor does not require further EPA evaluation.</p>
Odour	<p>There is one poultry farm within the site, and two within 500 metres of the site.</p> <p>Amendment provisions are proposed that exclude development within 500 metres of poultry farms unless odour impact assessment is undertaken that demonstrates that a lesser distance is acceptable.</p> <p>Statement of Planning Policy No. 5 on poultry farms was gazetted on 18 December 1998. This Policy provides guidance on the matters that must be considered by the Western Australian Planning Commission and local governments when considered development in the vicinity of poultry farms.</p>	No submissions received	<p>Taking into account Statement of Planning Policy No. 5 on poultry farms gazetted on 18 December 1998, and the intent of the proposed Amendment provision on subdivision near poultry farms, this factor does not require further EPA evaluation. However, the EPA will provide advice .</p>

FACTOR	PROPOSAL COMPONENT WITH POSSIBLE IMPACT	GOVERNMENT AGENCY AND PUBLIC COMMENTS	IDENTIFICATION OF RELEVANT ENVIRONMENTAL FACTORS
Noise	<p>The extreme westernmost part of the site is affected by the Jandakot Airport 20-25 ANEF noise contour.</p> <p>The Amendment includes a provision that memorials on new lots affected by the 20-25 ANEF contour, as shown on the map in the Amendment text, be imposed to the satisfaction of Council and the EPA.</p>	No submissions received	Taking into account the small size of the area affected and its location, this matter is considered to be one which may be resolved at the local level. The Amendment as advertised includes a suitable provision to address this matter. However the plan accompanying the provision may not be correct. This factor does not require further EPA evaluation. However, the EPA will provide advice .
SOCIAL SURROUNDS			
Public Health	Much of the site is low lying and may require fill to ensure a satisfactory separation between floor levels and groundwater.	<p>Water and Rivers Commission submission</p> <p>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.</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.

Table 3: Summary of Assessment of Relevant Environmental Factors

RELEVANT FACTOR	RELEVANT AREA	EPA OBJECTIVES	EPA ASSESSMENT	EPA ADVICE
Wetlands - protection of conservation category wetlands	Swan coastal plain	Maintain or enhance the integrity, functions and environmental values of conservation category wetlands.	<p>Conservation category wetlands have been mapped in the Amendment area by the WRC as shown in "Perth's Bushplan" (Western Australian Planning Commission et al, 1998).</p> <p>The largest of the conservation category wetlands in the Amendment area is on Shreeve Road, and includes existing reserve 38134. The conservation value of the Shreeve Road reserve is supported in a report on a survey of the remnant vegetation of the City of Gosnells undertaken for the City of Gosnells (Trudgen, M. and Keighery, B. 1995).</p> <p>The EPA's policy on wetlands of conservation value is that the wetland and a dryland buffer should be protected, the water quality and hydrology of the wetland should be protected, and a management plan should be prepared and implemented. The EPA guide for the width of a buffer area is 50 metres from, or 1 metre AHD higher than, the furthest extent of the wetland vegetation, which ever is the largest (Environmental Protection Authority, 1997).</p> <p>The Amendment documentation and Outline Development Plan as advertised propose the protection of the wetland vegetation in and adjoining the existing Shreeve Road reserve 38134 through a number of mechanisms. These include a 50 metre buffer around the wetland vegetation except where there are existing house developments, and drainage controls and monitoring in the vicinity of the wetland. The Amendment provisions also promote the use of water sensitive urban design principles and best management practices in the Amendment area.</p> <p>The EPA considers that a management plan should be prepared and implemented for the Shreeve Road wetland.</p> <p>The other wetland areas identified as conservation category wetlands are smaller and were not specifically addressed as conservation category wetlands in the Environmental Review. The Outline Development Plan for the Amendment</p>	<p>Having particular regard to:</p> <ul style="list-style-type: none"> • the presence of conservation category wetlands in the Amendment area; • the EPA's policy on wetlands, including a buffer around wetland vegetation; • the Amendment provisions to protect the Shreeve Road wetland, and to promote the use of water sensitive urban design principles; and • WRC and CALM advice; <p>it is the EPA's opinion that the Amendment if implemented can be managed to meet the EPA's objective, subject to the following conditions which are set out in more detail in Appendix 3:</p> <ul style="list-style-type: none"> • conservation category wetlands together with appropriate buffers shall be set aside for public open space (conservation) purposes; • the Shreeve Road wetland reserve shall be enlarged to include a buffer of at least 50 metres (where practical) around wetland vegetation; • a Wetland Management Plan for each conservation category wetland shall be prepared and implemented;

RELEVANT FACTOR	RELEVANT AREA	EPA OBJECTIVES	EPA ASSESSMENT	EPA ADVICE
			<p>area as advertised includes some of these sites in multiple purpose public open space spines. One site falls within a proposed primary school, while the other sites fall within proposed residential areas.</p> <p>The EPA considers that further investigation of the smaller conservation category wetlands is required, including identification of buffer and management needs for these sites.</p> <p>The EPA considers that the water regimes which support the conservation category wetlands should be protected through appropriate mechanisms in the Drainage and Nutrient Management Plans for the relevant sub-catchments of the Amendment area.</p>	<ul style="list-style-type: none"> the Drainage and Nutrient Management Plan for each sub-catchment of the Amendment area shall include mechanisms to protect the water regimes of each conservation category wetland.
Surface water quality - excess nutrients entering the Swan-Canning system and conservation category wetlands	Swan Canning rivers catchment	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)	<p>The Amendment area is within the Swan and Canning Rivers surface water catchment and is subject to the Environmental Protection (Swan and Canning Rivers) Policy 1997 as gazetted in July 1998.</p> <p>Conservation category wetlands have been mapped in the Amendment area by the WRC as shown in "Perth's Bushplan" (Western Australian Planning Commission et al, 1998).</p> <p>To achieve the environmental quality objectives for the Environmental Protection (Swan and Canning Rivers) Policy area, drainage systems should be designed, constructed and operated in accordance with best management practices.</p> <p>To manage urban stormwater quality, water sensitive urban design principles and best management practices have been prepared for the WRC and other authorities (Whelans et al, 1993 and Evangelisti & Associates, 1998).</p> <p>The EPA's guidelines for wetlands include protection of water quality entering wetlands (Environmental Protection Authority, 1997). Protection of the quality of water entering conservation category wetlands is achieved through the use of appropriate dryland buffers around wetlands, and catchment and drainage management measures to minimise excess drainage water and nutrient loads entering these wetlands.</p>	<p>Having particular regard for:</p> <ul style="list-style-type: none"> the high nutrient status of the Swan-Canning system; the high water table under much of the Amendment area; the presence of conservation category wetlands in the Amendment area; the Environmental Protection (Swan and Canning Rivers) Policy 1997; the location of part of the Amendment area in a sub-catchment of the Swan-Canning system known to be a major nutrient contributor; the EPA's policy on wetlands, including a buffer around wetland vegetation; the likely reduction in nutrient loads compared with current land use;

RELEVANT FACTOR	RELEVANT AREA	EPA OBJECTIVES	EPA ASSESSMENT	EPA ADVICE
			<p>As part of the Environmental Review a study was done comparing estimated nutrient loadings for the site before and after development. The study showed that a reduction in nitrogen and phosphorus loadings could be expected.</p> <p>The Amendment provisions propose that the principal drainage system in the area will be compensating basins in multiple use corridors in a landscaped format to be integrated in POS, and that drainage plans use water sensitive design principles and best management practices. Water quality testing of the drainage system by Council is proposed.</p> <p>The WRC has applauded the proposal to provide drainage within multiple use corridors in the Amendment area and recommends that these be a minimum width of 30 metres.</p> <p>The Amendment documentation provides that the Shreeve Road reserve is to be increased in size to include a 50 metre buffer where practical, this reserve is not to be used as part of the drainage system for the urban area, existing water levels are to be retained, no subsoil drains are to be set in the buffer zone, and that a protective swale on the upstream side of this wetland is to be constructed to prevent flooding from groundwater.</p> <p>The EPA considers that appropriate buffers should be set aside around each of the conservation category wetlands, and that the Drainage and Nutrient Management Plans recommended by the EPA for each sub-catchment of the Amendment area should include measures to protect the water regime of each conservation category wetland.</p>	<ul style="list-style-type: none"> • the Amendment provisions that promote Water Sensitive Urban Design principles and best management practices, and protection of the Shreeve Road wetland; and • WRC advice; <ul style="list-style-type: none"> it is the EPA's opinion that the Amendment if implemented can be managed to meet the EPA's objective, subject to the following conditions which are set out in more detail in Appendix 3: • Drainage and Nutrient Management Plans be prepared and implemented for each sub-catchment of the Amendment area; • these plans to include measures to protect the water regimes of the conservation category wetlands; and the conservation category wetlands and appropriate buffers to be set aside for public open space (conservation) purposes.

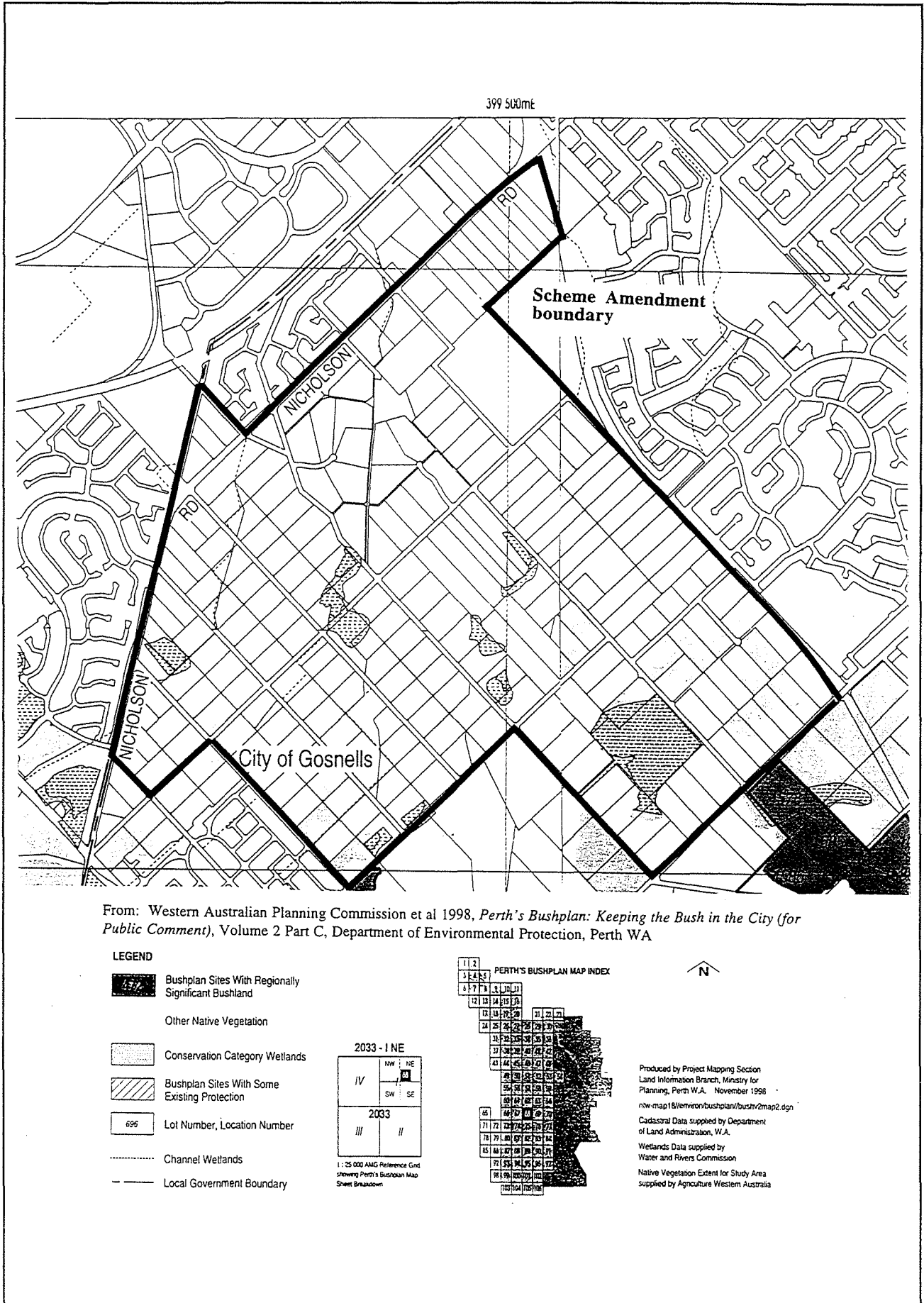


Figure 4. Conservation category wetlands of the Amendment area.

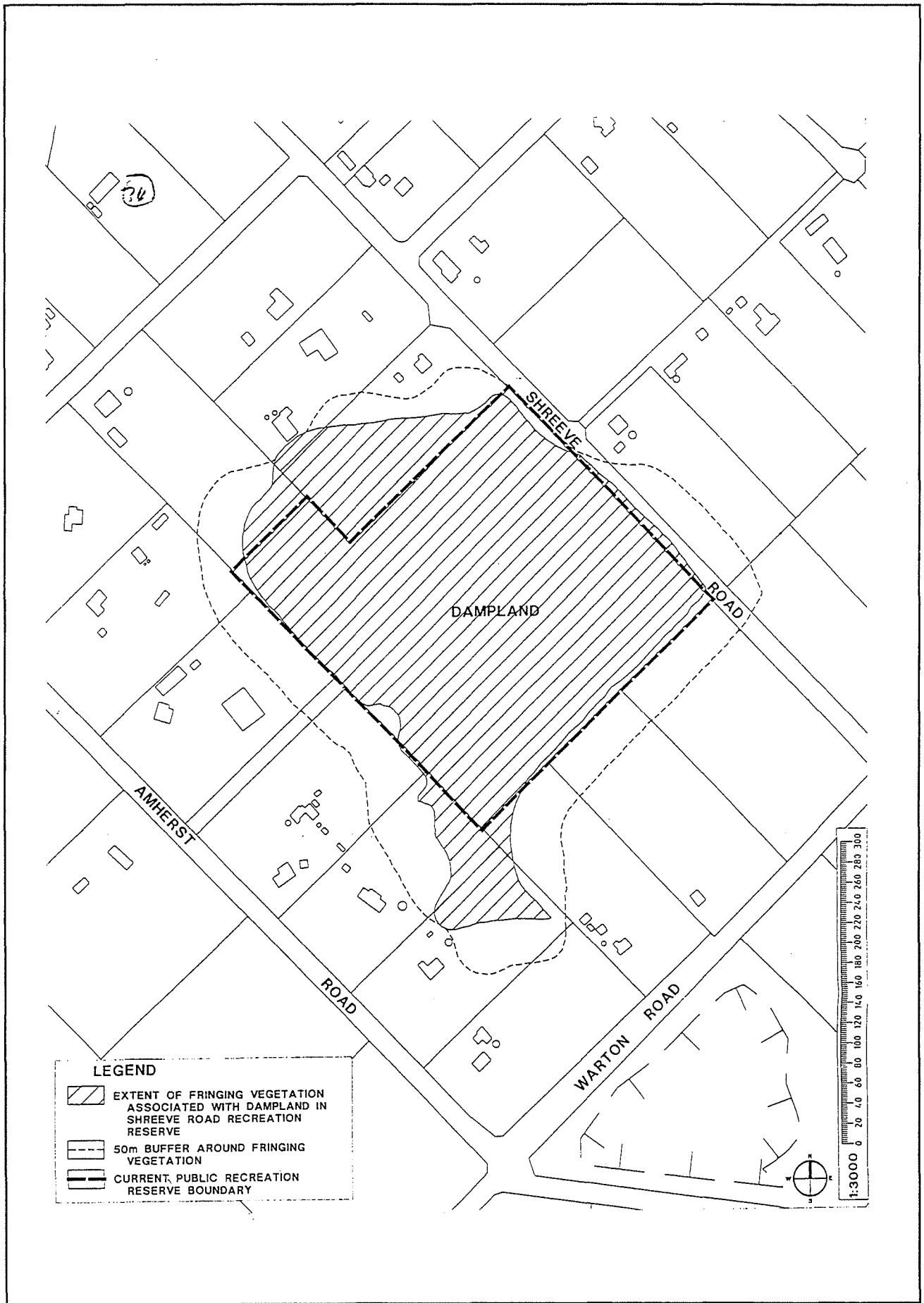


Figure 5. Fringing vegetation around the Shreeve Road reserve.

The proposed residential development is to be seweraged and supplied with a reticulated water supply. The WRC recommends that groundwater bores be encouraged to counter the rise in groundwater generally associated with urban development.

The Environmental Review considered that only one wetland in the Amendment area is of significance, namely the Shreeve Road wetland. The Amendment documentation and the Outline Development Plan for the Amendment area, as released for public review, propose the protection of this wetland through a number of mechanisms.

These mechanisms include increasing the area of the Shreeve Road reserve to include a buffer around the wetland vegetation that is at least 50 metres in width except where there are existing house developments. The introduction of the following provisions to the City of Gosnells Town Planning Scheme No. 1 Scheme Text is also proposed:

“Environmental Management Measures”

This means the following measures:

- a) *This means the additional public open space and existing reserve 38134 is not to be used as part of the drainage system for the Canning Vale Urban Area and as such no additional stormwater will be directed to this area. Existing stormwater entering reserve 38134 from outside the Canning Vale Urban Area is to be maintained so as not to alter the existing ecosystem and water levels.*
- b) *Existing groundwater levels within the additional public open space and existing reserve 38134 are to be maintained by adherence to the following best management practices:*
 - i) *No subsoil drains to be set within the additional public open space or existing reserve 38134.*
 - ii) *Where subsoil drains are to be used for development abutting the additional or existing reserve 38134 they are to be set at the AAMGL (average annual maximum groundwater level).*
 - iii) *A protective swale is to be provided on the upstream side of the buffer area to prevent flooding from the rise in groundwater following urbanisation.*
- c) *Invert levels for drainage systems designed within the central catchment of the Canning Vale Urban Area are to be as close as possible to the invert levels of existing Council drains, in accordance with the Water Corporation Drainage Strategy for this catchment.*
- d) *City of Gosnells is to undertake tests to monitor the effects of urbanisation on the underground water quality of the dampland (ie Shreeve Road reserve). Timing of these tests is to be determined in consultation with the EPA.*
- e) *The principal drainage system in the Canning Vale Urban Area will be a series of compensating/detention basins located within multiple use corridors (as described in the Middle Canning Catchment Study) that will be constructed in a landscaped format and integrated into public open space. Where appropriate, the drainage system is to also include landscaped open drains to be integrated in linear public open space. Water sensitive design principles and the best management practices that will improve and control water quality and quantity (ie swales, wet detention basins, artificial wetlands and gross pollutant traps) are to be incorporated in drainage plans to be prepared at the subdivision stage.*
- f) *City of Gosnells shall undertake quality testing of the drainage system to be developed within the Canning Vale Urban Area. Timing of these tests is to be determined in consultation with the EPA.”*

Clause 5 of item 5 of the Scheme Amendment Text (City of Gosnells, July 1998)

Apart from the Shreeve Road wetland referred to above, there are other conservation category wetlands in the Amendment area. Some of these lie within proposed multiple purpose public open space corridors. One is within a proposed primary school site and has been recently

cleared. The remaining conservation category wetlands within the Amendment area fall within proposed residential areas (see Figures 2 and 4).

Comment on the proposal to increase the size of the Shreeve Road reserve to include a 50 metre buffer was divided. Some submissions supported the increase in size of the public open space, while others did not. A submission expressed concern about the existing and future management of the site. Another submission sought that the Shreeve Road wetland drain be filled in and that the wetland's natural hydrology of summer dry and winter wet be allowed to continue. Some submissions expressed general support for the retention of remnant vegetation, and others supported greater protection of wetlands. Some submissions sought the protection of an area of remnant vegetation adjoining Nicholson Road that includes wetland identified as conservation category wetland by the WRC. Fencing to control access by both people and feral animals was identified as an important management tool.

The Department of Conservation and Land Management (CALM) supported the 50 metre buffer around the fringing vegetation for the Shreeve Road wetland.

Assessment

The area considered for assessment of this factor is the Swan Coastal Plain.

The EPA's objective in regard to this environmental factor is to maintain or enhance the integrity, functions and environmental values of conservation category wetlands.

The implementation of the Amendment has the potential to impact on the five conservation category wetlands in the Amendment area through clearing and filling for development; alterations to water quality, quantity and rates of flow resulting from urbanisation; exotic plant invasion; and general disturbance to ecosystems associated with human activity.

The EPA has established principles for ensuring the protection of wetlands in its series on guidance for the assessment of environmental factors (Environmental Protection Authority, 1997). These include:

- the wetland's attributes form the basis for its management and that of the surrounding catchment;
- the wetland and an appropriate dry land buffer area be protected from the direct impacts of development;
- adverse impacts on the wetland, in particular, water quality and water levels through landuses in the catchment be minimised, and where possible avoided altogether; and
- mechanisms to mitigate impacts on wetlands and to include ongoing management and monitoring, be identified and implemented.

The EPA's guide for the width of the minimum dryland buffer is 50 metres or 1 metre AHD higher than the furthestmost extent of the wetland dependant vegetation, whichever is the largest (Environmental Protection Authority, 1997).

A 50 metre buffer around the fringing vegetation of the Shreeve Road wetland is supported by CALM and the WRC (Mark Warner pers. comm. 26 November 1998).

The EPA supports the provision of a buffer around the Shreeve Road wetland as shown on the Outline Development Plan on the basis that it is at least 50 metres from the edge of the wetland vegetation where practical. The EPA also supports the intent of the other measures included in the Amendment text to protect the Shreeve Road wetland. However, the EPA considers that these measures are not sufficiently comprehensive to achieve the EPA's objectives for this factor.

Consistent with its policy on wetlands, the EPA recommends that:

- prior to the finalisation of the Outline Development Plan for the Amendment area, the conservation category wetlands be further investigated on a case-by-case basis so that the attributes, management needs and an appropriate buffer for each wetland can be established;
- each conservation category wetland and its buffer be set aside for public open space (conservation) purposes to the requirements of the EPA, Council and the WRC;
- the conservation category wetlands and buffers be shown on the Outline Development Plan;
- a wetland management plan be prepared and implemented for each wetland; and
- measures to protect the groundwater and surface water regimes which support the conservation category wetlands be addressed in the Drainage and Nutrient Management Plans recommended in Section 3.3 of this report.

Having particular regard to:

- (a) the presence of conservation category wetlands in the Amendment area;
- (b) the EPA's policy on wetlands (Environmental Protection Authority, 1997);
- (c) the proposed Amendment provisions to protect the Shreeve Road wetland and to promote the use of water sensitive urban design principles; and
- (d) WRC and CALM advice;

it is the EPA's opinion that the Amendment if implemented can be managed to meet the EPA's objective for wetlands, subject to the conditions contained in Appendix 3.

It is acknowledged that the Environmental Review and Amendment documentation contain provisions relevant to this factor. The EPA however does not consider that these provisions are sufficiently comprehensive to meet its objective, and recommends the conditions in Appendix 3 replace the provisions in the proposed Amendment text.

3.3 Surface water quality - excess nutrients entering the Swan-Canning system and conservation category wetlands

Description

The land the subject of this assessment 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 over 60 per cent of the site identified as wetland 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.

Conservation category wetlands have been identified in the Amendment area by the WRC mapping system for the wetlands of the Swan Coastal Plain, as described in Section 3.2 of this report.

The Environmental Review document identifies three main drainage sub-catchments in the Amendment area (see Figure 3). These are generally aligned in a north south direction and drain towards the north. The Environmental Review indicates that the catchments will discharge compensated drainage (except from the western catchment) into existing drains under the control of the Water Corporation. These drains ultimately drain into the Canning River.

Part of the Amendment area 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, page 23).

The proposed residential development is to be seweraged.

The Environmental Review and Amendment documentation propose a number of mechanisms to address surface water quality.

The Amendment provisions include the following:

- e) The principal drainage system in the Canning Vale Urban Area will be a series of compensating/detention basins located within multiple use corridors (as described in the Middle Canning Catchment Study) that will be constructed in a landscaped format and integrated into public open space. Where appropriate, the drainage system is to also include landscaped open drains to be integrated in linear public open space. Water sensitive design principles and the best management practices that will improve and control water quality and quantity (ie swales, wet detention basins, artificial wetlands and gross pollutant traps) are to be incorporated in drainage plans to be prepared at the subdivision stage.*
- f) City of Gosnells shall undertake quality testing of the drainage system to be developed within the Canning Vale Urban Area. Timing of these tests is to be determined in consultation with the EPA."*

Part of clause 5 in item 5 in the Scheme Amendment Text (City of Gosnells, July 1998)

The Outline Development Plan as released for public comment shows two corridors of public open space "...to accommodate the extension of the existing drainage system developed as part of the Brooklyn Greens Estate and will contain a series of compensating/detention basins located within multiple use corridors. The system will be designed in accordance with water sensitive design principles and best management practices"(Canning Vale Outline Development Plan as released for public comment and dated 21st August 1998).

As referred to in Section 3.2, the Environmental Review only considered that one wetland in the Amendment area is of significance, namely the Shreeve Road reserve wetland, and proposed management measures to protect the quality of surface water for this wetland alone. These measures are the same as those proposed in the Environmental Review for protection of the wetland and control of nutrient export.

Some of the other conservation category wetlands in the Amendment area lie within proposed multiple purpose public open space corridors. One is within a proposed primary school site and has been recently cleared. The remaining conservation category wetlands within the Amendment area fall within proposed residential areas (see Figures 2 and 4).

The submission made by the WRC as 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.

The Water Corporation's submission advised that compensation of drainage waters prior to connection of the western catchment into the Amherst Road Branch Drain will be required.

Submissions relevant to the surface water quality of conservation category wetlands include those that supported the increase in size of the public open space around the Shreeve Road wetland to include a 50 metre buffer around the fringing vegetation. However, other submissions did not support the provision of additional public open space around the Shreeve Road reserve. One submission sought that the Shreeve Road wetland drain be filled in and that the wetland's natural hydrology of summer dry and winter wet be allowed to continue.

CALM supported the 50 metre buffer around the fringing vegetation for the Shreeve Road wetland.

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 the urbanisation of the Amendment area 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.

Local drainage disposal associated with urban development of the Amendment area may also lead to an increase in nutrient laden water entering the conservation category wetlands before export of excess drainage from the Amendment area.

The Environmental Protection (Swan and Canning Rivers) Policy 1997 gazetted in July 1998 applies to the Amendment area, 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 EPA's guidelines for wetlands include protection of water quality entering wetlands (Environmental Protection Authority, 1997). Protection of the quality of water entering conservation category wetlands is achieved through the use of appropriate dryland buffers around wetlands, and catchment and drainage management measures to minimise excess drainage water and nutrient loads entering these wetlands.

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).

The EPA acknowledges the Amendment provisions that promote the use of water sensitive urban design principles, monitoring of water quality by the City of Gosnells, and protection of the water quality of the Shreeve Road reserve. However, the EPA considers that the Amendment provisions should be more comprehensive to ensure that the EPA's objectives are met for this factor.

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, a Drainage and Nutrient Management Plan should be prepared for that sub-catchment 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.

The EPA considers that these Plans should include measures to protect the water quality and water levels (the water regimes) of the conservation category wetlands. The Plans should make it clear that the conservation category wetlands are not to be used as part of the urban drainage system.

As referred to in Section 3.2, the EPA also considers that each conservation category wetland and an appropriate buffer based on the particular attributes of the wetland should be set aside for public open space (conservation) purposes.

EPA recommends that if the Amendment is to be implemented, then development and subdivision should be consistent with the conditions set out in Appendix 3.

Having particular regard to the:

- (a) the high nutrient status of the Swan-Canning system;
- (b) the high water table under much of the Amendment area;
- (c) the location of part of the Amendment area in a sub-catchment of the Swan-Canning system known to be a major contributor of nutrients;
- (d) the presence of conservation category wetlands in the Amendment area;
- (e) the EPA's policy on wetlands (Environmental Protection Authority, 1997);
- (f) the provisions of the Environmental Protection (Swan and Canning Rivers) Policy 1997;
- (g) the likely reduction in nutrient loads from the Amendment area compared with current land uses;
- (h) the Amendment provisions that promote the use of water sensitive urban design principles and best management practices, and provide for the protection of the Shreeve Road wetland; and
- (i) WRC advice;

it is the EPA's opinion that the Amendment if implemented can meet the EPA's environmental objective for surface water quality, provided that the conditions contained in Appendix 3 are incorporated into the City of Gosnells Town Planning Scheme No. 1.

It is acknowledged that the Environmental Review and Amendment documentation contain provisions relevant to this factor. The EPA however does not consider that these provisions are sufficiently comprehensive to meet its objective, and recommends the conditions in Appendix 3 to replace the provisions in the proposed Amendment text.

4. Conditions

Section 48D of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the Amendment and on the conditions to which that Amendment should be subject. In addition, the EPA may make recommendations as it sees fit.

In developing recommended conditions, the EPA's preferred course of action is to have the responsible authority provide scheme provisions to ameliorate the impacts on the environment.

However, these proposed provisions are not always sufficient to ensure that the EPA's objectives will be met.

Having considered the responsible authority's environmental management measures and the information provided in this report, the EPA has developed a set of conditions which the EPA recommends be imposed in place of the environmental management measures in the Amendment documentation, if the Amendment is to be implemented. These conditions are presented in Appendix 3. Matters addressed in the conditions include:

- (a) the setting aside of land for public open space reserve (conservation) purposes to protect the conservation category wetlands in the Amendment area;
- (b) the boundary of the public open space (conservation) reserve around the wetland that includes the existing Shreeve Road reserve 38134 to be at least 50 metres from the edge of the wetland dependant vegetation, wherever practical;
- (c) a Wetland Management Plan to be prepared and implemented for each conservation category wetland and its buffer; and
- (d) a Drainage and Nutrient Management Plan to be prepared and implemented for each drainage sub-catchment in the Amendment area.

5. Other advice

The WRC has advised in its submission on the Amendment that it is aware of contaminated groundwater in an area directly across Nicholson Road from the proposed rezoning area. Contaminants include mercury and some organic compounds. The source and the extent of the contamination are unknown. The WRC has recommended that appropriate investigations be conducted, and that all groundwater users in the area be cautioned to avoid drinking untreated bore water (correspondence from the WRC to the City of Gosnells dated 18 November 1998).

As new development within the area will be connected to a reticulated water supply, the use of borewater for drinking is unlikely, but possible.

If the groundwater contamination extends into the Amendment area, then groundwater users in the Amendment area could be affected.

The WRC has primary responsibility for managing the groundwater resources of Western Australia.

The EPA believes that the matter raised by the WRC should be further investigated prior to development to determine the nature and extent of contamination. The Western Australian Planning Commission should ensure that appropriate investigations are undertaken prior to subdivision and that, if contamination exists within the Amendment area, new lot owners are appropriately advised. The EPA is satisfied that appropriate conditions can be imposed by the Western Australian Planning Commission on preliminary subdivision approvals to address this matter.

The EPA provides the following advice in relation to the issue of noise, as referred to in Table 2.

The responsible authority has undertaken to include a provision in the Scheme Text to ensure that memorials are placed on new lot titles that are affected by the 20-25 Aircraft Noise Exposure Forecast (ANEF) zone as shown on a plan contained in the Amendment text. The memorial is required to be worded to the satisfaction of the City of Gosnells. The EPA supports the inclusion of this provision in the Scheme Text.

However, the 20 ANEF contour on the plan in the Environmental Review document is not the same as that on the 1997 FAC Airports Jandakot Noise Contours plan JKT-07-10 provided to the DEP by the City of Gosnells. The responsible authority and the Western Australian Planning Commission should ensure that the appropriate plan is incorporated in the Scheme Text.

The EPA provides the following advice in relation to the issue of odour, as referred to in Table 2.

The Amendment documentation includes a provision that requires an odour study to be submitted should subdivision be proposed within 500 metres of a poultry farm.

The intent of the provision is consistent with EPA policy, and with the Statement of Planning Policy No. 5 on poultry farms that was gazetted on 18 December 1998. The Statement of Planning Policy on poultry farms provides guidance on the matters that must be considered by the Western Australian Planning Commission and local governments when considering development in the vicinity of poultry farms.

The provision, however, is worded in a way that suggests that justification of an application for residential development within 500 metres of a poultry farm will be possible. This may not always be the case.

The EPA recommends that the Amendment provision and the notation on the Outline Development Plan be reworded to clarify that residential development is not permitted within 500 metres of poultry farms, unless the EPA and the City of Gosnells agree in writing that the odour study shows that residential development is acceptable within this setback.

6. Conclusions

The EPA has concluded that Amendment No. 478 to the City of Gosnells Town Planning Scheme No. 1 to rezone the land generally bounded by Haigh Road (Garden Street), Nicholson Road, Lansdowne Entrance, Nicholson Court, Fraser Road, Dumbarton Road, Campbell Road, Amherst Road and Warton Road from "Rural" zone to "Residential Development" zone can be implemented to meet the EPA's objectives provided the conditions recommended in Section 4 and set out in Appendix 3 are imposed and enforced.

7. Recommendations

Section 48D of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the Amendment and on the conditions to which the Amendment should be subject. 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 the Planning Scheme Amendment being assessed is for the purpose of rezoning an area of approximately 465 hectares in Canning Vale from "Rural" zone to "Residential Development" zone and "Public Purposes High School" reserve.
2. That the Minister considers the report on the relevant environmental factors of wetlands and surface water quality, as set out in Section 3.
3. That the Minister notes the EPA has concluded that the Amendment could be implemented 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 recommended in Appendix 3.

Appendix 1

List of submitters whose submissions were forwarded to the EPA

Government Agencies:

Water and Rivers Commission
Water Corporation
Department of Conservation and Land Management

Organisations:

Taylor Woodrow (Australia) Pty Ltd
Waterbird Conservation Group Inc.
Conservation Council of Western Australia Inc.
Urban Bushland Council WA Inc.

Individuals:

David and Sheena Jones
P J and F Napolitano
Mark Taylor
D Jones
James Li

Appendix 2
References

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Appendix 3

Recommended Environmental Conditions

**CITY OF GOSNELLS TOWN PLANNING SCHEME NO. 1 AMENDMENT
NO. 478 (RESIDENTIAL DEVELOPMENT ZONE, CANNING VALE)**

- Scheme Purpose:**
- (a) to rezone the land in Canning Vale generally bounded by Haigh Road (Garden Street), Nicholson Road, Lansdowne Entrance, Nicholson Court, Fraser Road, Dumbarton Road, Campbell Road, Amherst Road and Warton Road, from "Rural" zone to "Residential Development" zone;
 - (b) to reclassify land bounded by Dumbarton Road, Fraser Road and Comrie Road to "Public Purpose High School Reserve"; and
 - (c) to amend the City of Gosnells Town Planning Scheme No. 1 Scheme Text by the inclusion of the "Residential Development" Zone and associated provisions.

Responsible Authority: City of Gosnells

Responsible Authority Address: 2120 Albany Highway, Gosnells WA 6102
(PO Box 662, Gosnells WA 6990)

Assessment Number: 1112

Report of the Environmental Protection Authority: Bulletin 921

Subject to the following conditions, there is no known environmental reason why the town planning scheme Amendment to which the above report of the Environmental Protection Authority relates should not be implemented:

1 Conservation Category Wetlands

1-1 Land shall be set aside for public open space reserve (conservation) purposes to protect the integrity, functions and environmental values of the conservation category wetlands, to the requirements of the responsible authority with the concurrence of the Environmental Protection Authority and the Water and Rivers Commission, and shall only be used for those purposes.

The land to be set aside shall be determined by:

- i) a case-by-case investigation of the values and attributes of each wetland in the Amendment area as mapped by the Water and Rivers Commission (WRC) and shown in "Perth's Bushplan" (Western Australian Planning Commission et al 1998, *Perth's Bushplan: Keeping the Bush in the City (for Public Comment)*, Volume 2 Part C, Department of Environmental Protection, Perth WA); and
 - ii) identification of appropriate buffers around each conservation category wetland.
- 1-2 The boundary of the public open space (conservation) reserve around the wetland that is mostly in existing reserve 38134 on Shreeve Road (the Shreeve Road wetland) shall be generally consistent with the boundary of the additional public open space around that wetland as shown on the Outline Development Plan dated 21 August 1998 as released for public comment, provided that the boundary shall be a minimum of 50 metres from the edge of the wetland-dependant vegetation, wherever practical.

- 1-3 The Outline Development Plan for the Amendment area shall show the land required by conditions 1-1 and 1-2 to be set aside for public open space reserve (conservation) purposes.

2 Wetland Management Plan

- 2-1 Prior to submission of an application for subdivision approval and/or development that contains land required by conditions 1-1 and 1-2 to be set aside for public open space reserve (conservation) purposes, the developer shall prepare a Wetland Management Plan for the wetland and its buffer to meet the following objective:

- to maintain and, where possible, enhance the integrity, functions and environmental values of the wetland.

The Wetland Management Plan shall be prepared to the requirements of the responsible authority with the concurrence of the Environmental Protection Authority and on advice of the Department of Conservation and Land Management and the Water and Rivers Commission.

The Plan shall include:

- i) a description of the wetland including its ecosystems, attributes and values;
- ii) management objectives, including the protection of the water regime that supports the wetland;
- iii) management actions to ensure that the management objectives are achieved, including control of access through fencing, paths and the like;
- iv) a monitoring program, including definition of performance criteria and analysis procedures, to demonstrate whether the management objectives are being met;
- v) contingency plans to be implemented in the event that performance criteria are not met; and
- vi) identification of responsibilities for implementation of the Plan.

- 2-2 The above mentioned Wetland Management Plan shall be implemented.

3 Drainage and Nutrient Management Plan

- 3-1 Prior to submission of an application for subdivision approval (other than an application for consolidation or minor modification to existing boundaries) and/or development, the developer shall prepare a Drainage and Nutrient Management Plan for the portion of the Amendment area that is in the drainage sub-catchment in which the land the subject of the application is located, to meet the following objective:

- 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 West Australian Water Quality Guidelines for Fresh and Marine Waters (Environmental Protection Authority Bulletin 711).

The Drainage and Nutrient Management Plan shall be prepared to the requirements of the responsible authority with the concurrence of the Environmental Protection Authority and the Water and Rivers Commission.

The Plan shall include:

- i) 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;
- ii) mechanisms to minimise erosion during and after the development phase;
- iii) mechanisms to protect the water regimes of the conservation category wetlands, including water quality and water levels;
- iv) a monitoring program, including definition of performance criteria and analysis procedures, to demonstrate whether the objectives for the catchment are being achieved;
- v) contingency measures to be implemented in the event that performance criteria are not met; and
- vi) identification of responsibilities for implementation of the Plan.

3-2 The above mentioned Drainage and Nutrient Management Plan shall be implemented.

4 Scheme Map

4-1 The Scheme Map for the City of Gosnells Town Planning Scheme No. 1 shall be amended by inserting an appropriate symbol on the Scheme Map and a corresponding modification to the legend, to show that environmental conditions apply to the subject land, to the requirements of the responsible authority with the concurrence of the Environmental Protection Authority.