

**City of Rockingham Town Planning Scheme
No. 1 Amendment No. 300, Rezoning from Rural
to Development Zone, Part Lots 306 & 16, and
Lots 313 & 774, Fifty Road, Baldivis**

City of Rockingham

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

**Environmental Protection Authority
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Assessment No.1227

Summary and recommendations

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for the Environment on proposed Amendment No. 300 to the City of Rockingham Town Planning Scheme No. 1. This Amendment proposes to rezone Part Lots 306 & 16 and Lots 313 & 774 Fifty Road, Baldivis, from “Rural” to residential “Development” zone.

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 proposed scheme amendment and on the conditions and procedures to which the proposed scheme 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 proposed scheme amendment, which required detailed evaluation in this report:

- (a) Protection of regionally significant vegetation that abuts the site;
- (b) Protection of ‘Conservation Category’ wetlands in proximity to the site;
- (c) Soil and groundwater contamination;
- (d) Impact of odour, particulates, noise and spray drift from land uses adjacent to, and in proximity to the site; and,
- (e) Risk to public health and safety from the high-pressure gas pipeline.

Conclusion

The EPA has considered proposed Amendment No. 300 to the City of Rockingham Town Planning Scheme No. 1, to rezone Part Lots 306 & 16 and Lots 313 & 774 Fifty Road, Baldivis, from “Rural” to “Development” zone. The EPA has concluded that the proposal can be implemented to meet the EPA’s objectives, provided that the conditions recommended in Section 4 and set out in Appendix 5 are imposed and enforced.

Recommendations

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

1. That the Minister notes that the proposed scheme amendment being assessed is the City of Rockingham Town Planning Scheme No. 1 Amendment No. 300 to rezone Part Lots 306 & 16 and Lots 313 & 774 Fifty Road, Baldivis, from “Rural” to “Development” zone;
2. That the Minister considers the report on the relevant environmental factors as set out in Section 3;
3. That the Minister notes that the EPA has concluded that the EPA’s objectives can be met, provided there is satisfactory implementation by the Responsible Authority of the recommended conditions set out in Appendix 5.
4. That the Minister imposes the conditions recommended in Appendix 5 of this report.

Conditions

Having considered the Responsible Authority’s proposed amendment provisions and information provided in this report, the EPA has developed a set of conditions that it recommends be imposed if Amendment No. 300 is approved. These conditions are presented in Appendix 5. Matters addressed in the conditions include the following:

- (a) a Drainage and Nutrient Management Plan to be prepared and implemented;

- (b) a Soil and Groundwater Contamination Investigation and Remediation Plan to be prepared and implemented;
- (c) a Protection Plan for the high-pressure gas transmission pipeline to be prepared and implemented;
- (d) a Spray Drift Investigation and Management Plan to assess and mitigate possible impacts on the amendment area from chemical spaying occurring on nearby rural landuses;
- (e) a Vegetation Management Plan to protect the regionally significant vegetation abutting the Amendment area;
- (f) development setbacks and activity restrictions in proximity to the high-pressure gas transmission pipeline; and
- (g) noise attenuation measures to be implemented to protect future residents of the amendment area from noise impacts associated with adjacent rural landuses.

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1. Introduction

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for the Environment on proposed Amendment No. 300 to the City of Rockingham Town Planning Scheme No. 1. This Amendment proposes to rezone Part Lots 306 & 16 and Lots 313 & 774 Fifty Road, Baldivis, from “Rural” to residential “Development” zone.

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 proposed scheme amendment and on the conditions and procedures to which the proposed scheme amendment should be subject, if implemented. In addition, the EPA may make recommendations as it sees fit.

Details of the Amendment are presented in Section 2 of this report, while the relevant environmental factors are discussed in Section 3. The environmental conditions to which the Amendment should be subject, if the Minister determines that it may be implemented, are set out in Section 4. Section 6 contains the EPA’s Recommendations.

Appendix 6 contains a summary of public submissions on the amendment and the City of Rockingham’s responses to these submissions. This appendix is included as a matter of information only and does not form part of the EPA’s report and recommendations. The EPA considered issues raised in the submissions when identifying and assessing relevant environmental factors.

2. The Amendment

The City of Rockingham’s Amendment No. 300 to Town Planning Scheme No. 1 proposes to rezone Part Lots 306 & 16 and Lots 313 & 774 Fifty Road, Baldivis, from “Rural” to “Development” zone. The Responsible Authority for the Amendment is the City of Rockingham.

The Amendment site, which covers a total area of approximately 33 hectares over four land parcels and in two locations, lies within the South West Metropolitan Urban Corridor, approximately 38 kilometres south of the Perth CBD and approximately 8 kilometres directly east of Warnbro Sound. Two of the lots, Pt Lots 306 & 16 occur to the north of Fifty Road, while the two other lots, Lots 774 & 313, occur to the south of Fifty Road (refer to Figure 1 and 2 – Location Plan and Aerial View).

The proposed amendment will bring the site into accordance with the Metropolitan Region Scheme (MRS), under which the area is zoned ‘Urban’. All the land immediately to the east of the site is also zoned either ‘Urban’ or ‘Urban Deferred’ under the MRS.

This Amendment was referred to the EPA pursuant to Section 48A of the *Environmental Protection Act 1986* in June 1998. The EPA decided that the Amendment should be subject to environmental impact assessment, taking into account several factors, including the proximity of the proposed “Development” zone to market gardens and poultry sheds (odour, dust, noise and spray drift impacts), and the fact that the CMS high pressure natural gas pipeline ran adjacent to and through the site.

The City of Rockingham’s Environmental Review document (Sinclair Knight Merz, 2000) describes the existing environment within and surrounding the amendment area, the nature of the proposed development, the potential environmental impacts, and the proposed management of those environmental impacts. Also included in the Environmental Review (Sinclair Knight Merz, 2000) is a draft “Comprehensive Development Plan” (CDP), refer to Figure 3. Under the proposed “Development” zone the City of Rockingham must approve a CDP prior to the development of the site.

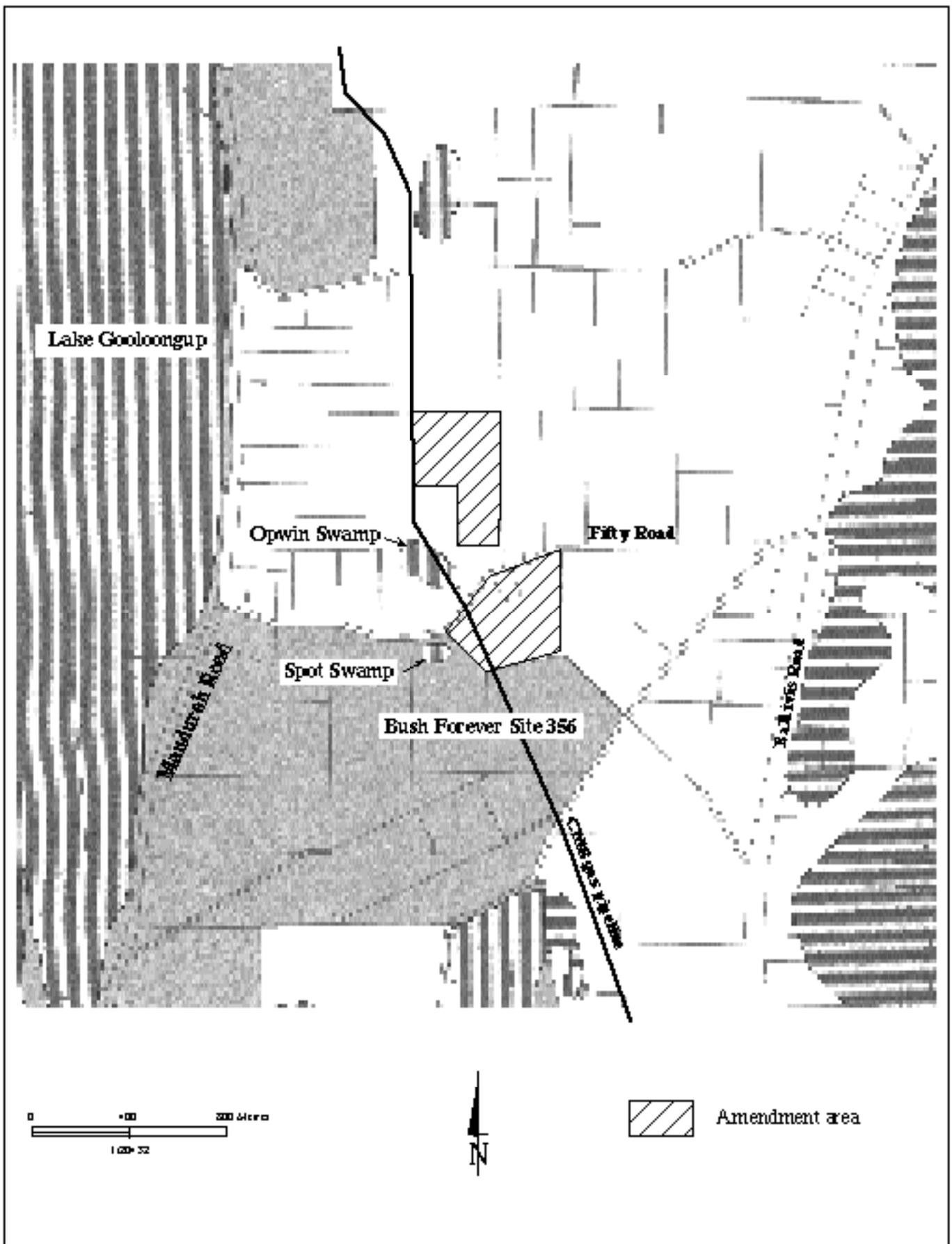


Figure 1. Location plan.

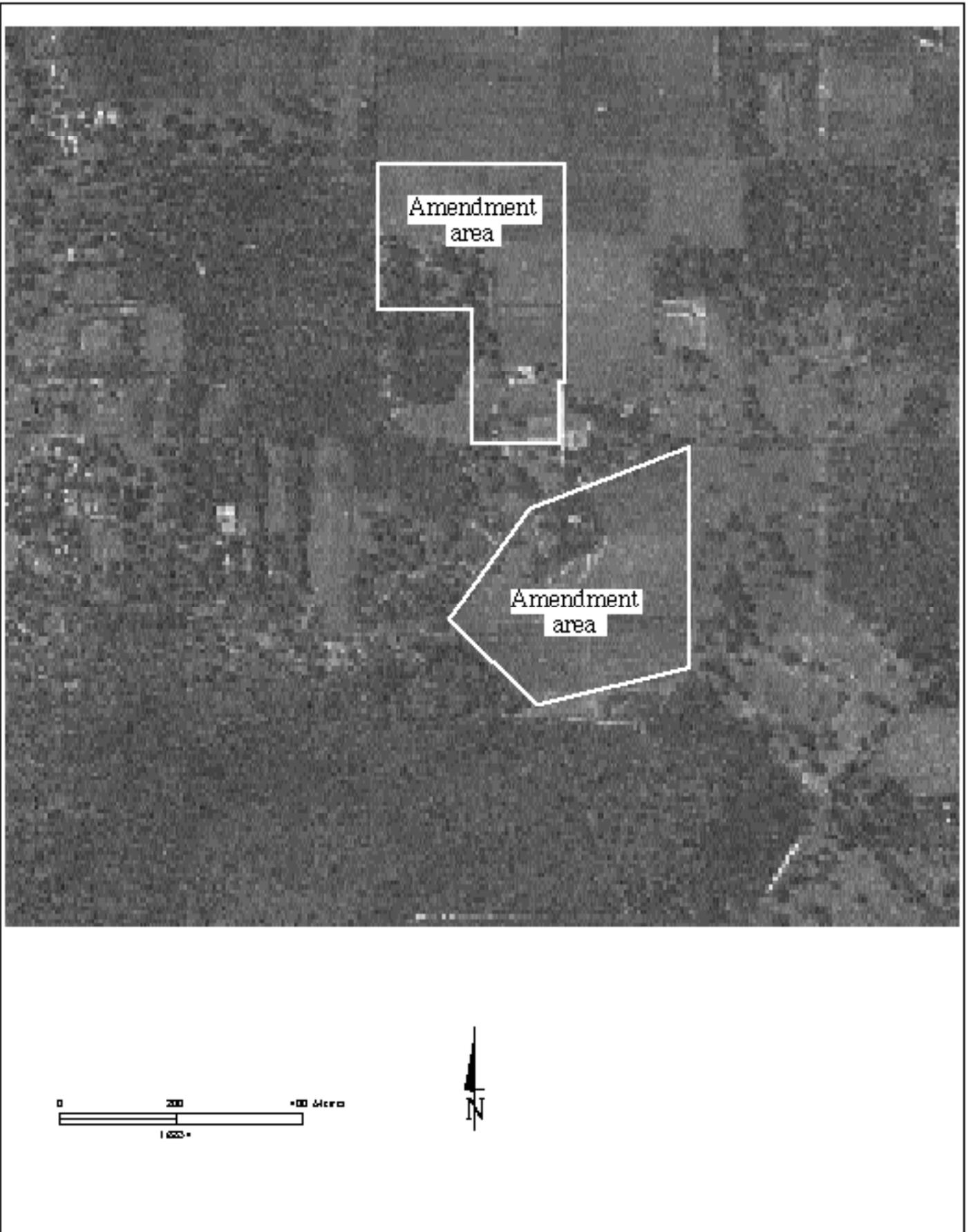


Figure 2. Aerial view

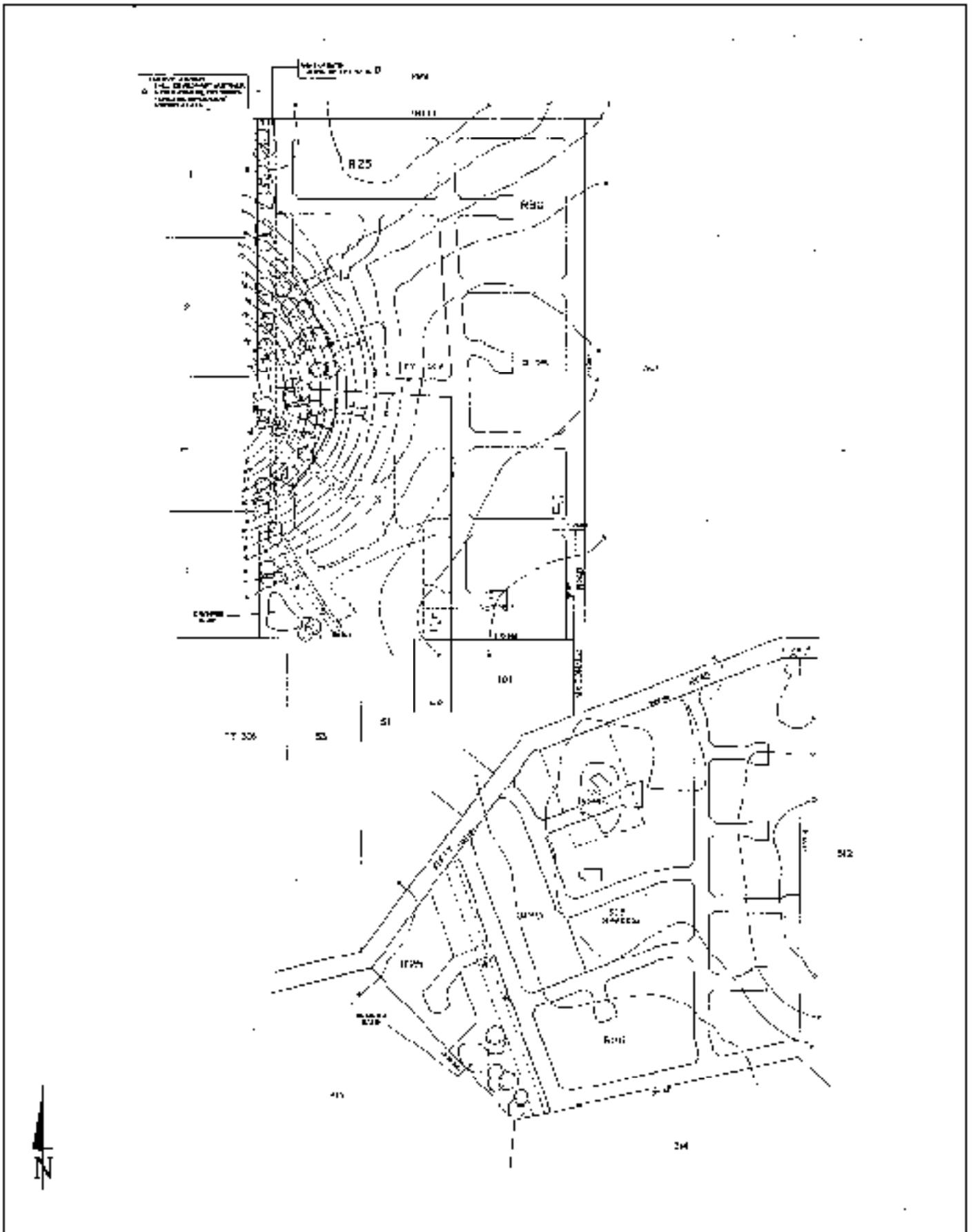


Figure 3. Draft Comprehensive Development Plan

It is estimated that 353 residential lots will result from the subdivision of the amendment area. The majority of these are expected to be at an “R20” density (500m² lot size) with some strategically located pockets of R25 or R30 density development (approximately 300m² to 400m² lot sizes).

The draft CDP identifies approximately 10% of the site as Public Open Space (POS). The POS is distributed throughout the site, but a portion has been specifically earmarked for the CMS high-pressure gas transmission line alignment to ensure the pipes integrity. The draft CDP also proposes to retain the modest area of natural vegetation that remains on the site as POS, this vegetation is located along the western border of Part Lot 306.

The Environmental Review was released for public review and comment for seven weeks between 23 February 2001 and 12 April 2001. Six submissions with environmental content were received, these were from Agriculture Western Australia, CMS Gas Transmission of Australia, the Water and Rivers Commission the Department of Conservation and Land Management, Nazer Pty Ltd and two members of the public. The contents of the submissions together with the responses to these submissions from the City of Rockingham are summarised in Appendix 6.

3. Relevant Environmental Factors

It is the EPA’s opinion that the following are the environmental factors relevant to the proposed scheme amendment, which require detailed evaluation in this report:

- (a) Protection of regionally significant vegetation that abuts the site;
- (b) Protection of ‘Conservation Category’ wetlands in proximity to the site;
- (c) Soil and groundwater contamination;
- (d) Impact of odour, particulates, noise and spray drift from land uses adjacent to, and in proximity to the site; and,
- (e) Risk to public health and safety from the high-pressure gas pipeline.

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 consideration of the characteristics of the development that may occur under the proposed new zone. Appendix 3 identifies the relevant environmental factors, and summarises the evaluation of preliminary factors not discussed in detail in the main body of this report.

Details on the relevant environmental factors and their assessment are contained in Sections 3.1 to 3.5. And a summary of the assessment of the environmental factors is presented in Appendix 4.

3.1 Vegetation

Description

A significant area of natural bushland borders the western and southern sides of the amendment area. This area of bushland (which includes wetland areas) covers a total area of approximately 1617 hectares and is recognised to be of regional conservation value by previously being protected as System 6 Conservation Reserve M103 and more recently as Bush Forever Site No. 356 (Sinclair Knight Merz, 2000 and Western Australian Planning Commission, 2000).

The possible impacts of the proposed rezoning and associated development on the adjacent remnant vegetation include: (Sinclair Knight Merz, 2000).

- weed invasion;
- spread of dieback fungus;

- altered fire regimes;
- physical disturbance and erosion from increased human recreational activities; and
- hydrological impacts.

Assessment

The area considered for assessment of this factor is the south-western boundary of Lot 313, which directly abuts Bush Forever Site No.356. The EPA’s environmental objective for this factor is to “Maintain the abundance, species diversity, geographic distribution and productivity of vegetation communities”.

Given that the regionally significant vegetation is located outside of the amendment area, the key to managing the impacts on this vegetation lies in controlling “edge effects” at the interface between the new development zone and the bushland. Edge effects can be addressed through a number of mechanisms, including the provision of a hard boundary between the two sites, ideally a road, managing dieback during construction and planning for the increased recreational demands brought with the increase in population.

Summary

Having particular regard to:

- (a) the fact that the regionally significant vegetation is located outside of the amendment area; and
- (b) the range of mechanisms available for mitigating “edge effects” on this vegetation;

it is the EPA’s opinion that the proposed scheme amendment, if implemented, can meet the EPA’s environmental objective for this factor, provided that the conditions contained in Appendix 5 are incorporated into the City of Rockingham’s Town Planning Scheme No.1.

3.2 Wetlands

Description

Opwin Swamp and Spot Swamp (wetlands of the Stakehill Suite) are located on adjacent properties in the vicinity of the Amendment area. Both wetlands can be described as seasonal damplands, and have been assigned ‘Conservation Category’ status by the Water and Rivers Commission.

The potential impacts of the proposal on these wetlands are:

- Changes to water levels in the wetland due to changes in the hydrological (surface runoff) and hydrogeological (groundwater levels) regimes; and
- Adverse impacts due to an increase in pollutants entering the wetlands via surface runoff or groundwater inflow.

Assessment

The assessment of this factor considers the possible off-site impacts of the proposed new zone on the nearby wetlands. The EPA’s environmental objective for this factor is to “Maintain the integrity, functions and environmental values of the wetlands.”

With respect to the possible hydrological impacts, the EPA’s objective can be met through the careful design and engineering of development within the amendment area. The design will need to encourage the infiltration of stormwater through Water Sensitive Urban Design Principles and adequate infiltration basins.

Pollution impacts could be mitigated by incorporating gross pollutant traps (to remove litter and larger organic material) and sediment traps into the drainage system. With respect to nutrient pollution, it is considered that this impact will be less significant under the proposed change in land use, considering that there is likely to be a significant reduction in the application of fertilizers (taking into account previous market garden practices, and comparing it with typical residential fertilizer application rates).

It is also noted that Opwin and Spot swamps are retained within bushland areas and are protected from the amendment area by buffers of natural vegetation.

Summary

Having particular regard to:

- (a) the fact that the development of the amendment site can incorporate Water Sensitive Urban Design principles, and pollutant traps;
- (b) the likely reduction in fertilizer use on the site with the proposed change in landuse; and
- (c) the fact that the wetlands are provided with a vegetated buffer, providing protection from direct impacts associated with development within the amendment area;

it is the EPA's opinion that the proposed scheme amendment, if implemented, can meet the EPA's environmental objective for this factor, provided that the conditions contained in Appendix 5 are incorporated into the City of Rockingham's Town Planning Scheme No.1.

3.3 Soil and Groundwater Contamination

Description

Previous agricultural activities (market gardening) within the amendment area may have contaminated the soil or groundwater to a level that it is not suitable for the proposed residential development. Potential contamination can be categorised as follows:

- Herbicides and pesticides;
- Nutrients; or
- Diesel fuel.

Assessment

The EPA's environmental objective for this factor is to "Ensure that soil contamination levels do not pose a risk to the health of future residents".

A preliminary site investigation, which provides a summary of the previous uses of the site, has not identified any signs or risks of significant contamination. This investigation in itself is insufficient to determine if the EPA's objective can be met. However, the City of Rockingham has proposed scheme provisions that will require the preparation and implementation of a soil and groundwater remediation plan prior to development. This plan will identify the nature and extent of any soil or groundwater contamination and will set out the procedures for the remediation or management of any significant contamination that is identified.

Summary

Having particular regard to:

- (a) the lack of any signs of significant contamination identified during the preliminary investigation; and
- (b) the requirement for further site investigations and the remediation or management of any significant contamination prior to development of the site;

it is the EPA's opinion that the proposed scheme amendment, if implemented, can meet the EPA's environmental objective for this factor, provided that the conditions contained in Appendix 5 are incorporated into the City of Rockingham's Town Planning Scheme No.1.

3.4 Odour, Dust/Particulates, Noise and Spray Drift Impacts

Description

The amendment area is partially surrounded by rural or semi-rural land uses. Market gardens are situated immediately to the north and east of Pt Lot 306, immediately northeast of Pt Lot 16 and at least 200 metres west of Lot 313 beyond a rural residential area (see Figure 2), and a poultry farm is situated 180 metres to the east of Pt Lot 306.

These operations are potential sources of odours, dust or particulates, noise and spray drift that may impact future residents of the Amendment area.

Assessment

The EPA's environmental objective for this factor is to "Protect the health and amenity of future residents from noise, odour and spray drift impacts (individually and cumulatively) by implementing appropriate environmental and planning measures to ensure that levels meet statutory requirements and acceptable standards."

With respect to odour impacts, the main pollution source is a poultry farm located 180 metres (at the closest point) from the amendment area. This distance is significantly less than the 500 metre generic separation distance recommended by the draft Environmental Protection Authority Policy for Industrial - Residential Buffer Areas (Separation Distances).

To assess the odour impacts from the poultry farm on the amendment area, a site-specific assessment was conducted as part of the environmental review. This assessment concluded that the odour criteria for poultry sheds recommended by the EPA, are met at a distance of 100 metres (or greater) from the farm. This indicates that odour impacts on the amendment area, which is a minimum of 180 metres from the poultry farm, are acceptable for residential land use.

The relatively restricted area impacted by odour from the poultry farm is due to the relatively small number of poultry on the farm and the large sheds in use.

The EPA also notes that the poultry farm is located on land that is zoned "Urban Deferred" under the Metropolitan Region Scheme, which makes any expansion to the farm improbable, and also indicates that its continued operation in the long term is unlikely.

Based on this evidence, the amendment area is not expected to be subjected to any unacceptable odour impacts from the poultry farm.

Dust generation from market garden activities is expected to have no significant impact on the amendment area. This is mainly due to the low silt content in the soil, and the fact that sowing, the major form of land disturbance, is only carried out when the soil is moist. In addition to this, the market gardens located adjacent to the amendment area are to the north and east, and the prevailing southerly and westerly winds are likely to carry dust away from the proposed new residential area (amendment area).

The assessment of potential noise impacts from adjacent land uses on the amendment area has identified two significant sources of noise:

- tractor use on the market gardens; and
- the market garden irrigation systems.

Current market garden operations do not require night time use of tractors, therefore the assigned L_{A1} noise level of 55 dB(A) would apply according to the *Environmental Protection (Noise) Regulations 1997* (DEP, 1997). The irrigation systems do operate at night, and are therefore required to comply with assigned L_{A10} noise levels of 35dB(A) for the night period.

Modelling of expected noise levels indicated that at a distance of ten metres in standard conditions, noise from the tractor and irrigation system would be 57 dB(A) and 48 dB(A) respectively. Further noise modelling suggests that a 2.2 metre boundary wall between the market gardens and the amendment area would reduce this noise to 46dB(A) and 35dB(A) respectively, which meets allowable levels under the Regulations.

With respect to spray drift, the environmental review includes a basic assessment of spray drift impacts on the amendment area, which suggests that impacts from adjacent market garden operations will not be significant. This is supported by:

- the nature of the spraying operations, which involve tractor booms at a height of 30 centimetres from the ground, operated at low pressures, and during the cooler (and therefore calmer) times of the day;
- the fact that the prevailing winds will carry excess spray away from the amendment area; and
- the 2.2 metre boundary wall to be constructed around the northern and eastern boundaries of the northern amendment area to address noise impacts (as discussed above) which will also intercept spray drift.

No measurements or modelling has been undertaken to verify that impacts from spray drift on the amendment area will not be significant.

During the preparation of the Environmental Review, the City of Rockingham concluded that noise and spray drift impacts on the southern amendment area (south of Fifty Road) were not expected to be significant because that area is separated from market garden and poultry farm operations by Fifty Road and at least 100 metres of semi-cleared land. Also, the prevailing winds are such that spray drift would tend to be blown away from the southern amendment area.

However, one submission received during the review period identified a further source of spray drift that had not been previously considered. The submission suggested that a tree farm located on Fifty Road, between the two amendment areas, might be a source of insecticide spray drift that could affect the southern amendment area. While it is likely that the small nature of the tree farm operation will enable impacts from the spraying activities to be acceptably managed, this issue has not been investigated.

To assist in the assessment of health impacts on future residents of the amendment area, if market gardens are still operating on the adjacent lot at the time of development, the advice of the Health Department of Western Australia was sought. This advice highlighted the uncertainty of spray drift impacts on the health of residents due to a number of factors including future changes in farming practices.

Given the degree of uncertainty associated with spray drift impacts from the surrounding rural and semi-rural land uses (market gardens, tree farms etc.) it is considered that further work will be required to quantify these impacts prior to the development of the site. In response to the possible spray drift impacts from the tree farm, the City of Rockingham has also identified the requirement for further investigation of this issue.

With respect to the more general issue of managing the landuse conflicts between market gardens and residential development, it is worth clarifying that the EPA's Draft Policy for

Industrial Residential Buffer Areas (Separation Distances) still recommends a minimum buffer distance of 500 metres between market gardens and the nearest residence. This buffer is generic and therefore conservative, but is designed to minimise the impacts of odours, dust or particulates, noise and spray drift on residents. Managing these impacts within acceptable limits is a common problem for local governments and other regulatory bodies, particularly in the rural – urban fringes of metropolitan areas.

Although there is a potential for a reduction in this buffer on a case by case basis, and through site specific studies, a proactive strategy to plan for necessary buffers between potentially conflicting landuses is more effective. This task is best taken on by planning agencies prior to the initiation of scheme amendments and landuse planning strategies.

Summary

Having particular regard to the:

- (a) odour measurements and modelling carried out for the site, indicating that the site will not be significantly affected by odour pollution;
- (b) the nature of the soils and farming operations which indicates that dust impacts on the amendment area are unlikely to be significant;
- (c) the assessment of noise impacts on the site, which indicates that noise impacts can be satisfactorily managed by the construction of a suitable boundary wall; and
- (d) the preliminary investigation into spray drift impacts, which suggests that the small scale and low impact nature of the surrounding rural and semi-rural landuses will not cause significant spray drift impacts providing that a further more detailed spray drift investigation is conducted and appropriate management measures are implemented

it is the EPA's opinion that the proposed scheme amendment, if implemented, can meet the EPA's environmental objective for this factor, provided that the conditions contained in Appendix 5 are incorporated into the City of Rockingham's Town Planning Scheme No.1.

3.5 Risk to Public Health and Safety from the High Pressure Gas Pipeline

Description

CMS Gas Transmission of Australia operates a high-pressure gas pipeline that runs along the western boundary of Lot 306 and through the western area of Lot 313 (refer to Figure 1). The implementation of this amendment has the potential to expose future users and residents of the site to unacceptable levels of public risk.

Assessment

The EPA's environmental objective for this factor is to "Ensure that risk is managed to meet the EPA's criteria for individual fatality risk off-site and the Department of Minerals and Energy's requirements in respect of public safety; and ensure that public risk associated with implementation of the proposal is as low as is reasonably achievable and in compliance with the criteria detailed in EPA Bulletin 906."

The risk to public safety in relation to the location of this CMS pipeline through residential development has been previously assessed by the EPA in Bulletin 906 *City of Rockingham Town Planning Scheme No.1 Amendment 295 (Baldivis Town Centre) – City of Rockingham* (EPA, 1998).

To address this environmental factor the City of Rockingham has proposed a number of provisions which restrict certain landuses and activities within the vicinity of the pipeline, prescribe certain development setbacks from the pipeline, and require the preparation of a Pipeline Management Plan.

These proposed scheme provisions are in accordance with the EPA's Bulletin 906 and therefore meet the EPA's environmental objective for this factor.

Summary

Having particular regard to the:

- (a) scheme provisions proposed by the City of Rockingham which restrict certain landuses and activities within the vicinity of the pipeline, prescribe certain development setbacks from the pipeline, and require the preparation of a Pipeline Management Plan;

it is the EPA's opinion that the proposed scheme amendment, if implemented, can meet the EPA's environmental objective for this factor, provided that the conditions contained in Appendix 5 are incorporated into the City of Rockingham's Town Planning Scheme No.1.

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 proposed scheme amendment and on the conditions to which the proposed scheme amendment should be subject, if implemented.

Having considered the Responsible Authority's environmental management measures, scheme provisions and the information provided in this report, the EPA has developed a set of conditions which are consistent with but replace those environmental management measures in the proposed scheme amendment documentation, if the proposed scheme amendment is approved for implementation.

These conditions are presented in Appendix 5. Matters addressed in the conditions include the following:

- (a) a Drainage and Nutrient Management Plan to be prepared and implemented;
- (b) a Soil and Groundwater Contamination Investigation and Remediation Plan to be prepared and implemented;
- (c) a Protection Plan for the high-pressure gas transmission pipeline to be prepared and implemented;
- (d) a Spray Drift Investigation and Management Plan to assess and mitigate possible impacts on the amendment area from chemical spaying occurring on nearby rural landuses;
- (e) a Vegetation Management Plan to protect the regionally significant vegetation abutting the Amendment area;
- (f) development setbacks and activity restrictions in proximity to the high-pressure gas transmission pipeline; and
- (g) noise attenuation measures to be implemented to protect future residents of the amendment area from noise impacts associated with adjacent rural landuses.

It should be noted that other regulatory mechanisms relevant to the proposed scheme amendment are:

- the *Aboriginal Heritage Act, 1972*; and
- the *Environmental Protection (Noise) Regulations 1997* (Department of Environmental Protection, 1997)

5. Conclusions

The EPA has considered proposed Amendment No. 300 to the City of Rockingham Town Planning Scheme No. 1, to rezone Part Lots 306 & 16 and Lots 313 & 774 Fifty Road,

Baldivis, from “Rural” to residential “Development” zone. The EPA has concluded that the proposal can be implemented to meet the EPA’s objectives, provided that the conditions recommended in Section 4 and set out in Appendix 5 are imposed and enforced.

6. Recommendations

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

1. That the Minister notes that the proposed scheme amendment being assessed is the City of Rockingham Town Planning Scheme No. 1 Amendment No. 300 to rezone Part Lots 306 & 16 and Lots 313 & 774 Fifty Road, Baldivis, from “Rural” to residential “Development” zone;
2. That the Minister considers the report on the relevant environmental factors as set out in Section 3;
3. That the Minister notes that the EPA has concluded that the EPA’s objectives can be met, provided there is satisfactory implementation by the Responsible Authority of the recommended conditions set out in Appendix 5.
4. That the Minister imposes the conditions and procedures recommended in Appendix 5 of this report.

Appendix 1

List of Submitters - Environmental Issues

Government Agencies:

Agriculture Western Australia;
Water and Rivers Commission; and
Department of Conservation and Land Management.

Other Organisations:

CMS Gas Transmission of Australia; and
Nazer Pty Ltd

Individuals:

G. Ivankovich; and
D. Mumford

Appendix 2

References

1. Environmental Protection Authority 1998, *City of Rockingham Town Planning Scheme 1 Amendment 295 (Baldivis Town Centre): City of Rockingham*, Bulletin 906, Environmental Protection Authority, Perth, Western Australia.
2. Government of Western Australia, 1997 *Environmental Protection (Noise) Regulations 1997*
3. Sinclair Knight Merz, 2000. *Town Planning Scheme No.1 Amendment 300 Pt Lots 306 & 16 and Lots 313 & 774, Fifty Road, Baldivis - Environmental Review*, unpub.
4. Western Australian Planning Commission, 2000. *Bush Forever*, Western Australian Planning Commission, Perth, Western Australia

Appendix 3

Identification of Relevant Environmental Factors

Appendix 3: Identification of Relevant Environmental Factors

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Relevant Environmental Factors
BIOPHYSICAL			
Vegetation Communities	<p>A small portion of native remnant vegetation lies within the amendment area in the south-west corner of Pt Lot 306. This vegetation has been degraded from previous grazing practices. It is proposed to retain this vegetation as open space in the future development of the site.</p> <p>A significant area of vegetation borders the eastern and southern sides of the amendment area. To the south the site abuts <i>Bush Forever Site No.356</i>. “Edge effects” on this bushland from the proposed development could include disturbance from weeds, dieback, fires, physical disturbance from increased usage and hydrological impacts.</p>	<p>Government Agency Submission – CALM</p> <ul style="list-style-type: none"> Given the significant conservation values of the Rockingham Lakes Regional Park, which lies immediately adjacent to the scheme area, the proponent should ensure that there is no negative impact on the Regional Park both during and after the construction phase. It should be the responsibility of the proponent to ensure that a hard edge (in the form of a road) is constructed to minimise edge effects between the development and the adjacent Regional Park. It should also be their responsibility to construct appropriate fencing on the private property adjoining the Regional Park. Prior to constructing this fencing, consultation should be undertaken with the Regional Parks Branch of the Department of Conservation and Land Management. 	<p>Requires further evaluation.</p> <p>Considered to be a relevant environmental factor</p>
Wetlands	<p>Opwin Swamp and Spot Swamp (wetlands of the Stakehill Suite) are located in the vicinity of the Amendment area. Both wetlands can be described as seasonal damplands, and have been given ‘Conservation Category’ status.</p> <p>The potential impacts of the proposal on these wetlands are:</p> <ul style="list-style-type: none"> Changes to water levels in the wetland due to changes in the hydrological (surface runoff) and hydrogeological (groundwater 	<p>Government Agency Submission – WRC</p> <ul style="list-style-type: none"> The proposed Drainage and Nutrient Management Plan should be carried out in consultation with the Water and Rivers Commission. <p>Government Agency Submission – CALM</p> <ul style="list-style-type: none"> Because the proposal occurs within the zone of secondary influence of Opwin and Spot Swamps, which are both Conservation Category Wetlands, the issues of effluent disposal and stormwater management are important, and comment from the Water and Rivers Commission should be obtained in this respect. <p>Public Submission</p> <ul style="list-style-type: none"> The proposed Development zone will damage the pristine 	<p>Requires further evaluation.</p> <p>Considered to be a relevant environmental factor</p>

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Relevant Environmental Factors
	<p>levels) regimes; and</p> <ul style="list-style-type: none"> ❑ Adverse impacts due to an increase in pollutants entering the wetlands via surface runoff or groundwater inflow. 	groundwater in the area.	
POLLUTION			
Soil Contamination	<p>Previous agricultural activities within the amendment area may have contaminated the soil or groundwater to a level that it is not suitable for the proposed residential development. Potential contamination can be categorised as follows:</p> <ul style="list-style-type: none"> ❑ Herbicides, pesticides etc; ❑ Nutrient contamination; or ❑ Diesel fuel. 	No submissions in relation to this factor.	<p>Requires further evaluation.</p> <p>Considered to be a relevant environmental factor</p>
Impact of odour, dust/particulates, noise and spray drift from land uses in proximity to the Amendment area.	<p>The amendment area is partially surrounded by rural and semi-rural land uses. Market gardens are situated immediately to the north and east, a poultry farm is situated 200 metres to the east and rural residential properties are located in between the two amendment areas.</p> <p>These operations are potential sources of odours, dust or particulates, noise or spray drift, that may impact residents of the amendment area.</p>	<p>Public Submission</p> <ul style="list-style-type: none"> • There is the potential for land use conflict between the proposed new zone and the surrounding market gardens and poultry farm. A covenant should be placed on titles within the new development zone to ensure that purchasers are made aware of these adjoining land uses and the associated odours, noise, dust and flies etc. • Farming practices on land immediately adjacent to the amendment area will continue for at least another eight to ten years. A fence of at least eight foot should be erected on the common fence line between Lots 306 and 55. This would hopefully minimise complaints about dust, spraying, noise, smells etc. However, these complaints will almost certainly occur anyway, as they have in other areas. People just do not want to live next to operations such as market gardens and poultry farms, and if the proposal goes ahead it is certain to cause many problems. • Insecticides used on a nearby tree farm, which are sprayed as high as 	<p>Requires further evaluation.</p> <p>Considered to be a relevant environmental factor</p>

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Relevant Environmental Factors
		<p>5 to 6 metres in the vertical, will cause spray drift problems for the amendment area. This will be of particular concern when wind is blowing from a westerly direction.</p> <ul style="list-style-type: none"> Dust or particulates from the proposed Development zone will cause health problems for those who live or work in the surrounding area. 	
SOCIAL SURROUNDINGS			
Risk to public health and safety from the high pressure gas pipeline.	CMS Gas Transmission of Australia operates a high pressure gas pipeline that runs along the western boundary of Lot 306 and through the western area of Lot 313.	<p>Public Submission</p> <ul style="list-style-type: none"> The Parmelia high pressure natural gas pipeline can be safely operated within a developed area with protection in place. The proponent should be required to conform to Local Government, AS 2885 standards and pipeline operator requirements for work affecting the pipeline and associated easement. To this effect, the proponent should be required to produce a Pipeline Protection Plan describing processes, procedures and measures to ensure public safety and pipeline protection. The Parmelia high pressure natural gas pipeline which runs within Lots 306 and 313 is currently protected by a freehold easement held by the pipeline operator. Under the proposal some of the easement area is designated as public open space and will therefore ultimately be vested in the Local Authority. The vesting of this freehold land requires the pipeline operator to surrender the easement, which is replaced by a Crown easement. A Crown easement does not provide the same protection and is more onerous on the pipeline operator. It is noted that the amendment will facilitate the construction of high density housing areas (R30 and R25) on both sides of the WANG HP gas pipeline, which operates at a flowline pressure of 400 P.S.I. Locating high density housing near a gas flowline is not a good idea, should a disaster happen one can imagine the carnage to residents and property. 	Requires further evaluation. Considered to be a relevant environmental factor

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Relevant Environmental Factors
<p>Protection of archaeological sites within the Amendment area.</p>	<p>A database search of the Register System was obtained from the Aboriginal Affairs Department. Archaeological and ethnographic surveys have been carried out in the area surrounding and including the amendment area for the proposed Kwinana Freeway extension, to the east of the amendment area and for the residential development of Lots 1 & 2, Baldivis Rd.</p> <p>None of the sites identified during these or any other surveys occur within the amendment area.</p> <p>Aboriginal sites are usually associated with features in the landscape, such as water sources or lithic outcrops. As most of the amendment area has been heavily disturbed and utilised for agricultural purposes for an extended period of time, it is considered to have a low potential to contain undiscovered archaeological sites.</p>	<p>No submissions in relation to this factor.</p>	<p>No Further Evaluation Required.</p>

Appendix 4

Summary of assessment of relevant environmental factors

Appendix 4: Summary of Assessment of Relevant Environmental Factors

Relevant Factor	Environmental Objectives	Assessment	Advice
BIOPHYSICAL			
Vegetation Communities	Maintain the abundance, species diversity, geographic distribution and productivity of vegetation communities.	<ul style="list-style-type: none"> Environmental objective can be met by implementing strategies to minimise “edge impacts” on the adjacent regionally significant vegetation. 	It is considered that the proposal can be managed to meet the EPA’s objective provided that the amendment includes provisions that require a Vegetation Management Plan to manage direct and indirect impacts on <i>Bush Forever Site No.356</i> .
Wetlands	Maintain the integrity, functions and environmental values of wetlands.	<ul style="list-style-type: none"> Environmental objective can be met by promoting infiltration of stormwater drainage through the implementation of water sensitive urban design principles, and by using gross pollutant traps, sediment traps, oil and surfactant traps and stormwater detention basins to minimise the amount of pollutants entering the wetlands. 	It is considered that the proposal can be managed to meet the EPA’s objective provided that prior to the development of the amendment area a Drainage and Nutrient Management Plan is prepared which incorporates water sensitive urban design principles and pollutant trapping mechanisms, to the satisfaction of the Water and Rivers Commission.
POLLUTION			
Soil or Groundwater Contamination	Ensure that soil contamination levels do not pose a risk to the health of future residents.	<ul style="list-style-type: none"> A site history report and a site inspection were undertaken. This Preliminary Investigation has not identified any significant signs of contamination. While this information is insufficient to determine if the EPA objective has been met, scheme provisions are proposed that will ensure this objective will be met prior to development by requiring a Detailed Site Investigation, Remediation Plan and Validation Report. 	It is considered that the proposal can be managed to meet the EPA’s objective provided that a Detailed Site Investigation, Remediation Plan and Validation Report are completed prior to the development of the amendment site, to the satisfaction of Council and the DEP.
Impact of odour, dust/particulates, noise and spray drift from land uses in proximity to the Amendment area.	Protect the health and amenity of future residents from noise, odour and spray drift impacts (individually and cumulatively) by implementing appropriate environmental and planning measures to ensure that levels	<ul style="list-style-type: none"> Odour impacts on the amendment area from the nearby poultry farm have been the subject of a modelling study conducted by the proponent. The results suggest that the DEP’s odour criteria will not be exceeded beyond 100 metres from the poultry farm, which is a minimum of 180 metres from the amendment area. This impact therefore requires no management measures to meet the EPA’s objective; 	It is considered that the proposal can be managed to meet the EPA’s objective provided that the amendment includes provisions that require: <ul style="list-style-type: none"> - Appropriate noise mitigation measures are implemented between the amendment area

Relevant Factor	Environmental Objectives	Assessment	Advice
	<p>meet statutory requirements and acceptable standards.</p>	<ul style="list-style-type: none"> • Dust/particulates emissions are not considered to pose a significant threat to the amendment area. This is based on the intensive nature of the land use, the use of irrigation and the low silt content of the soil. The major form of land disturbance is sowing which only occurs when the soil is wet. Should this issue become more significant, it considered that it can be acceptably managed by the City of Rockingham under it's own controls; • Noise impacts on the amendment area have been monitored and modelled by the proponent. The results suggest that a 2.2 metre wall along the boundaries that abut existing market gardens will bring noise impacts within the EPA's objectives. On that basis, this impact can be adequately managed provided that a 2.2 metre boundary wall, or similar mitigating mechanism, is constructed prior to the development of the site; • Spray drift impacts have potentially two sources. Firstly from the market gardens, which have been described by the proponent as having an insignificant impact on the amendment area due to the nature of the spraying operation. However, a detailed analysis has not been conducted, the proponent has merely suggested that the 2.2 metre boundary wall required to address the noise impacts will ensure that spray drift impacts will also be managed. Due to the limited analysis on this issue, it is recommended that a detailed investigation and management plan be required prior to development, and to the satisfaction of the Western Australian Planning Commission, Health Department and the City of Rockingham; • The second potential source of spray drift has been raised during public submissions. A nearby landowner claims that he sprays trees in his 'tree farm' with pesticide at a height of 5 to 6 metres. Although anecdotal information suggests this operation is minor and is unlikely to have significant off site impacts, it is recommended that this operation be included in the scope of the detailed investigation and management plan suggested for the market garden spray drift impacts. 	<p>and the market gardens (if they are still in operation) prior to the development of the site for noise attenuation. A 2.2 metre boundary wall may adequately perform this function; and</p> <ul style="list-style-type: none"> - the preparation and implementation of a detailed investigation and management plan regarding the impact of spray drift on the amendment area from adjacent market garden and other agricultural operations such as the 'tree farm' located on Lot 51 Fifty Road;

Relevant Factor	Environmental Objectives	Assessment	Advice
SOCIAL SURROUNDS			
<p>Risk to public health and safety from the high pressure gas pipeline.</p>	<p>Ensure that risk is managed to meet the EPA's criteria for individual fatality risk off-site and the DME's requirements in respect of public safety; and ensure that public risk associated with implementation of the proposal are as low as is reasonably achievable and in compliance with the criteria detailed in EPA Bulletin 906.</p>	<ul style="list-style-type: none"> • CMS Gas Transmission of Australia owns and operates the Parmelia high pressure natural gas pipeline, which runs within the western boundary of Lot 306 and through the western area of Lot 313; • In residential zones a risk level of 1 in a million or less deaths per year is considered to be acceptable. The DEP has advised that the meet this criteria an acceptable separation distance to development is 32 metres each side of the centreline of the pipeline; • For more sensitive land uses (ie aged persons accommodation and child care centres) the DEP has advised that a greater separation of 96 metres each side of the pipeline is acceptable (risk of 0.5 in a million or less deaths per year); • These separation distances, which are included in the provisions of the scheme amendment, assume that appropriate risk mitigation measures are implemented; • Minimum safety standards required by CMS and set out in the <i>Petroleum Pipelines Act 1969-70</i> and the Australian Pipeline Code AS 2885 1997 are also written into the scheme provisions. Another proposed provision states the uses that are prohibited within the pipeline easement; • In addition the proposal should comply with the risk assessment code of practice HB 105. Land uses which allow for large numbers of people to congregate should be excluded from within the 96 metre line. 	<p>It is considered that the new 'Development Zone' can be managed to meet the EPA's criteria for individual fatality risk off-site, and the DME's requirements in respect of public safety, provided that the proposed scheme provisions relating to appropriate landuses, activities, setbacks and a pipeline management plan are adopted.</p>

Appendix 5

Recommended Environmental Conditions

RECOMMENDED ENVIRONMENTAL CONDITIONS

STATEMENT THAT A SCHEME MAY BE IMPLEMENTED (PURSUANT TO THE PROVISIONS OF DIVISION 3 OF PART IV OF THE ENVIRONMENTAL PROTECTION ACT 1986)

CITY OF ROCKINGHAM TOWN PLANNING SCHEME NO. 1 AMENDMENT NO. 300
("DEVELOPMENT" ZONE, PT LOTS 306 & 16, AND LOTS 313 & 774, FIFTY ROAD,
BALDIVIS)

Scheme Purpose: To rezone Pt Lot 306, Pt Lot 16, and Lots 774 and 313
Fifty Road, Baldivis from "Rural" to "Development"
zone.

Responsible Authority: City of Rockingham

Responsible Authority Address: PO Box 2142, Rockingham WA 6967

Assessment Number: 1227

Report of the Environmental Protection Authority: Bulletin 1018

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:

CONDITIONS TO BE INCORPORATED INTO THE SCHEME BY INSERTION OF PROVISIONS IN SCHEME TEXT

1 Environmental Management Plans

1-1 The following Environmental Management Plans shall be prepared in accordance with the specifications set out in Attachment 1 in the Minister for the Environment's "Statement that a Scheme may be Implemented" No. [insert relevant Statement Number] published on [insert date], and shall be subsequently implemented in accordance with the provisions of the Plans, to the satisfaction of the City of Rockingham:

- Drainage and Nutrient Management Plan;
- Soil and Groundwater Contamination Investigation and Remediation Plan;
- Pipeline Protection Plan;
- Spray Drift Investigation and Management Plan; and
- Vegetation Management Plan.

2 High Pressure Natural Gas Pipeline

2-1 The following activities, land uses and developments are prohibited within the high pressure natural gas pipeline easement:

- Ground-disturbing activities, other than for the purposes for which the easement was created, and for uses and developments that comply with condition 2-2 below;
- Temporary residence (including caravans, camping and similar);
- Storage of materials and equipment;
- Fires and barbecues;
- Explosives, inflammables and corrosives (including storage of liquefied petroleum gas and fuel oil);

- Refuse disposal and landfill;
 - Service stations, fuel lines and storage of fuel;
 - Vegetation with an expected growth exceeding one metre in height, and plantings within one metre of the centre of the pipeline (with the exception of lawn); and
 - Large obstructions to the line of sight along the easement.
- 2-2 The following land uses and developments may be permitted within the high pressure natural gas pipeline easement, with the written approval of the local government on advice of the pipeline operator, subject to compliance with the Pipeline Protection Plan referred to in condition 1-1 above:
- Cycleways and footpaths;
 - Road crossings and services (with minimum depth of cover over the pipeline of 1.2 metres);
 - Public open space;
 - Signage and other facilities that are necessary to comply with the Pipeline Protection Plan referred to in condition 1-1 above; and
 - Car parking during the time that the adjoining land is being developed (with minimum depth of cover over the pipeline of 1.2 metres).
- 2-3 Minimum setbacks for land uses and developments from the centre of the high pressure natural gas pipeline shall be:
- 96 metres, in the case of sensitive development as determined by the local government on advice of the Department of Environmental Protection and the pipeline operator, and including aged persons' accommodation, child care centres, schools and hospitals;
 - 32 metres to the boundary of each residential lot, in the case of residential development; and
 - at the local government's discretion, following consultation with the Department of Environmental Protection and the pipeline operator, in the case of all other land uses and developments which facilitate the gathering of people within 96 metres of the centre of the pipeline.

3 Development in Proximity to Market Gardens

- 3-1 If the market gardens adjacent to Pt Lots 306 and 16 are continuing to operate at the time of subdivision, noise attenuation measures shall be designed and implemented so that noise impacts on the amendment area are in accordance with the *Environmental Protection (Noise) Regulations 1997*.

**CONDITIONS TO BE INCORPORATED INTO THE SCHEME BY
MODIFICATIONS TO THE SCHEME MAP**

4 Scheme Map

- 4-1 The Scheme Map for the City of Rockingham Town Planning Scheme No. 1 shall be amended by inserting the symbol EC and an appropriate modification to the legend of the Scheme Map, to show that environmental conditions apply to part of Pt Lot 306, part of Lot 16, Lots 774 and 313 Fifty Road, Baldivis.

SPECIFICATIONS FOR ENVIRONMENTAL MANAGEMENT PLANS

1 Drainage and Nutrient Management Plan

- 1-1 Prior to commencement of site works for subdivision or development, the subdivider or developer shall prepare a Drainage and Nutrient Management Plan to ensure that the rate, quantity and quality of water leaving the Amendment area will not adversely impact on Opwin and Spot Swamps, the Rockingham Groundwater Area groundwater supply, and the Peel-Harvey Estuarine System, to the requirements of the local government and on the advice of the Water and Rivers Commission.
- 1-2 This Plan shall:
- Define the catchment of Opwin and Spot Swamps in relation to the Amendment area;
 - Provide measures to facilitate the removal of pollutants and nutrients in accordance with the Water Sensitive Urban Design Best Practices;
 - Incorporate Best Practice Water Sensitive Urban Design principles to maximise onsite water infiltration generally;
 - Provide measures to prevent surface water runoff from entering the Opwin or Spot Swamps;
 - Provide mechanisms to minimise erosion during and after the development phase;
 - Provide a monitoring program, including definition of performance criteria and analysis procedures, to measure the performance of the Plan against objectives and performance criteria;
 - Provide contingency plans in the event that criteria are not achieved; and
 - Identify responsibilities for implementation of the Plan.

2 Soil and Groundwater Contamination Investigation and Remediation Plan

- 2-1 Prior to the commencement of site works for subdivision or development on any land that has previously been used for horticultural purposes, the subdivider or developer shall prepare and implement a Soil and Groundwater Contamination Investigation and Remediation Plan to the requirements of the local government and on the advice of the Department of Environmental Protection.
- 2-2 This Plan shall
- Include soil and groundwater investigation procedures to define the nature and extent of any soil or groundwater contamination, and identify areas where contamination levels exceed criteria recognised by the Department of Environmental Protection; and
 - In the event that the investigation finds unacceptable soil or groundwater contamination, describe procedures for further investigation of contamination, a detailed methodology for remediation prior to development, the standards to which any contaminated soil or groundwater will be remediated, and a management plan for contaminated areas, where necessary.

3 Pipeline Protection Plan

- 3-1 Prior to subdivision or development on any land within or abutting the high pressure natural gas pipeline easement, the subdivider or developer shall prepare a Pipeline Protection Plan to ensure protection of the pipeline during construction activities, to the requirements of local government, on the advice of the Department of Minerals and Energy and the pipeline operator.
- 3-2 This Plan shall
- Detail measures to ensure public safety and protection of the high pressure natural gas pipeline in accordance with the *Petroleum Pipelines Act 1969-70*, the Australian Pipeline Code AS 2885-1997, SAA HB105 and the Environmental Protection

Authority guidance statement for achieving its risk criteria for development in proximity to existing and proposed high pressure gas transmission pipelines, or the most recent equivalents recognised by the Environmental Protection Authority; and

- Identify responsibilities for implementation of the Plan.

4 Spray Drift Investigation and Management Plan

4-1 Prior to the approval of subdivision or development, the subdivider or developer shall prepare and implement a Spray Drift Investigation and Management Plan to the requirements of the Western Australian Planning Commission and the local government, on the advice of the Health Department of Western Australia and the Department of Environmental Protection.

4-2 This Plan shall

- Require undertaking investigations of spray drift from all potentially polluting rural or semi-rural activities occurring within the proximity of the Amendment area, to clearly define impacts on the health and amenity of future residents; and
- In the event that the investigations find that unacceptable health or amenity impacts are likely to affect the residents within the Amendment area, provide management strategies to ensure that impacts on the health and amenity of future residents are acceptable.

5 Vegetation Management Plan

5-1 Prior to subdivision approval, the subdivider shall prepare a Vegetation Management Plan that protects the regionally significant vegetation abutting the Amendment area, particularly *Bush Forever* Site No. 356, from direct and indirect impacts associated with the development, through the provision of a hard edge along the amendment boundary and the implementation of appropriate construction and access management measures.

5-2 The Vegetation Management Plan shall be prepared to the satisfaction of the local government and on advice from the Department of Conservation and Land Management and the Department of Environmental Protection.

Appendix 6

Summary of Submissions and Responsible Authority's Response to Submission

1. BIOPHYSICAL

Wetland

1.1 The Drainage and Nutrient Management Plan should be carried out in Consultation with the Water and Rivers Commission

No objection is raised to this matter and it is recommended that the relevant Environmental Condition (No.1-2), to be inserted in the Scheme, be modified to include reference to the Water and Rivers Commission as an approval authority.

1.2 The proposed Development Zone will damage the pristine Groundwater in the area.

The proposed development will be serviced by reticulated scheme water and sewerage. Direct impacts on the existing groundwater is therefore will therefore be limited from these servicing matters.

In relation to drainage, the applicant has advised that water sensitive drainage principles will be used to minimise the potential impacts on groundwater. Drainage basins will also be designed as detention basins and gross pollutant traps will be incorporated into the stormwater drainage system to remove litter and larger organic material. Additionally, hydrocarbon interceptors, will be included into the drainage system to remove oils and surfactants originating from the proposed development. The required Nutrient and Drainage Management Plan will ensure that such issues are suitably addressed.

1.3 Because the proposal occurs within the zone of secondary influence of Opwin and Spot Swaps, which are both Conservation Category Wetlands, the issues of effluent disposal and stormwater management are important, and comment from the Water and Rivers Commission should be obtained in this respect.

A dryland buffer up to 100m is provided between Spot Swamp and the amendment area by vegetation protected as part of Bush Forever site 356. There is also approximately 100m of bushland between Opwin Swamp and the nearest edge of the proposed development area, despite much of the area surrounding Opwin swamp being cleared.

As detailed above, reticulated scheme water and sewerage along with water sensitive design principles will reduce the potential impact of residential development on the ground water and wetlands.

The Water and Rivers Commission was forwarded a copy of the ER and did not offer comment on the matter. In any event, as mentioned above, it is recommended that the Water and Rivers Commission be included as an approval authority for the required Nutrient and Drainage Management Plan.

2. VEGETATION

2.1 Given the significant conservation values of the Rockingham Lakes Regional Park, which lies immediately adjacent to the scheme area, the proponent should ensure that there is no negative impact on the Regional Park both during and after the construction phase.

In relation to the above, the ER makes reference to the following management measures:

Weed Invasion

The construction of a road between the development and the bushland will minimise any impact of weeds on the bushland. Notification of declared plants (including a list of declared plants/flowers) should also be supplied to residents/new landholders (to be addressed at the subdivision approval stage).

Dieback

The proponent commits to undertaking a dieback survey within the amendment area prior to development, including along the edges that border the Bush Forever site. If the survey does detect dieback in the bushland, a dieback management plan would be developed for the amendment area, incorporating best practice in dieback management to minimise the impact of the development on the bushland.

Fires

The road along the boundary of the development will act as a fire break. Currently there is also a 5m wide fire break between the amendment area and the Bush Forever site. Fire Management is specifically mentioned in the proposed Environmental Conditions and such will also be required as a condition of subdivision approval.

Hydrological Impacts

Water sensitive design principles will promote infiltration of stormwater drainage therefore much of the drainage will be 'on-site'. Drainage basins will also be designed as detention basins and gross pollutant traps will be incorporated into the stormwater drainage system to remove litter and larger organic material. Additionally, hydrocarbon interceptors, will be included into the drainage system to remove oils and surfactants originating from the proposed development. As such, the impacts of drainage on the Bush Forever site will be minimal.

2.2 It should be the responsibility of the proponent to ensure that a hard edge (in the form of a road) is constructed to minimise edge effects between the development and the adjacent Regional Park. It should also be their responsibility to construct appropriate fencing on the private property adjoining the Regional Park. Prior to constructing this fencing, consultation should be undertaken with the Regional Parks Branch of the Department of Conservation and Land Management.

As detailed in the Environmental Review, section 4.1.4:

"The main management strategy proposed for the vegetation involves management of the edge effects at the interface between the development and bushland to the south and west (Bush Forever site 356). A hard edge, in the form of a road, will be used to minimise these edge effects. A road will run along the boundary of the development, minimising the impact of fires and weeds on the bushland."

These matters will be pursued by Council in the assessment of the required Comprehensive Development Plan which will guide the plan of subdivision.

3. FAUNA

3.1 Rare wildlife in close proximity to the proposal area will be disturbed.

Much of the natural vegetation in the amendment area had previously been cleared for agricultural purposes, and as such, few species will be directly disturbed by the development. The required Vegetation Management measures (Environmental Condition No. 4) will ensure that the quality of the adjoining Bush Forever Site 356 will be maintained, ensuring that the habitat for these species is not disturbed.

4. POLLUTION - Odour Dust/Particulates, Noise And Spray Drift

4.1 There is the potential for land use conflict between the proposed new zone and the surrounding market gardens and poultry farm. A covenant should be placed on titles within the new development zone to ensure that purchasers are made aware of these adjoining land uses and the associated odours, noise, dust and flies etc.

In the case of conflicting neighbouring land uses, Council will request that the WAPC impose a condition of subdivision approval that requires a Memorial be placed on the created Certificates of Title to ensure purchasers are aware of surrounding landuses. The ER, however, is considered to justify that residential amenity impacts from incompatible landuses will be minimal. Specific Environmental Conditions relate to the measures which need to be in place to achieve such.

4.2 Farming practices on land immediately adjacent to the amendment area will continue for at least another eight to ten years. A fence of at least eight foot should be erected on the common fence line between Lots 306 and 55. This would hopefully minimise complaints about dust, spraying, noise, smells etc. However, these complaints will almost certainly occur anyway, as they have in other areas. People just do not want to live next to operations such as market gardens and poultry farms, and if the proposal goes ahead it is certain to cause many problems.

Refer to Section 4.1 above. It is also noteworthy that the developer has stated that the release of lots will be staged such that the land in proximity to the incompatible landuses will be released last.

4.3 Insecticides used on a nearby tree farm, which are sprayed as high as 5 to 6 metres in the vertical, will cause spray drift problems for the amendment area. This will be of particular concern when wind is blowing from a westerly direction.

The presence of the tree farm at Lot 51 Fifty Road has not been addressed in the ER. Lot 51 is in close proximity to the land being rezoned (a minimum of approximately 50m) and it is considered that the potential for spray drift should be addressed in the ER.

4.4 Dust or particulates from the proposed Development zone will cause health problems for those who live or work in the surrounding area.

The Environmental Protection Authority has adopted Dust Control Guidelines which places limitations on the subdivision construction process such that the potential for dust nuisance is minimised. It is standard practice that conditions of subdivision and engineering approval be imposed to ensure compliance with the Guidelines.

5. SOCIAL SURROUNDS

5.1 The Parmelia high pressure natural gas pipeline can be safely operated within a developed area with protection in place. The proponent should be required to conform to Local Government, AS 2885 standards and pipeline operator requirements for work affecting the pipeline and associated easement. To this effect, the proponent should be required to produce a Pipeline Protection Plan describing processes, procedures and measures to ensure public safety and pipeline protection.

A Pipeline Protection Plan is required through Environmental Condition No. 1-1.

5.2 The Parmelia high pressure natural gas pipeline which runs within Lots 306 and 313 is currently protected by a freehold easement held by the pipeline operator. Under the proposal some of the easement area is designated as public open space and will therefore ultimately be vested in the Local Authority. The vesting of this freehold land requires the pipeline operator to surrender the easement, which is replaced by a Crown easement. A Crown easement does not provide the same protection and is more onerous on the pipeline operator.

This matter is not considered to influence the Environmental Review process which is seeking to ensure that any risk associated with the pipeline is effectively managed. The ER is considered to achieve this objective through the requirements of Environmental Condition No.2.

The tenure of the affected land, and the nature of the Easement which protects it, should be further clarified during the ensuing subdivision stages.

5.3 It is noted that the amendment will facilitate the construction of high density housing areas (R30 and R25) on both sides of the WANG HP gas pipeline, which operates at a flowline pressure of 400 P.S.I. Locating high density housing near a gas flowline is not a good idea, should a disaster happen one can imagine the carnage to residents and property.

The buffer distances prescribed for the various landuses from the pipeline have been developed, applied and accepted in other situations throughout the Metropolitan Region. The distances are based on the criteria set down by the Department of

Minerals and Energy and the EPA. Furthermore, the distances were confirmed during a Quantitative Risk Assessment prepared for Homeswest in relation to a parcel of land in Yangebup that is affected by the same high pressure gas pipeline.

The buffer distances are therefore deemed to be suitable. It should also be noted that R25/R30 is not high density development as suggested, rather these codings represent low/medium densities.

CONCLUSION

In the light of the above, it is considered that the content of the submissions do not require the approach and recommendations detailed in the Environmental Review being modified. It is deemed that the ER adequately justifies the form of development in relation to the identified environmental issues and suitable statutory measures (ie Environmental Conditions within the Scheme) will be put in place to ensure that the matters are managed.

The following minor modifications are recommended:

- (i) the inclusion of the Water and Rivers Commission as an approval authority for the required Nutrient and Drainage Management Plan (Environmental Condition No. 1-2); and
- (ii) the ER should make specific reference to the existing tree farm at Lot 51 Fifty Road and demonstrate that spray drift from this site will not cause nuisance to future residential properties.