

Proposed special industrial park at Inkpen Estate, Bakers Hill

Landcorp

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

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Summary and recommendations

Landcorp, the proponent, proposes to establish a special industrial park at Inkpen Estate, Bakers Hill 80km east of Perth (Figure 1). The park is to cater for the development of industries related to animal products processing such as abattoirs, rendering plants, fellmongeries, tanneries and wool scourers.

Inkpen Estate was identified as the preferred locality based on:

- a 1981 review by the Special Projects Section of the former Town Planning Department that identified the Northam region as a preferred area; and
- the results of a study by the Avon Community Development Foundation which included Inkpen (Bakers Hill) as one of the sites it considered suitable for industrial development for processing agricultural and mineral products.

The proposal to establish a special industrial park was referred to the Environmental Protection Authority by Landcorp and the level of assessment was set at Consultative Environmental Review. However, on appeal to the Minister for the Environment, the level of assessment was raised to Public Environmental Review. The Public Environmental Review was released for an eight week public review period on 12 October 1992, with close of submissions on 7 December 1992. There were 10 Government agency and 54 public submissions.

The Environmental Protection Authority has assessed the potential environmental impacts of the proposal and utilised additional information supplied by other Government agencies and the public. Officers of the Environmental Protection Authority have also organised a number of site inspections and discussed environmental issues with members of the public.

It is important to note that the Authority considers this to be a proposal to change the land use of the site from rural to one for industrial developments, together with the development of appropriate services (infrastructure) to the site. At this time there are no firm proposals for specific industries to locate to the park. It should also be noted that the proponent's primary role is that of a developer and that as industries establish in the park they would be subject to referral to the Environmental Protection Authority.

Accordingly, the Environmental Protection Authority considers that the main environmental issues of this proposal relate to:

- management of the centralised wastewater treatment system (especially odour control); and
- the provision of an adequate buffer zone around the site.

The Environmental Protection Authority's assessment also identified that changes to the rural character and amenity of the area and lifestyle were significant issues raised in submissions.

The proponent has made specific commitments to address the following issues: the centralised wastewater treatment system; the buffer zone; compensation for land owners within the proposed buffer zone; ongoing management of the park; and solid waste management. The Environmental Protection Authority considers that these commitments show Landcorp's awareness of the potential environmental impacts of its proposal and a willingness to address the issues.

With respect to Landcorp's proposed 1km buffer, the Authority considers that this distance is appropriate given the nature of the industries involved and lack of detailed information available on the processes and pollution control technologies that may be used. Furthermore, a similar distance between industry and residences is recommended by the Environmental Protection Authority in its Code of Practice for Rendering Plants and the Victorian EPA's Recommended Buffer Distances for Industrial Air Emissions .

If residences become established closer than the proposed 1km buffer, development of the park could result in land use conflicts which may ultimately make the park (or specific industries that may develop in the park) environmentally unacceptable. The Authority considers that developing most of Location 27679 is already constrained due to the presence of four residences within the proposed 1km buffer. Accordingly, the Authority recommends that:

Recommendation 1

The Environmental Protection Authority recommends that the proposal to establish a special industrial park at Inkpen Estate Bakers Hill is environmentally acceptable on Location 27680, and also that part of Location 27679 which provides a 1km buffer to existing residences.

This conclusion is based on consideration of the proponent's Public Environmental Review, submission received from the public and other Government agencies, responses to issues raised in submissions during the assessment (Appendix 2) and the proponent's commitments (Attachment 1 to Section 6).

In reaching this conclusion, the Environmental Protection Authority identified the main environmental factors requiring consideration to be:

- management of the centralised wastewater treatment system (especially odour control); and
- the provision of an adequate buffer zone around the site.

The Authority considers that these issues have been adequately addressed and that this proposal could proceed subject to its recommendations in this report

(see Section 6, Recommended Environmental Conditions)

In order to ensure that the proposed buffer is secured the Environmental Protection Authority recommends that:

Recommendation 2

The Environmental Protection Authority recommends that prior to the development of any industries within the park, the proponent should ensure that the proposed 1km buffer is secured from potentially incompatible development, including residences, to allow the full potential of the special industrial park to be realised. Failure to achieve this requirement may ultimately result in constraints to industries in the park (see Section 6, Recommended Environmental Condition 3-1).

Any development of the land forming part of the buffer area should ensure that it will not contribute to unacceptable environmental impacts. This does not suggest the buffer cannot be developed, only that the development must be carefully considered. For example, the buffer may include storage sheds or drainage basins.

Proposals for industries to be located in the park will be required to demonstrate, to the Environmental Protection Authority, that they are able to meet good operating standards both individually and cumulatively. In order that this issue is properly managed the Authority recommends that:

Recommendation 3

The Environmental Protection Authority recommends that prior to the sale or lease of land within the park, the proponent should ensure that a management body is established which has responsibility for the coordination of environmental issues associated with the special industrial park (see Section 6, Recommended Environmental Condition 3-2).

The Authority expects that part of the role of this management body will be in the collection, coordination and interpretation of data from the individual industries that develop in the park. The Authority would expect the management body to develop a plan whereby it monitors the collective impact of all industries in the park on the surrounding environment. In this way the cumulative environmental impacts of noise, odours, risk, surface and underground water issues would be considered as the park is progressively established.

It should be recognised that the structure of the management body would most likely include Landcorp as the original proponent and developer of the park and any new industry that establishes in the park. As such, the following recommendations would apply equally to Landcorp and the owners of specific industries that establish in the park.

Recommendation 4

The Environmental Protection Authority recommends that the management body should develop a management plan to show that the collective operations of all industries in the park are not causing unacceptable environmental impacts. This management plan should be structured such that new industries proposing to develop in the park can utilise it to help demonstrate that they will not individually, or cumulatively, cause any unacceptable environmental impacts (see Section 6, Recommended Environmental Condition 3-3).

It is expected that the collection and interpretation of environmental data would form part of any subsequent approval of individual industries in the park. Furthermore, given the management body's role in the development of and responsibility for the centralised wastewater treatment facility, it too will be required to collect data to show that no unacceptable environmental impacts occur. Accordingly, it is expected that the management body's primary role would be in the coordination of this data and presentation of the results to reflect the cumulative environmental impacts of the park. An important objective of this management plan is to show that the collective operations of the park are not causing unacceptable environmental impacts.

The Authority does not see the management body having a regulatory role over industries that develop in the park. Where an individual industry causes an unacceptable environmental impact, then the Environmental Protection Authority would address that issue specifically.

With respect to the operating conditions that may be set on specific industries as they establish in the park, the Authority has developed a list of 'environmental criteria' which it would expect industries in the special industrial park to meet.

Noise omitted from industries developed in the park will need to be controlled.

Recommendation 5

The Environmental Protection Authority recommends that the following noise levels should be applied so that residences are given the same level of protection as anywhere in Western Australia. This means that noise levels at residences should be:

- **40 dB(A) from 10pm to 7am, every day**
- **45 dB(A) from 7pm and 10pm every day and on Sunday and public holidays; and**
- **50 dB(A) from 7am and 7pm on Monday to Saturday.** (see Section 6, Recommended Environmental Condition 4-1).

With respect to dust industries should control emissions of particulate matter.

Recommendation 6

The Environmental Protection Authority recommends that the annual mean concentrations of particulate matter should not exceed 90 micrograms per cubic metre ($\mu\text{g}/\text{m}^3$) averaged over a 24-hour (1-day) time period. (see Section 6, Recommended Environmental Condition 5-1).

The management of solid and liquid waste is one of prime importance to the success of the special industrial park. Failure in this area has the potential to create unpleasant odours. At

this time, measuring 'odour levels' is not possible, and the Authority will be dependant on its own, and others, subjective assessment of odours when responding to complaints. The Authority's position is that offensive odours should not be detectable at residences. The Shire of Northam and information from the complaints register, to be kept by the proponent, will assist the Authority in managing this issue.

Recommendation 7

The Environmental Protection Authority recommends that no offensive odours be detectable at residences, and furthermore the proponent should keep an adequate complaints register. (see Section 6, Recommended Environmental Condition 6-1).

The environmental criteria for industries proposing to establish in the park (Attachment 2 of Section 6) address these and other issues. Accordingly, the Authority recommends that:

Recommendation 8

The Environmental Protection Authority recommends that information provided to occupiers/purchasers of each site includes the Authority's "Environmental criteria for industries proposing to establish in the special industrial park at Inkpen Estate, Bakers Hill (June 1993)", as amended from time to time by the Environmental Protection Authority (see Section 6, Recommended Environmental Condition 2).

Finally, based on its assessment of this proposal and recommendations above, the Environmental Protection Authority has developed a list of 'Recommended Environmental Conditions' (see Section 6 of this report) to the Minister for the Environment. The Authority considers that by setting these conditions on the development and operation of the park, the environment would be protected.

1. Introduction

The proponent, Landcorp, proposes to establish a special industrial park at Inkpen Estate, Bakers Hill 80km east of Perth (Figure 1). The primary purpose of the park is to cater for animal products processing industries such as abattoirs, rendering plants, fellmongeries, tanneries and wool scourers.

In a 1981 study prepared by the Special Projects Section of the former Town Planning Department, on the siting of animal products processing industries, the Northam region was identified as a preferred location for such industry. That study identified a site near the junction of Inkpen Road and Great Eastern Highway as the most highly ranked of all sites assessed.

Landcorp originally proposed the development of a special (ie animal products processing) industrial park on Location 29014 (Figure 2, opposite the intersection of Inkpen and Colgongine Roads) in November 1990. The Environmental Protection Authority set the level of assessment at Public Environmental Review. This proposal, together with a previous assessment of a sheepskin tannery at Bakers Hill in 1988, aroused significant local interest and concern. In May 1991 Landcorp withdrew its proposal for the special industrial park at Location 29014 due to concerns expressed by local residents and Government agencies regarding the clearing of existing native vegetation.

In response to concerns raised by the public, Landcorp commissioned a social impact assessment by CSIRO. Additionally, Landcorp commissioned an alternative sites study in the same area. The results of both studies led Landcorp to propose a site on the corner of Inkpen Road and Colgongine Road (Location 27679) (Figure 2). Additionally, based on the availability of a site adjacent to Location 27679 (which was considered to offer similar advantages to Location 27679) Landcorp included Location 27680 (Figure 2) in its proposal.

Some of the criteria used by Landcorp to select sites included:

- vegetation - the site should already be cleared;
- topography - moderately undulating terrain with slopes generally not exceeding 10% to facilitate drainage and waste water disposal;
- water resource - the site should be beyond a catchment area needed for public water supply, have well defined surface drainage and have a water table below 1.5 metres below ground level;
- soils - stable and well drained. Clay subsoils would assist in the construction of wastewater management facilities;
- separation - A buffer of 5km to gazetted townsites, 1km to residences and 500m to other significant developments;
- access - road access should not introduce heavy vehicle traffic to residential or tourist routes;
- services - electricity and water should be readily available to the site. On this basis a maximum 6km distance from the Goldfields Water Supply Pipeline was considered appropriate; and
- climate - generally, warm dry climate conditions characterised by low rainfall and high evaporation would be favoured.

When Landcorp referred the special industrial park proposal to the Environmental Protection Authority, the level of assessment was set at Consultative Environmental Review. However, on appeal to the Minister for the Environment, the level of assessment was raised to Public Environmental Review in December 1991. The Public Environmental Review was released for public comment on 12 October 1992, with close of submissions on 7 December 1992.

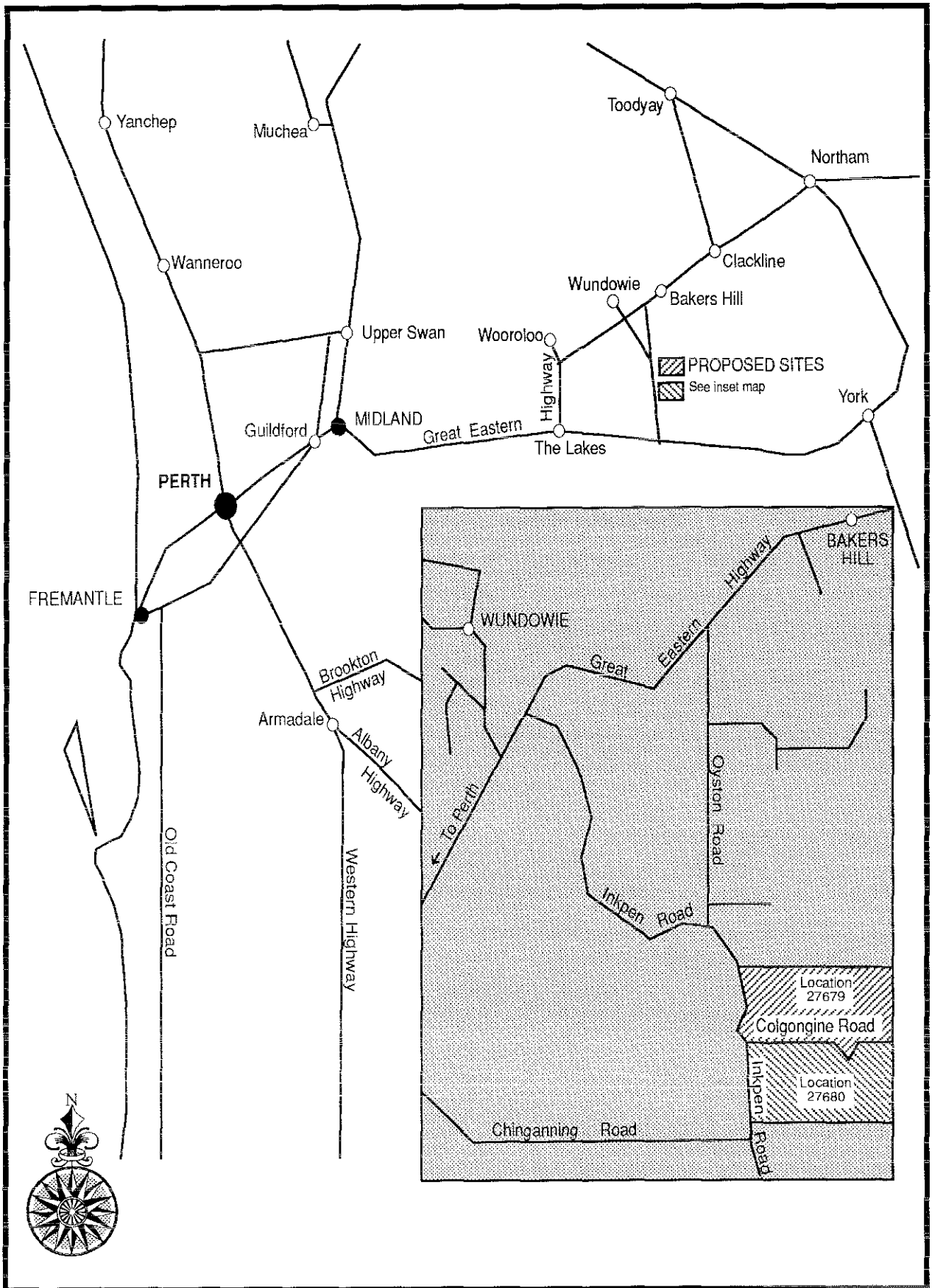


Figure 1: Regional location for proposed special industrial park at Inkpen Estate, Bakers Hill (modified from information provided by the Proponent)

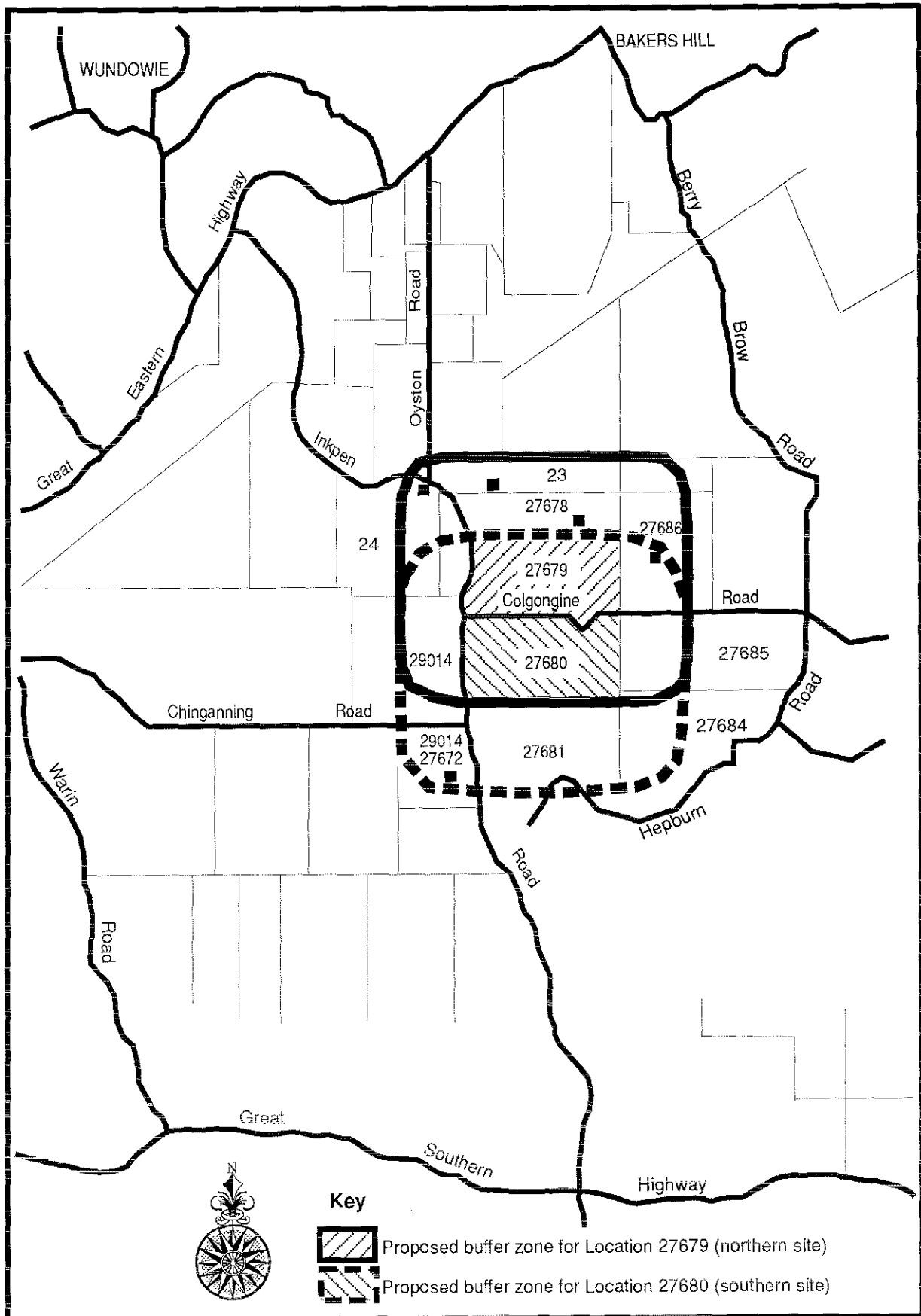


Figure 2: Location of residences and off-site buffers for Locations 27679 and 27680 (modified from proponent's Public Environmental Review)

2. Description of the proposal

Animal products processing industries have been sited in the Perth metropolitan area since the 1900's. Until recently, most were located sufficiently far from the populated areas of Perth not to cause land use conflicts. However, with the expansion of Perth's population and projected growth over the next twenty years, it is evident that such industries will be subject to, and have already experienced, increasing pressures to relocate.

Landcorp's role with respect to this issue is to ensure that suitable land and facilities are available to meet the anticipated needs of industry.

The Environmental Protection Authority has also advocated the establishment of suitable areas for these industries outside the Metropolitan area and off the Swan Coastal Plain for many years.

2.1 Potential industries for the park

The types of industry likely to establish in the park would be those related to animal product processing. These could include:

- abattoirs - undertake killing, dressing and some by-product processing of livestock;
- rendering plants - process offal, bones and other waste tissue to produce a tallow, grease and animal feeds;
- fellmongeries - recover wool from sheepskins and produce sheepskin leathers;
- tanneries - process and preserve hides, skins, and pelts produced from abattoirs; and
- wool scourers - process shorn or fellmongered wool to remove grease and dirt contained within the wool.

Of the five industries listed above the proponent expects not more than two of each type to be established in the park. The studies undertaken to demonstrate the acceptability of either of the two proposed sites is based on a presumption that 10 major industries will establish at the site.

2.2 Site description, infrastructure and access

The proposed sites cover approximately 250ha each (Figure 2) and have frontages to Inkpen and Colgongine Road. The sites are on cleared agricultural land and surface salinity problems are evident. The sites are located on the boundary of the Wooroloo and Avon catchments.

Power would be supplied from the mains within the Baker's Hill township and water would be supplied to the park via an extension off a main line from the Goldfields water supply pipeline.

Site access could be from either Great Eastern or Great Southern Highways via Inkpen Road. Assessments of the need for, and the undertaking of work associated with, the progressive upgrading of roads servicing the park has been accepted by the Shire of Northam.

2.3 Development and management of the park

Development of the site, including the provision of all services, is Landcorp's primary responsibility. However, once a site is developed, Landcorp's role and responsibilities will progressively be reduced. It is expected that Landcorp will reduce its equity in the park as each new industry develops until, at some time in the future, responsibility for the park is left with the remaining members of a proposed management body.

2.3.1 The management body

Landcorp proposes to set up a management body which would be responsible for ensuring compliance with all site operational requirements imposed by conditions attached to

environmental and other approvals for the park. This body would be composed of representatives of property owners/industrial operators within the park. Additionally, the proponent has committed to establish an advisory board to the management body which would comprise representatives of relevant State and Local Government, and the local community.

Land would be sold by the proponent to companies intending to locate within the park. Industries purchasing land in the park would need to obtain all necessary environmental and other approvals before commencing operations. They would also be required to adhere to rules and regulations set down by the park's management body.

2.3.2 The buffer zone

In order to reduce the potential for land use conflicts, which are a recognised issue with existing animal products processing industries, Landcorp has proposed a buffer zone around the park. It is expected that the distance established between inappropriate development, such as housing, and industry will be effective in preventing complaints (see section 4.2).

Landcorp has committed to initiate a zoning amendment for the special industrial park which allows for a 1km wide buffer zone, within which no new residential development would be allowed. Figure 2 shows the location of residences and the proposed 1km buffer for Locations 27679 and 27680.

Location 27679 contains 4 residences well within the proposed 1km buffer. Location 27680 includes two residence on the boundary of the proposed 1km buffer.

2.3.3 Waste management

The disposal of solid and liquid waste is an important factor in the establishment of any industrial park. Landcorp has added to the attraction of the special industrial park through a commitment to develop a centralised wastewater treatment plant. This plant would accept primary treated wastes from each industry in the park. The central plant would not rely on irrigation of treated wastewater, but evaporation from clay or synthetic membrane lined ponds. The operation and management of this plant would be the responsibility of the proposed management body.

With respect to solid waste management, Landcorp has made a commitment to identify a site suitable to the appropriate regulatory agencies following approval of the park (see section 4.3).

3. Issues raised in submissions

A total of 64 submissions were received by the EPA for this proposal. 10 Government agency and 54 public submissions. A list of those who made submissions is given in Appendix 1.

Relevant comments from submissions fell into the following broad categories:

- effects on rural character and amenity;
- lifestyle;
- property value;
- odours;
- noise;
- protection of surface and underground waters;
- liquid and solid waste disposal; and
- buffer zones.

The Authority has addressed most of these issues in its assessment. However, given the nature of this proposal (ie. a proposal to change the land use from rural to industry and not a proposal for the establishment of any specific industry) some issues have not been addressed in detail.

The EPA considers that the proponent has addressed the issues relating to potential environmental impacts from this proposal with specific commitments (Attachment 1 to Section 6) and, in responses to issues raised in submissions (Appendix 2).

The EPA considers it important to recognise the efforts of many of those who made submissions. Many submissions were extensive and provided the Authority with a great deal of information to use in its assessment. However, the Authority considers it important to explain the limitations of its assessment, especially to those people and groups that have made submissions raising significant issues of concern outside the EPA's responsibility.

The EPA recognises that its role in assessing social issues is not all encompassing and this can lead to confusion in the community. For issues such as noise, odour, dust, air emissions, risk, visual amenity or buffer zones, the EPA becomes directly involved. These are factors affecting people's amenity and fall within the generally accepted scope of 'environment'.

However, many significant issues raised in submissions are not directly related to EPA's responsibilities (eg. rural character, property values and some aspects of lifestyle). EPA appreciates that these issues are of direct and immediate concern to people that live in the community around the proposed special industrial park and takes this opportunity to draw them to the attention of the relevant Government and Local Government agencies established to address such matters.

Accordingly, the Authority recommends that the community input to date be incorporated into the planning decision making processes that follow environmental approval.

It should be noted that Landcorp commissioned a social impact assessment for this proposal and, that the results of that assessment were provided in the Public Environmental Review as Appendix C. The assessment was undertaken by the CSIRO ASSERT Social Science Unit and assisted the Authority in its assessment. The Authority considers that the study was extensive and certainly reflected the key issues of concern to the community. The study will greatly assist other agencies in their planning responsibilities.

The Environmental Protection Authority cannot guarantee unequivocally that no unacceptable impacts will occur. However, based on its experience, the controls that can be placed on individual industries in the park, the provision of a 1km buffer, the commitments made by Landcorp and the Authority's recommendations in this report the Authority considers that the special industrial park can be successfully managed at this locality.

In conclusion, EPA considers that some of the other concerns with this proposal (given that it is EPA's assessment that environmental impacts are manageable) fall within the jurisdiction of other agencies such as the Department of Planning and Urban Development and the Shire of Northam. These agencies administer the requirements of planning legislation.

4. Environmental impacts and their management

The Environmental Protection Authority considers that this proposal should be considered as a change in land use from rural to industrial along with the associated infrastructure and services to allow industry to develop. Accordingly, its assessment has not addressed issues which it considers appropriate to deal with when industries actually develop in the park. Each industry that develops will be subject to an evaluation by the Environmental Protection Authority and, issues such as noise, dust, odours, lighting, pollution control and prevention will be more specifically addressed at that time.

Issues which the Environmental Protection Authority considered most appropriate to address at this stage of the park are discussed below.

4.1 Buffer zones

It is expected that there is an appropriate separation between incompatible land uses (eg industry and residences). For the special industrial park, the Authority considers that the proposed 1km buffer is reasonable based on its own experience and similar values used in the eastern States.

Within the buffer zone, it is appropriate that compatible land uses continue, and it is possible for some development to occur. That is, buffer zones should not be seen to sterilise the development of an area of land. The purpose a buffer is to control inappropriate developments and separate incompatible land uses.

The Environmental Protection Authority considers that all proposed industrial parks which have the potential for unacceptable impacts beyond their boundaries should make provision for a buffer zone. With an appropriate buffer zone issues such as noise, air emissions, odour, leachates, risks and hazards and ground and surface water impacts are more easily managed. The size of any buffer zone between industrial and surrounding residential areas, and other incompatible areas, is dependent on issues such as the type and number of hazardous industries, the properties of the materials involved, the quantity and physical conditions of the materials stored, meteorological and topographical conditions.

The effectiveness of the buffer is directly linked to its size, the uses of the land within the buffer and operations of industries within the industrial park. The presence or establishment of residences within a buffer zone is not acceptable. If a residence is established, then industry would be required to meet residential standards at its property boundary or the nearest residence. Clearly, it is the Environmental Protection Authority's objective to ensure that buffer zones are provided so that both the public and industry are protected against potential land use conflicts.

The proponent has committed to initiate a zoning amendment for the special industrial park which allows for a 1km wide buffer zone (Figures 2), within which no residential development would be allowed.

The Environmental Protection Authority considers that operations within the proposed special industrial park are dependant on the 1km buffer being secured. In this respect, if the proposed amendment to the Town Planning Scheme is not successful, alternative mechanisms will need to be explored. While the Environmental Protection Authority does not consider it appropriate to offer advice on either of these mechanisms or others that could be successful, the Authority does consider that it has a responsibility to identify the implications of a failure to secure the proposed buffer .

Should the proposed amendment fail, development of the special industrial park is likely to be severely restrained. That is, it will become necessary for industries wishing to establish in the park to prove (individually and when considered with any existing development) that they can meet the environmental criteria required by the Environmental Protection Authority at the boundary of the park or the nearest residence.

Recommendation 2 in the Summary and recommendations section of this report addresses this issue.

4.2 Waste management

The development of a central wastewater treatment plant was discussed in section 2.3.3 above.

Liquid waste disposal for the proposed development would be based on the use of evaporation ponds. To accommodate this, an area of up to 110ha is required to provide for a central wastewater treatment plant and evaporation ponds.

Potential environmental impacts that could arise from such a large area of evaporation ponds are leakage and odour.

The proponent has indicated that the ponds would be lined with either a high density polyethylene sheeting or low permeability clay. As such, the ponds should have a negligible effect on the already saline groundwater in the Inkpen locality. The proponent has also indicated that a monitoring programme would be established in conjunction with the Environmental Protection Authority and the Water Authority of Western Australia to check for any leakage into the groundwater. The management of the central facility and development of this programme would be the responsibility of the proposed management body (see section 4.3). Should any impact occur on the groundwater the specific industry responsible, or the management body proposed for the park, would be required to rectify the pond(s) performance.

The Environmental Protection Authority notes that use of the wastewater for irrigation of surrounding agricultural land has not been proposed. However, it also recognises that such a proposal may be developed in the future. **Accordingly, the Environmental Protection Authority considers it appropriate to advise that at least one issue that should be fully addressed is potential impacts with respect to the salt level in; the wastewater, the soil profile and groundwater. It is the Environmental Protection Authority's understanding that the level of salt storage in the soil profile is very high and that one effect of irrigation of the treated wastewater may be the undesirable development or advancement of surface salinity problems.**

Odours that may develop from the the proposed treatment system would normally be associated with a failure of anaerobic digestion ponds to reduce the biochemical oxygen demand (BOD) level of incoming effluents. In recognition of this problem, the proponent has committed to include a specific design criterion for the centralised treatment plant which aims to limit the spread of odours to a distance of approximately 500m from the boundaries of the ponds. **If odour problems do arise, the management body and individual industry responsible would be required to ensure that remedial action was undertaken to eliminate the problem.** Recommendation 7 in the Summary and recommendations section of this report addresses this issue.

With respect to solid waste management, the proponent will be required to use a yet to be identified and approved landfill site. The proponent has made a specific commitment to this effect. The identification, approval and establishment of a site may delay industries establishing at the special industrial park. Accordingly, the Environmental Protection Authority suggests that the proponent take the initiative in addressing this issue.

4.3 The management body

As discussed above in section 2.3.1, Landcorp has made specific commitments with respect to the establishment and operation of a 'management body'.

The Environmental Protection Authority considers that the proponent's proposal to establish a management body is a sensible approach. It provides an extra level of security for the community and Government in that a body is established to represent the operations of the park as a whole. This should allow for issues which are normally difficult to address (eg cumulative impacts from air emissions and other discharges) to be more easily managed. Aside from these benefits, this proposal requires that such a body is established in order to manage the central wastewater treatment plant. The proponent has made specific commitments to this effect and the Environmental Protection Authority has considered these commitments in reaching a decision on this proposal. Recommendation 3 in the Summary and recommendations section of this report supports the formation of the proposed management body.

4.4 Monitoring and cumulative impacts

The proponent has indicated that in order to assess changes at the site due to industry development, background data would be developed as required by the Environmental Protection Authority or other relevant Government agencies on surface and underground water quality and air quality.

Monitoring bores may be required around the evaporation ponds to monitor any seepage that could occur and facilitate recovery if necessary. Monitoring programmes would also be established by individual industries as agreed with the responsible authorities (eg. Environmental Protection Authority, Water Authority of WA). Results of these monitoring programmes would be reported to the relevant authorities and the Environmental Protection Authority would expect them to be available to the public.

The proponent has indicated that should an unplanned environmental impact occur, the incident would be reported to the Environmental Protection Authority and other responsible authorities and remedial action taken by the responsible industry to rectify the impact.

The Environmental Protection Authority considers that the proponent should collect sufficient background data on environmental parameters such as ground and surface water quality, air quality and noise at Inkpen and other environments likely to be impacted by industries to be located there, prior to the establishment of those industries within the park.

Recommendations 4, 5 and 6 in the Summary and recommendations section of this report relate to this issue.

To ensure that any cumulative impacts of industry on adjoining lands are managed, the Environmental Protection Authority considers that the proponent may need to undertake cumulative environmental impact studies during the life of the project. Proponents for industries to be located in the park would be required to demonstrate to the Environmental Protection Authority that they are able to meet operating standards at the park boundary both individually and cumulatively. As discussed above (section 4.1), cumulative impacts is an issue which lends itself to be managed through the proposed management body. Recommendations 3 and 4 in the Summary and recommendations section of this report addresses this issue.

4.5 Environmental Protection Authority's guideline environmental criteria for industrial parks

In the proponent's PER a number of environmental management commitments were made in order to protect the environment. The proponent has since modified these commitments on advice from the Environmental Protection Authority (Attachment 1 to Section 6).

To further enhance and simplify the establishment and operation of industrial parks, the Environmental Protection Authority has included guidelines regarding environmental criteria for the proposed Inkpen Estate, special industrial park (Attachment 2 to Section 6). Similar guidelines have also been applied to the Meenaar industrial park 18km east of Northam and the Mungari industrial park south-west of Kalgoorlie.

The criteria proposed may not be the only requirements for industry to be located within the park, however they should be used as a minimum standard. Recommendation 8 in the Summary and recommendations section of this report addresses this issue.

The Environmental Protection Authority considers that proponents that find it difficult to meet the objectives in these guidelines are unlikely to obtain environmental approval to develop within the special industrial park.

5. Conclusion

The assessment of this proposal is unusual in the sense that the Environmental Protection Authority is not assessing a specific industry. Rather, the proposal is one which if approved, would enable land to be rezoned for industry.

The Environmental Protection Authority considers that the establishment of the special industrial park involves the development and provision of infrastructure over time, providing the capacity for synergies between industries which choose to locate together and the opportunity to manage potential environmental impacts in a coherent, integrated manner.

The proponent has identified the major potential environmental impacts of industries in the proposed industrial park and provided commitments to address these issues.

The Environmental Protection Authority has assessed the potential environmental impacts of the proposal, as described in the Public Environmental Review, and utilised additional information supplied by other Government agencies, the public and the proponent in response to issues raised in submissions. Additionally, officers of the Environmental Protection Authority have carried out site inspections and discussed environmental issues with members of the public and relevant Government authorities.

The Authority considers that it could be necessary or desirable to make minor and non-substantial changes to the designs and specifications of the proposal which were examined as part of the Environmental Protection Authority's assessment. Accordingly, the Environmental Protection Authority considers that subsequent statutory approvals for this proposal could make provision for such changes, where it can be shown that the changes are not likely to have a significant effect on the environment.

Furthermore, the Authority believes that any approval for the proposal based on this assessment should be limited to five years. Accordingly, if the proposal has not been substantially commenced within five years of the date of this report, then such approval should lapse. After that time, further consideration of the proposal should occur only following a new referral to the Environmental Protection Authority.

The Environmental Protection Authority notes that during the detailed implementation of proposals, it is often necessary to make minor and non-substantial changes to the designs and specification which have been examined as part of the Environmental Protection Authority's assessment. The Environmental Protection Authority considers that subsequent statutory approvals for this proposal could make provision for such changes, where it can be shown that the changes are not likely to have a significant effect on the environment.

Finally, the Environmental Protection Authority points out that the industries compliance with Environmental Conditions and any conditions of Works Approvals and Licences will be periodically audited. Pollution control limits and other conditions will be periodically reviewed and may be modified by the Environmental Protection Authority in the light of operating experience.

The Environmental Protection Authority concludes that the proposal to establish a special industrial park at Inkpen Estate Bakers Hill is environmentally acceptable on Location 27680, and also that part of Location 27679 which provides a 1km buffer to existing residences.

This conclusion is based on consideration of the proponent's Public Environmental Review, submission received from the public and other Government agencies, responses to issues raised in submissions during the assessment (Appendix 2) and the proponent's commitments (Attachment 1 to Section 6).

In reaching this conclusion, the Environmental protection Authority identified the main environmental factors requiring consideration to be:

- **management of the centralised wastewater treatment system (especially odour control); and**
- **the provision of an adequate buffer zone around the site.**

The Authority considers that these issues have been adequately addressed and that this proposal could proceed subject to its recommendations in this report.

6. Recommended Environmental Conditions

Based on its assessment of this proposal and recommendations in this report, the Environmental Protection Authority considers that the following Recommended Environmental Conditions are appropriate.

These recommended environmental conditions apply to development of the whole of Location 27680, and also that part of Location 27679 which provides a 1km buffer to existing residences.

1. Proponent Commitments

The proponent has made a number of environmental management commitments in order to protect the environment. Some of these are the responsibility of the proponent; others ultimately the responsibility of future occupiers of the separate industrial sites (See condition 2-1).

- 1-1 In implementing the proposal, the proponent shall fulfil the commitments (which are not inconsistent with the conditions or procedures contained in this statement) made in the Public Environmental Review and included in the Environmental Protection Authority's Bulletin 682. (see Attachment 1 to this Statement)

2. Implementation

Environmental criteria for industry proposing to establish in the special industrial park should be viewed as a minimum standard.

- 2-1 The proponent shall ensure that the intending occupiers/purchasers of land within the industrial park are made aware of the obligations and requirements of the Conditions contained in this Statement, including the Environmental criteria for industries proposing to establish in the Special Industrial Park at Inkpen Estate, Bakers Hill (June 1993), as amended from time to time by the Environmental Protection Authority (see Attachment 2 to this Statement)

3. On-going Environmental Management

The establishment of a management body and processes proposed to secure a 1km buffer zone are provided for in the commitments. The proponent will be responsible for ensuring that issues such as the collection of background data, monitoring and control of potential environmental impacts, and consideration of cumulative impacts, are addressed.

- 3-1 Prior to the development of any industries within the park, the proponent shall ensure that the proposed 1km buffer is secured from potentially incompatible development, including residences, to allow the full potential of the special industrial park to be realised.
- 3-2 Prior to the sale or lease of land, the proponent shall ensure that a management body is established which has responsibility for the coordination of environmental issues associated with the special industrial park.
- 3-3 The proponent shall ensure that the management body established has in its Terms of reference the development of a management plan to show that the collective operations of all industries in the park are not causing unacceptable environmental impacts.

This management plan should be structured such that it can be utilised by any new industries proposing to develop in the park to help demonstrate that they would not individually, or cumulatively, cause any unacceptable environmental impacts.

The management plan should address, but not be limited to the following issues:

- noise;
- odours;
- risk; and
- surface and underground water.

4. Noise Limits

The proponent should conduct operations so that noise emissions do not unreasonably impact on the surroundings.

4-1 The proponent shall ensure that noise emissions do not exceed:

- 40 dB LA10, 1 hour slow and 50 dB LA max slow between 2200 hours and 0700 hours on any day when measured on any noise-sensitive premises;
- 45 dB LA10, 1 hour slow and 55 dB LA max slow between 1900 hours and 2200 hours on any day, and between 0700 hours and 1900 hours on Sundays and gazetted public holidays, when measured on any noise-sensitive premises;
- 50 dB LA10, 1 hour slow and 70 dB LA max slow between 0700 hours and 1900 hours on Monday to Saturday inclusive, when measured on any noise-sensitive premises; and
- 65 dB LA slow when measured at or near the boundary of premises that are not noise-sensitive premises (other industries);

where such emissions would result in the noise level present at the affected premises exceeding the ambient noise level present at any time by more than 5 dB LA slow.

4-2 The proponent shall ensure that noise emissions from those activities which are of concern to occupiers of noise-sensitive premises do not exhibit tones, amplitude and frequency modulation, and impulsiveness of a nature which increases the intrusiveness of the noise.

4-3 The proponent shall conduct noise surveys and assessments in consultation with the Environmental Protection Authority.

5 Particulate Matter

5-1 The proponent shall ensure that the annual mean concentrations of particulate matter do not exceed 90 micrograms per cubic metre ($\mu\text{g}/\text{m}^3$) averaged over a 24-hour (1-day) time period.

6 Odour

6-1 The proponent shall ensure that no offensive odours are detectable at residences.

6-2 The proponent shall maintain an adequate complaints register.

7. Subsequent Proposals

Changes to the proposal which are not substantial may be carried out with the approval of the Minister for the Environment.

- 7-1 Subject to these conditions, the manner of detailed implementation of the proposal shall conform in substance with that set out in any designs, specifications, plans or other technical material submitted by the proponent to the Environmental Protection Authority with the proposal. Where, in the course of that detailed implementation, the proponent seeks to change those designs, specifications, plans or other technical material in any way that the Minister for the Environment determines on the advice of the Environmental Protection Authority, is not substantial, those changes may be effected.

8. Proponent

These conditions legally apply to the nominated proponent.

- 8-1 No transfer of ownership, control or management of the project which would give rise to a need for the replacement of the proponent shall take place until the Minister for the Environment has advised the proponent that approval has been given for the nomination of a replacement proponent. Any request for the exercise of that power of the Minister shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the project in accordance with the conditions and procedures set out in the statement.

9. Time Limit on Approval

The environmental approval for this proposal is limited.

- 9-1 If the proponent has not substantially commenced the project within five years of the date of this statement, then the approval to implement the proposal as granted in this statement shall lapse and be void. The Minister for the Environment shall determine any question as to whether the project has been substantially commenced. Any application to extend the period of five years referred to in this condition shall be made before the expiration of that period, to the Minister for the Environment by way of a request for a change in the condition under Section 46 of the Environmental Protection Act. (On expiration of the five year period, further consideration of the proposal can only occur following a new referral to the Environmental Protection Authority.)

10. Compliance Auditing

In order to ensure that environmental conditions and commitments are met, an audit system is required.

- 10-1 The proponent shall prepare periodic "Progress and Compliance Reports", to help verify the environmental performance of this project, in consultation with the Environmental Protection Authority.

Procedure

The Environmental Protection Authority is responsible for verifying compliance with the conditions contained in this statement, with the exception of conditions stating that the proponent shall meet the requirements of either the Minister for the Environment or any other government agency.

If the Environmental Protection Authority, other government agency or proponent is in dispute concerning compliance with the conditions contained in this statement, that dispute will be determined by the Minister for the Environment.

Note

Where required, the Environmental Protection Authority will address issues such noise, dust, odour and, solid and liquid waste management, associated with the construction and operation of individual industries within the special industrial park through, for example, Works Approvals and/or Licence conditions set under Part V of the Environmental Protection Act.

Landcorp's consolidated list of environmental management commitments

Introduction

The categories of commitments made in this PER are:

- (i) commitments made by LandCorp as the proponent relating to planning and development of the Inkpen Special Industrial Park; and
- (ii) commitments made by the Management Body relating to site management and operation of the centralised secondary wastewater treatment and disposal facility. Until the first industry establishes on site, LandCorp will be the sole member of the Management Body. LandCorp will relinquish membership of the Management Body when it no longer has a financial interest in the Inkpen Special Industrial Park.

Commitments Made by LandCorp

Site Planning and Development

- 1 LandCorp will prepare and finalise development guidelines to be applied within the industrial park prior to establishment of the park. In doing so, LandCorp will liaise with the relevant regulatory authorities to ensure the guidelines are consistent with their requirements and can be implemented, as appropriate, through their statutory processes. In preparing the guidelines, achievement and maintenance of environmental quality within and beyond the industrial park will be a specific priority. The development guidelines for the industrial park will incorporate the following as desirable objectives:
 - the limitation of detectable odours to an approximate distance of 500 m from the individual operations;
 - effective noise management;
 - minimised use of external lighting and maximised use of directional shielding;
 - waste minimisation as a desirable objective.
- 2 In consultation with the relevant authorities, LandCorp will prepare a single amendment to the Shire of Northam's District Town Planning Scheme, rezoning the site ultimately selected for the Inkpen Special Industrial Park and defining the associated off-site buffer zone. This amendment will only be prepared once LandCorp has an indication of a likely favourable outcome of the EPA's assessment of the proposal to establish the industrial park.

**PROPOSED SPECIAL INDUSTRIAL PARK
AT INKPEN ESTATE, BAKERS HILL**

PROPONENT'S RESPONSES TO PUBLIC SUBMISSIONS

INTRODUCTION

In responding to the submissions made by the public and government agencies, LandCorp considers it pertinent to re-iterate that the proposal to establish a Special Industrial Park at Inkpen Estate, Bakers Hill should be considered as one to change the land use of the site from rural to special industry and associated industry infrastructure. The Public Environmental Review (PER) essentially constitutes the initial planning phase of the project.

The objective of the PER is not to present a detailed proposal for establishment of any specific industry or industries, as the proponent is not able to forecast the number, size or type of industries that will actually establish at the site, or the timing of their establishment. Consequently all design scenarios, waste volumes and characteristics should be regarded as conceptual only. Similarly specific investigations of the hydrogeological and geotechnical characteristics of the site are scheduled for the engineering design phase of the project.

The Park will be developed according to all relevant Government statutes and agency requirements, and to the satisfaction of the Environmental Protection Authority (EPA). The operations of the Park's Management Body and the individual industries that establish at the Park will be subject to environmental review and licensing by the EPA and other relevant government agencies.

The following are the proponent's responses to issues raised by the public and various other groups during the public review period of the PER.

GENERAL ISSUES RAISED IN PUBLIC SUBMISSIONS

Site Selection

1. **Submission:** A large area of land 3.5 kilometres north-east of the site has been approved as rural residential. How does the proponent justify locating an industrial park in the proximity?

Response: It is understood that an unofficial approach has been made to the Shire of Northam to seek approval for that site to be rezoned rural residential, however, no formal application has been lodged or approved. Establishment of the Park is subject to the approval of the local planning authority, the Shire of Northam. The Shire has indicated it finds the principle of establishing an industrial park at the proposed location acceptable.

2. **Submission:** Would Meenaar not have been a more suitable location?

Response: Meenaar was one of the potential sites identified for establishment of the Park, however feedback given to LandCorp and the Shire of Northam by the animal processing industry indicated that it was not considered to be a suitable location owing to its distance from Perth. Meenaar is located further from the Perth Metropolitan region, and therefore was considered to be more constrained in terms of associated transport costs than the Inkpen site.

3. **Submission:** What formal consultation took place during site selection?

Response: The original proposal for establishment of the Park was at Avon Location 29014 (formerly Government Requirements Reserve 30364). An associated public consultation programme, comprising public meetings in the Bakers Hill community, raised a variety of concerns relating both to the biophysical and human environments, as well as other issues (e.g. demand for the proposed facility, availability of services, and access to road and rail transport).

AGC Woodward-Clyde was commissioned to undertake an alternative sites study, based on a desk-top review of existing information. The site selection criteria were based on issues raised by the public, as mentioned above, and guidance provided by the Environmental Protection Authority.

4. **Submission: How does the proponent justify selecting site 27679 as it is not subjected to the comprehensive site selection analysis?**

Response: Avon Location 27679 was the Site A which was evaluated in the Alternative Sites Study undertaken by AGC Woodward-Clyde.

5. **Submission: How was the proposed system of buffer zones developed and how was it deemed acceptable?**

Response: The proposed 1 km off-site buffer zone is based on the separation distances recommended in the EPA's Draft Environmental Code of Practice for Cattle Feedlots and Cattle Holding Stockyards and the Draft Environmental Code of Practice for Rendering Plants, as well as the Victorian EPA's Recommended Buffer Distances for Industrial Residual Air Emissions. These guidelines recommend a 1 km separation between industry and individual residences and a 5 km separation from gazetted townsites.

6. **Submission: Has the effects of historical occurrences of earthquakes in the district been considered by the proponent?**

Response: Historical occurrences of earthquakes in the region were addressed on p.16 of the PER. Typical observed effects of an Intensity VII earthquake (for which there is a 10% occurrence probability in the region) were also listed. Specific historical effects of earthquakes in the district were not discussed because there has been no study of engineered building structures in the region comparable to those proposed for the industrial park.

7. **Submission: Why has Wundowie not been considered as a potential site?**

Response: Wundowie was considered as a potential site, but was unsuitable in terms of the EPA's Draft Environmental Code of Practice for Cattle Feedlots and Cattle Holding Stockyards, the Draft Environmental Code of Practice for Rendering Plants, and the Victorian EPA's Recommended Buffer Distances for Industrial Residual Air Emissions, which recommend a 5 km separation between industry and gazetted townsites.

Pre-Treatment Facilities

8. **Submission: The abattoirs are likely to generate large quantities of floated solids. How will these be disposed of?**

Response: The floated solids are expected to comprise mainly oil and grease which can be recovered and sold as tallow for processing (e.g. for soap), or disposed of to a landfill site approved by the Health Department and the EPA.

9. **Submission: Is it necessary to add lime to precipitate chromium salts or would activated sludge be a better treatment method?**

Response: Lime is added to precipitate heavy metals, i.e. the soluble heavy metals react with the lime at high pH and form a solid which then settles. Activated sludge removes mainly organics and is not an alternative to lime for heavy metals removal.

10. **Submission: Would it be possible to operate the centralised treatment system effectively in the event of the pre-treatment of wool scouring wastes being unsuccessful? How would this situation be managed?**

Response: Poor operation or non-existent pre-treatment of the wool scour waste would result in discharge of higher than design loads to the central treatment plant. This would involve upgrading of the secondary treatment plant to provide additional treatment capacity, e.g. larger lagoons, or bulk volume fermenter. Greater quantities of sludge would also be produced and require disposal. If anaerobic systems are used, associated gas production would be increased.

Solid Waste

11. **Submission: What are the volumes and characteristics of the sludges to be handled?**

Response: The sludges will be a combination of solid wastes produced in the industry pretreatment plant and those produced in the centralised plant. Specific volumes and characteristics will depend on the industries that establish at the site. In general the sludges, etc., from the pretreatment plants

for a renderer and abattoir would be odorous but potentially have high value for soil conditioning. The sludges from the wool scour would mainly contain dirt, lint and some oil and grease. The sludges from the fellmonger would contain residual hair, dirt, flocculated organics and some biomass. Tannery sludge would contain some heavy metals which would require treatment with lime to reduce their solubility.

12. Submission: What would be the likely composition of solid waste generated and how would it be managed?

Response: The composition of the solid wastes will depend on the industries that establish on site, but generally could be expected to comprise, sludges, oil and grease, skins, offal, etc. These wastes will be reused by other processing industries or disposed to landfill.

In the detailed design of the facilities, specific sludge handling and disposal systems will be incorporated for each of the sludge streams. It is anticipated that these will include land disposal systems, reuse as compost, fertiliser etc, and landfilling. The sludges from the centralised plant will be stabilised biological solids from the pond system. These can be composted or used as soil conditioner or fertiliser. If the chemically assisted sedimentation/trickling filter system is used then the sludge will require further stabilisation, e.g. using anaerobic ponds or digesters, before reuse through composting or soil conditioner/fertiliser.

13. Submission: What are the expected volumes and characteristics of wastes expected from each industry? How does the proponent plan to deal with these wastes?

Response: See above responses for comment on expected volumes and characteristics and solid waste management. Indicative wastewater characteristics and wastewater management plans are provided in Section 4 of the PER.

14. Submission: What is the likelihood of solid wastes being generated in larger volumes than predicted in the PER?

Response: It is possible that the volumes of solid wastes generated at the site may exceed the conceptual estimates presented in the PER if a different

number, size and combination of industries establish at the site. However, it is also possible that the actual volumes of solids may be less than the conceptual estimates, depending on the number, type and size of the industries that establish on site.

- 15. Submission: The PER seems to be dismissive of the total volume of wet sludge that would need handling (1,735 cubic metres per day). How does the proponent intend to dispose of this volume?**

Response: As stated previously, numbers presented in the PER are conceptual estimates only and should not be regarded as absolute figures, therefore reference to specific figures, i.e. 1,735 cubic metres, is inappropriate. In the detailed design of the facilities specific sludge handling and disposal systems will be incorporated for each of the sludge streams. It is anticipated that these will include land disposal systems, reuse as compost, fertiliser etc, and landfilling.

Each industry proposal would be subject to EPA assessment and licensing, which would determine environmental management conditions to be complied with.

- 16. Submission: How long would it take for a 'blanket of foam' to develop on the anaerobic pond?**

Response: Depending on the quantities of oil and grease in the combined wastewater streams the floating scum layer could take a number of months to form.

- 17. Submission: Where would the proposed landfill for sludge be located?**

Response: No site has yet been identified for establishment of such a landfill. As stated on p. 95 of the PER, identification and establishment of the landfill site will be the subject of a separate study and proposal at a later stage, and the siting and operation would be subject to EPA and Health Department approval.

Waste Water Disposal and Effluent Treatment

18. **Submission:** There appears to be some inconsistencies in the discussion of effluent characteristics in Appendix B of the PER. The effluent characteristics shown in Table 5.2 are at variance with Table 1 and 2. Please clarify.

Response: Some of the information supplied by the Western Australian Department of Agriculture in Appendix B for wool scours, and used in calculating the areas of treatment ponds, evaporation ponds, and the area required for land irrigation of wastewater does contain inconsistencies. Table 5.2 presents details of typical wastewater characteristics for a wool scour with a throughput of 1500 kg/greasy wool/hr, equating to an annual wastewater discharge of 29,600 m³/annum (assuming operation for 8 hours/day, 250 days/year). This figure is approximately double that indicated in Table 2, Appendix B. Advice from the Department of Agriculture during the preparation of responses to submissions on the PER indicates that the most likely scenario for the establishment of a wool scour at the Inkpen site would be a facility to process 3000 kg greasy wool/hour, producing almost 60,000 m³/annum of wastewater, or approximately four times that indicated in Table 2. Assuming concentrations of constituents in the wastewater stream to be as indicated in Table 1, the total loadings of nitrogen, phosphorus, BOD and other components of potential environmental concern in the wastewater from a single wool scour will be four times that indicated in Table 2.

In calculating the loading to the centralised treatment plant and the total pond area required for disposal of wastewater by evaporation from the nominal five industries (Tables 10 and 11 in the PER), the wool scour was assumed to have a total capacity of 15,000 kg/hr, based on figures in the text of Appendix B. This figure in fact relates to the combined capacity of the Swan, Jandakot and Hulmes facilities in the Perth region. Based on more likely scenario of 3,000 kg greasy wool/hr, the area of ponds required for disposal of wastewater by evaporation would be approximately 29.5 ha rather than the 44-45 ha indicated in Table 11 of the PER.

Data used in the estimation of the area of land required for irrigation of effluent to comply with WAWA guidelines were those presented in Table 2, Appendix B. These data underestimate the total wastewater and wastewater component loading for a wool scour by a factor of four, as indicated above.

Based on a wool scour with a treatment capacity of 3,000 kg greasy wool/hr, the area required for land disposal of wastewater by treelot irrigation to comply with WAWA guidelines would be increased, from 19.9 ha to 22.8 ha for the water component, 289 ha to 353 ha for the nitrogen component, 134.3 ha to 197.1 ha for the phosphorus component, and from 19.8 ha to 28.21 ha for BOD.

The net effect of reducing the total area required for evaporation of wastewater and increasing the area required for land irrigation based on the revised figures is to further strengthen the conclusions of the PER that the preferred wastewater disposal option is a fully contained secondary treatment and evaporation pond system.

19. **Submission: Would the proposed waste water treatment system be adequate for handling effluents were the abattoir and wool scouring industries to be increased by 50 percent?**

Response: The wastewater treatment facilities would need upgrading if the 2 plants consistently produced 50% more effluent if all other characteristics (concentrations and other industries' contributions) remained the same. It should be noted that all design scenarios, waste volumes and characteristics presented in the PER should be regarded as conceptual only, as it is not possible to forecast the number, size or type of industries that will actually establish at the site. The design capacity outlined in the PER, however, is for a fully occupied park, comprising 10 industries (two of each type) and, as such, represents the worst case scenario.

20. **Submission: How did the proponent determine the area required for lagoons and evaporation ponds comprising the central waste treatment plant?**

Response: See response to submission 18. These are based on estimated flow rates (for a total of one each of five types of industry), design loadings included in section 4.8.2.2 of the PER, rainfall and evaporation data for the area, and allowance for emergency storage and sloping wall design. It should also be noted that the total design loads are conservative and include a very large capacity wool scour (15t/hr greasy wool) which is equivalent to the combined total production of all three existing wool scours in the Perth Metropolitan area.

21. Submission: Who will control outputs from individual industries to ensure that levels do not threaten biological processes by causing hydraulic overload?

Response: Individual industries will be separately licensed by the EPA, with licence conditions related to the pre-treatment of wastewater and its discharge to the centralised wastewater disposal system. The centralised system will also be licensed by the EPA as part of the overall site approval process.

The individual industries will be responsible for the quantity and quality of wastewaters discharged to the centralised treatment plant. The Management Body will be responsible for operation of the centralised wastewater disposal facilities and monitoring of the wastewater quantity and quality discharged to the environment.

22. Submission: How would an adequate level of pre-treatment of wastewater be ensured?

Response: This will be addressed in a number of ways:

- (a) Review of the proposed pretreatment system by the EPA and WAWA (as part of licensing conditions) before construction to assess its adequacy.
- (b) A routine audit, monitoring and reporting programme to be conducted by the licensee to the satisfaction of the EPA and WAWA.
- (c) Penalties if the pretreatment plant does not perform as required. These could include fines or enforced shutdown. Penalties would be enforced through licences issued by the EPA and WAWA.

23. Submission: What provisions have been made to ensure adequacy of the evaporation ponds at all times?

Response: Conservative design criteria would be adopted (eg using a 95 percentile wet year) to ensure adequate area. The ponds will be of adequate depth to store any water which does not evaporate due to extreme wet conditions. Each will also be subject to work approval/licensing by the EPA and WAWA.

24. Submission: How would the ponds be lined?

Response: The ponds would be lined with low permeability clay (10^{-9} m/s) or synthetic membrane in compliance with EPA requirements.

25. Submission: To what extent will the effectiveness of the central waste treatment system depend upon the number of industries locating?

Response: The use of pond systems, in general, provides a capability to handle lower or variable loadings which could result from only a few industries locating on the site. Activated sludges systems are less adaptable to low or highly variable loadings. The system will be designed and operated to ensure treatment is undertaken to an acceptable level, to the satisfaction of the EPA and other authorities.

26. Submission: What happens if the waste generated exceeds the treatment system's capacity?

Response: It would be necessary to upgrade the treatment system to meet treatment objectives. Excess capacity will however be incorporated into the initial design of the system.

27. Submission: The proponent makes several assumptions about the treatment plant (pp 49-50). Please verify these.

Response: Pretreatment systems and their efficiencies are discussed on the nominated pages (49-50). These systems and the efficiencies are accepted systems and values. Given that this is a conceptual plan, the confirmation of these figures will be undertaken during the design stage, to the satisfaction of the EPA and other decision making authorities. However, these requirements for pretreatment types and efficiencies will be the "yard stick" for the review of any proposed pretreatment system.

28. Submission: Has the proponent considered separating less contaminated water and using it for irrigation thereby reducing the area required for evaporation ponds?

Response: The industries will be encouraged to reuse water as much as possible, however, due to the nature of the industries, this may be limited as

discussed in section 4.8.2 of the PER. Irrigation may be possible for some wastewater streams, but any such proposal will require assessment by the EPA, and will need to comply with WAWA guidelines.

- 29. Submission: What measures will be employed to minimise water requirements of the project?**

Response: See above response. Minimisation of water use offers cost savings to operators and new industrial technology has this as a major objective. Actual water minimisation techniques adopted by industries establishing at the Park will depend on the type and size of the industries and the cost benefits of using such technology.

In terms of overall park management, water minimisation will focus on recycling water within the centralised wastewater treatment system where possible, and landscaping and revegetation with indigenous species with low requirements for reticulation during the summer.

- 30. Submission: Has the proponent considered disposing of effluent by building a pipeline to link with an existing ocean outfall?**

Response: As stated on p.55 of the PER, disposal to the ocean was not considered owing to the site's isolation from the coast and hence economic and logistical constraints.

- 31. Submission: Have the likely effects of decreased evaporation rates caused by impurities in the waste water been taken into account in design of evaporation ponds?**

Response: The evaporation ponds will be conservatively designed such that any marginal effect due to impurities will be accounted for.

- 32. Submission: Is the effluent irrigated from the aqueous wool scouring process likely to cause a build up of heavy metals in the soil?**

Response: Irrigation is not proposed as the primary wastewater disposal method at the Inkpen site.

- 33. Submission: How will the proponent ensure that dropping water levels is due to evaporation and not leakage?**

Response: As stated on p.98 of the PER, groundwater monitor bores will be installed in the pond embankments and immediately down-gradient of the ponds, to measure water levels.

In addition, as stated on p.104 of the PER, a network of monitor bores will also be installed in the vicinity of the central wastewater disposal ponds. The bores will be located so as to enable early detection of any changes to groundwater hydrology and chemistry as a consequence of operation of the ponds.

- 34. Submission: How will the proponent ensure the integrity of the ponds in the event of an earthquake?**

Response: As stated on p.98 of the PER, the design and construction of the wastewater ponds will be in accordance with accepted civil and geotechnical engineering standards, and to the requirements of the EPA and other authorities, and will allow for seismic disturbance in accordance with the Standards Association of Australia's Earthquake Code (AS 2121-1979) and draft revised Earthquake Code (AS1170.4).

The risk of catastrophic pond failure will be addressed through competent design and rigorous construction control, while ongoing geotechnical monitoring will enable early identification of and response to any potential instability of the embankments.

- 35. Submission: What will happen to nitrogen in the evaporation ponds?**

Response: The nitrogen entering the evaporation pond system will be in the form of organic nitrogen, ammonium, oxidised nitrogen (nitrites and nitrates) or gaseous nitrogen. Nitrogen entering the evaporation ponds will be mainly in the form of organic nitrogen and oxidised nitrogen which will remain with the pond sludge. This sludge will be periodically removed and disposed of off-site. Within the system some nitrogen will be lost to the atmosphere as ammonium and gaseous nitrogen.

36. **Submission:** The first paragraph on page 59 in the PER refers to only five industries. Will a total of 40 ha of woodlots, not 20 ha as stated, be required to dispose of the waste water by evapotranspiration?

Response: Yes, in terms of the conservative conceptual design scenario of 10 industries (2 of each type). It should be noted however that wastewater disposal by irrigation is not proposed in the PER.

37. **Submission:** The PER states that the discharge of total nitrogen at rates above 500 kg/ha is in excess of WAWA's guidelines of 250 kg/ha, is unlikely to be environmentally acceptable to WAWA and therefore is not proposed. How does the proponent intend to dispose of nitrogen in treated waste water.

Response: The nitrogen entering the evaporation pond system will be in the form of organic nitrogen, ammonium, oxidised nitrogen (nitrites and nitrates) or gaseous nitrogen. Nitrogen entering the evaporation ponds will be mainly in the form of organic nitrogen and oxidised nitrogen which will remain with the pond sludge. This sludge will be periodically removed and disposed of off-site. Within the system some nitrogen will be lost to the atmosphere as ammonium and gaseous nitrogen.

38. **Submission:** Would mosquitos be likely to breed in the ponds?

Response: As stated on p.99 of the PER, the wastewater ponds will potentially create a habitat attractive to mosquitoes that are capable of breeding in facultative ponds. Good pond maintenance including prevention of macrophyte growth will discourage mosquito infestation. Mosquito larvae can be eradicated by spraying approved insecticides.

39. **Submission:** Will there be a central management board monitoring impacts of the total estate?

Response: Yes. The Management Body will be legally responsible for ensuring compliance with all requirements imposed through conditions attached to environmental and other approvals for the overall site operation, to the satisfaction of the EPA, WAWA and the Shire of Northam. Specific environmental monitoring requirements arising as a consequence of establishing the industrial park and commitments made in the PER will be the responsibility of the Management Body.

40. **Submission:** Have allowances been made for variations in rainfall rates between Yalanbee Research station, where the data were gathered, and the proposed industrial site?

Response: Site-specific rainfall measurements were not made for the purposes of this proposal, however it is not expected that there are significant differences in the rainfall rates between Yalanbee Station and the proposed industrial park site.

41. **Submission:** What would be the total salt loading of the Park if ten industries were developed?

Response: As irrigation is not proposed as the primary wastewater disposal method at the site, specific investigations of potential salt loading were not undertaken. Any future proposal to discharge water for irrigation would require an evaluation of the potential impact on the salt loadings of the in-situ soils and groundwater, and would be subject to EPA assessment.

42. **Submission:** What are the potential adverse environmental impacts of salt in waste water irrigated onto the site? How does the proponent intend to monitor and mitigate such impacts?

Response: See above response. In the event that irrigation was undertaken, a salt balance for the site would be developed, and a management programme including impact monitoring would be designed and implemented to the satisfaction of the EPA and other regulatory authorities.

43. **Submission:** Where in the environment are the saline constituents likely to end up and how will they get there?

Response: See above response. Salts from the wastewater in the treatment plants will form a component of the sludge that will be deposited in an approved landfill. The groundwater monitoring system will be designed and installed to detect any leakage from the wastewater ponds and remedial action will be taken to the satisfaction of the appropriate regulatory authorities.

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44. **Submission:** Has the proponent considered the possibility of storm events during summer flushing effluents from disposal ponds into the drainage systems and the effects being exacerbated by low flow conditions that would follow? How would such a situation be managed?

Response: Design and construction of the ponds will be in accordance with accepted civil and geotechnical engineering standards, and to the satisfaction of the EPA and other regulatory authorities. Cutoff drains will be constructed around the toe of the banks of the ponds to prevent any stormwater flowing into the ponds. Sufficient freeboard will be incorporated into the pond design to allow storage capacity to cater for a one in 10 year return period rainfall event in addition to normal loading capacity, and all ponds will incorporate a secure spillway structure to avoid uncontrolled overtopping of the pond walls.

Atmospheric Quality

45. **Submission:** Can the proponent predict the impact of long periods of stable atmospheric conditions on odours in the area?

Response: As stated on p.88 of the PER, the impact of odours on humans tends to be subjective and is consequently difficult to quantify. Additionally, for the current proposal, difficulty in predicting potential odour impacts is compounded by uncertainty regarding the actual nature and scale of industrial development.

46. **Submission:** What methods and technologies would be employed to ensure that odours from the development do not become problematic?

Response: Sources of odour are to be enclosed and transferred to odour destruction systems. The technologies that are commonly used for odour control include wet chemical scrubbers, after burners, compost bed filters, biofilters, soil bed filters. The use of covered anaerobic lagoons also significantly reduces the odours from such systems. The most appropriate technology will be selected in each case by the individual industries and the Management Body at the detailed engineering design phase.

The EPA is responsible for the imposition of pollution control requirements (including odour emissions). Strategies for managing odour as a potential

adverse impact associated with the industrial park comprise good on-site housekeeping, statutory controls on individual operators within the Park (including the Management Body), the off-site buffers and undertakings applying thereto, and scrutiny by the community and regulatory authorities through the mechanism of the complaints register and performance reporting.

47. **Submission: Wind speed and directional data were gathered at Northam, remote from the proposed industrial site. How representative are they of the wind patterns at Inkpen Road? Should data from Mundaring not have been included to provide a more detailed account?**

Response: A site-specific meteorological station has not been established in the Inkpen site for the purpose of this proposal. It is envisaged that such data collections would be undertaken at a later stage as part of the establishment of engineering design criteria for industries to establish at the site. As a standard procedure it is expected that the site specific data would be statistically correlated to the longer-term records from Northam, which is the closest meteorological observation station to the Inkpen site. The Bureau of Meteorology does not have an observation station at Mundaring.

Noise

48. **Submission: What leads the proponent to believe that the noise limits set by the Environmental Protection Authority can be met by the estate?**

Response: Noise emission limits for individual operators and the Management Body will be set by the EPA through license conditions. It will be the responsibility of the licensees to undertake the necessary measures (e.g. use of appropriate sound-proofing building materials, etc.) to ensure that license conditions are met. Substantial penalties exist under the Environmental Protection Act for non-compliance.

49. **Submission: Can noise standards be met during periods of atmospheric inversions?**

Response: Further investigation of prevailing meteorological conditions may need to be undertaken by individual operators to enable engineering design criteria to be developed that satisfy EPA licence conditions during periods of atmospheric inversion.

Roads

50. **Submission:** How comprehensively has the proponent assessed the capabilities of individual industries and the effects they will have on traffic densities?

Response: In the absence of any specific proposal for industries to establish at the site, only conceptual traffic assessment was undertaken as presented in the PER on pp.95-96. It is envisaged that as part of licensing of industries proposing to establish at the site, further information of this topic will have to be provided to the appropriate regulatory authorities.

51. **Submission:** How will the proponent ensure that roadside vegetation is not damaged in the event of the proposal going ahead, particularly if the roads are widened?

Response: Extension of services to the industrial park, including road upgrading, will be undertaken at the request of the proponent, but will be undertaken by the respective servicing agencies. Road upgrading will be undertaken by the Shire of Northam. The off-site activities of these servicing agencies are beyond the control of the proponent, nevertheless, as stated on p.80 of the PER, LandCorp provides an undertaking that, in negotiating with the servicing authorities over completion of the required works, it will emphasise the need for all facets of the physical construction and installation process. Particular issues that will be stressed in this context include:

- Minimising the direct and indirect disturbance of vegetation.
- Limiting the extent of direct and indirect disturbance from earthworks.
- Reshaping and otherwise treating areas affected by earthworks to meld with the surrounding landscape.
- Dieback hygiene requirements.
- Re-establishing appropriate native vegetation on disturbed areas where feasible.
- Maintaining surface drainage features.

Monitoring

52. **Submission: On what basis was the installation of six piezometers considered sufficient to monitor changes in groundwater quantity and quality below the site?**

Response: The monitoring programme, outlined on p.104 of the PER, provides for up to six groundwater monitor bores (piezometers) to be installed during the site establishment process to collect baseline data. A network of bores will also be installed in the vicinity of the central wastewater disposal ponds to provide for detection of any changes to groundwater hydrology and chemistry as a consequence of the ponds. The final design and implementation of the monitoring programme will be subject to the approval of the EPA and WAWA.

53. **Submission: Who will carry out environmental monitoring of the estate upon commencement of operations and who will determine the adequacy of the monitoring programme?**

Response: As stated on p.103 of the PER, monitoring programmes will be initiated by LandCorp prior to establishment of any industries at the site, and will be subsequently implemented by the Management Body. The design and implementation of the monitoring programmes will be subject to the approval of the appropriate regulatory authorities, namely the EPA, WAWA and the Shire of Northam.

Hydrogeology

54. **Submission: The PER refers to drainage being "internalised to the greatest extent possible". Who will determine the adequacy of the extent to which drainage from the site is internalised?**

Response: As stated on p.95 of the PER, requirements relating to drainage management will be established through the development guidelines for the industrial park, the provisions of the Shire of Northam's Town Planning Scheme, and licensing of the park and the individual on-site operators by the EPA.

55. **Submission: What will be the impact on waterways and groundwater of drainage which has not been internalised?**

Response: Drainage which has not been internalised will primarily comprise rainfall runoff and infiltration from vegetated buffer areas and other landscaped areas. As this runoff will be directed away from the on-site facilities, it is not anticipated that it will contain any abnormal concentrations of nutrients or pollutants that would affect the underlying and adjacent ground and surface water resources. Furthermore, the proposed landscaping and revegetation programme for the site will enhance interception of surface runoff and increase groundwater use at the site, improving the site water balance and salinity management.

56. **Submission: Several farm dams constructed in the district fail to hold water. To what extent has the proponent investigated the uniformity of soils on site and their ability to holding water?**

Response: The on-site distribution of soil units was mapped and presented in Figure 4 of the PER. Construction of wastewater disposal ponds will involve use of a clay or synthetic liner with a permeability rating of 10^{-9} m/s or better which will be subject to EPA works approval. A site-specific geotechnical study to assess the suitability of the on-site soils for use as a clay liner has not yet been undertaken. If sufficient volumes of clay suitable for use in lining ponds are not available on site, off-site sources will be investigated.

57. **Submission: How will the proponent ensure that evaporation ponds do not leak, and what will be done should leaks be detected?**

Response: To reduce the risk of leakage from the evaporation ponds, they will be lined with clay or synthetic membrane, and licensed to EPA requirements as described above. In the event that the monitoring programme detects leakage from the ponds, appropriate remedial measures will be implemented by the Management Body, to repair the leak and recover contaminated groundwater (if necessary).

- 58. Submission: How will the proponent ensure that Blackboy Gully and the Avon River are not polluted by spills or leaks from the development?**

Response: A monitoring programme for groundwater and surface water will be initiated prior to site development to collect baseline water quality and flow pattern data and provide ongoing records once site operations commence. The monitoring programme will provide an early warning detection system to identify any leakage which may occur and allow remedial action to be undertaken. The on-site drainage system will be designed so that any chemical or wastewater spills from within the confines of the facilities will be directed to the on-site pre-treatment facilities and then sewerred to the centralised secondary treatment system for further treatment and disposal by evaporation.

- 59. Submission: How will the proponent ensure that further clearing associated with the development does not result in increased soil erosion and salinisation of streams and soils? Would residents who have invested considerable resources in soil conservation and salinity prevention be compensated if the proposed development results in soil or water degradation?**

Response: Permission to undertake clearing of vegetation on the site will be subject to an application to the Department of Agriculture. Commitments made by LandCorp in regard to environmental management of construction and operation of the park provide for erosion control and water quality management. Consequently it is not envisaged that compensation for off-site soil and water degradation will be necessary.

- 60. Submission: What assurances can the proponent give that irrigation with waste water will not lead to water logging low in the landscape?**

Response: Irrigation is not proposed as the method for wastewater disposal. Any future proposal to irrigate with waste water on site would be subject to the approval of the EPA.

61. Submission: What effects will the project have on the confined aquifers in the area?

Response: As the proposed method of wastewater disposal is by pond evaporation, there will be no direct discharge of contaminated wastewater to the underlying groundwater system.

All runoff from individual operations that could potentially contain contaminants (e.g. drainage from paved and trafficked areas, storage facilities, etc.) and domestic sewage will be treated as effluent and discharged via the operator's wastewater pre-treatment facilities to the centralised secondary treatment and wastewater disposal facility.

The proposed landscaping and revegetation programme for the site and the drainage line buffers will enhance interception of surface runoff from non-development areas and management of the on-site water balance.

On-site storage facilities for chemicals and fuels will be subject to provisions of the Dangerous Goods Regulations 1992 and Australian Standard 1940 Storage and Handling of Flammable and Combustible Liquids which prescribe requirements for storage and containment bunding of chemical and fuel products to prevent direct discharge of contaminants to the environment in the event of a spill or leak.

Requirements relating to drainage and wastewater management and associated engineering provisions for the individual and centralised operations will be subject to EPA works approval and licensing.

62. Submission: Runoff from roofs, roads and carparks has the potential to become an environmental hazard. Large volumes would be involved which could potentially flush salt from the soil if allowed to seep in to the ground. How does the proponent intend to manage this?

Response: See above response. As stated on p.95 of the PER, requirements relating to drainage management will be established through the development guidelines for the park, the provisions of the Shire of Northam's Town Planning Scheme, and EPA licensing of the Management Body and the individual industries.

63. Submission: What is known about groundwater movements in the area?

Response: Understanding of the groundwater hydrology of the area is based on published literature, historical bore records and anecdotal information.

Hydrogeological investigations involving exploratory drilling and installation of groundwater monitoring bores will be undertaken as part of the engineering design works and baseline environmental monitoring programme. Groundwater movements in the vicinity of the site will be studied at that time.

64. Submission: Have geological features acting as barriers to groundwater been identified?

Response: See above response.

65. Submission: What is known about the reliability of waterholding capacities of clays of the mottled zone?

Response: Existing knowledge is based on published information. Disposal of wastewater by irrigation is not proposed in the PER, but further investigation of this aspect would be undertaken if there was any future proposal to dispose of wastewater by on-site irrigation.

66. Submission: How effectively would the clays adsorb the leachates other than phosphorus?

Response: Use of low permeability liner in the wastewater ponds will minimise the release of leachate to the underlying soils. The absorptive capacity of the clays will depend upon the chemical composition, pH and ionic state of the leachate.

67. Submission: Will the re-planted vegetation be adequate to prevent increased infiltration caused by clearing?

Response: Both potential industrial park sites are currently largely cleared of native vegetation. Little further clearing of existing vegetation is proposed for the park development, and a plan for additional planting of indigenous species to increase the net vegetation cover on the site is outlined in the PER. The objective of the construction and operations management plan for the site is

to minimise adverse environmental impacts. The re-vegetation and landscaping programmes will be designed and implemented to minimise soil erosion and salinisation and where possible improve the site beyond its existing condition.

- 68. Submission: What would the proponent do to prevent irrigation causing recharge of aquifers via preferred pathways in the soils leading to increased salinity?**

Response: Irrigation is not the method proposed in the PER for wastewater disposal. Any future proposal to irrigate with wastewater on site would require the preparation of an environmental management plan to address issues such as salinisation, and would be subject to the approval of the EPA.

- 69. Submission: What is known about the complexity of the geology of the site given that there are at least eleven different soil mapping units? Would placement of monitoring bores reflect that complexity?**

Response: No specific geological investigations were undertaken for the purpose of this PER. Hydrogeological investigations involving exploratory drilling and installation of groundwater monitoring bores will be undertaken as part of the engineering design works. Detailed information about the geotechnical and hydrogeological characteristics of the site will be obtained at that time.

- 70. Submission: Was a geotechnical inspection carried out to determine the distribution of relative soil permeabilities to assist in earthworks design?**

Response: A geotechnical investigation was not undertaken for the purposes of the PER, but such a study will be undertaken as part of the site engineering works approval, to the satisfaction of the EPA and other decision-making authorities. If sufficient volumes of suitable clays for lining evaporation ponds are not available on site, then off-site sources will be investigated.

- 71. Submission: To where would the interceptor bank drain surface water from Inkpen Road?**

Response: Surface water will be drained to the east to infiltration basins in the Avon River catchment. Detailed drainage design will be undertaken during the engineering works approval phase of the project, to the satisfaction of the EPA and other decision-making authorities.

General

- 72. Submission: What are the likely impacts of the industrial estate on the viability of agricultural activities in the district?**

Response: It is not envisaged that the development and operation of the industrial park will have any adverse impact on the viability of agricultural activities in the district. The off-site buffer will not restrict agricultural activities and the environmental management plan for the park operations provides for soil and water conservation.

- 73. Submission: How does the proponent justify the project in view of it being in direct conflict with the Shire of Northam's Town Planning Scheme Number 2 which zones the area as "Rural Zone 3"?**

Response: The Shire of Northam has stated that it agrees in principle to rezoning of the proposed industrial park site and associated off-site buffer to permit industrial land use.

- 74. Submission: How does the proponent envisage that landusers displaced by the development will be managed?**

Response: It is not envisaged that landusers will be displaced by the development. Both owners of the nominated park sites have indicated a willingness to sell their properties to LandCorp.

- 75. Submission: What is the conservation value of the remnant vegetation on site?**

Response: As stated on p.25 of the PER, the conservation value of the remnant vegetation on both sites is low. Most of the original vegetation has

been totally or parkland cleared and the remaining vegetation is unlikely to provide an important habitat for native fauna. However preservation of the remaining vegetation is important with regard to aesthetic values and management of the encroaching soil salinisation problem in the area.

76. Submission: On what basis was the 25 metre buffer zone for vegetation decided upon?

Response: The width of the buffer zone was determined on the basis of requirements for adequate visual and noise screening for the site, without encroaching too far into the amount of available land for industrial use within the park boundary.

77. Submission: How does the envisaged buffer zone relate to Government requirements and existing noxious industries in Western Australia?

Response: The proposed 1 km off-site buffer zone is based on the separation distances recommended in the EPA's Draft Environmental Code of Practice for Cattle Feedlots and Cattle Holding Stockyards and the Draft Environmental Code of Practice for Rendering Plants, as well as the Victorian EPA's Recommended Buffer Distances for Industrial Residual Air Emissions. These guidelines recommend a 1 km separation between industry and individual residences, and a 5 km separation between industry and gazetted townsites.

78. Submission: How will the proponent manage the additional fire risk associated with the estate?

Response: As stated on p.99 of the PER, a range of statutory fire prevention and control requirements will be imposed upon industrial operators establishing within the industrial park, to reduce the fire risk attributable to the park operations. Storage and handling of flammable liquids and materials will be subject to the requirements of the Dangerous Goods Regulations 1992.

LandCorp also undertakes to liaise with the Shire of Northam and the relevant State Government agencies concerning augmentation of existing emergency service facilities, and will contribute towards such augmentation in a mutually agreed manner, to offset any short-term increase in fire hazard as

a result of the park. A dedicated on-site emergency response facility will be established to meet longer term requirements.

- 79. Submission: How will the traditional rainwater quality (collected for domestic use) be assured? Can the proponent ensure that stock drinking water will be unaffected?**

Response: Air emissions from the individual industries and the centralised facilities will be licensed by the EPA, and the licensees will be legally bound to comply with licence conditions. Environmental management programmes for soil and water quality conservation, as outlined in the PER, will minimise impacts on off-site surface and groundwater resources.

- 80. Submission: How will the proponent prevent introduction of weeds which may impede agriculture in the district?**

Response: Individual on-site operators will be responsible for the quality and integrity of raw materials and vehicles brought onto the site for their operations. Industries will also be responsible for ensuring that their lots are kept free of noxious weeds. LandCorp (and later the Management Body) will ensure that the communal sites areas are kept free of noxious weeds.

Industries importing hides and pelts to the site will be required to purchase these from accredited abattoirs under the Agriculture and Related Resources Protection Act 1976. All hides and pelts imported into the State are inspected by the Agriculture Protection Board to ensure declared noxious weed species are not introduced by either the products or the vehicles.

- 81. Submission: How will the proponent prevent spread of dieback?**

Response: Dieback is already known to occur in the region, although no evidence of dieback was seen during site visits undertaken for preparation of the PER.

As stated on p.100 of the PER, any vehicles accessing the site, that have passed through areas of dieback-infested forest, will be subject to hygiene restrictions in accordance with Department of Conservation and Land Management regulations.

82. Submission: What hazardous materials will be stored on site and how would such accidents be controlled?

Response: Specific details of hazardous materials to be stored on site will depend on the industries that establish there, but essentially will comprise process chemicals and gaseous and liquid fuels.

The on-site storage and use of hazardous substances (including chemicals) is controlled by the Flammable Liquids Regulations 1967 and the Dangerous Goods Regulations 1992. The regulations outline safe handling procedures that must be followed by all personnel. The Dangerous Goods Regulations require that:

- Emergency response plans be prepared, maintained and periodically tested for all premises licensed to store dangerous goods.
- All persons engaged in the handling of dangerous goods are aware of the plan and are competent to operate all safety equipment they may be required to use in dealing with an emergency.
- Emergency response equipment must be provided and must be of an adequate standard of design and manufacture (Australian Standard or approved international standard), be maintained in operable condition and stored in an accessible location.

83. Submission: How will chemical accidents on site be prevented and what procedures are in place to manage such accidents should they occur?

Response: See above response. Individual on-site operators who store or use hazardous materials will be legally required to comply with the above regulations. In addition, as stated on p.98 of the PER, it is recognised that, in the longer term, a dedicated on-site emergency response facility may be required to service the industrial park. This matter will be addressed by the Management Body in consultation with the Shire of Northam and the relevant government authorities.

84. **Submission: Has the potential impacts of the project on the Fairy Wren using shrubby habitats been considered?**

Response: Specific assessment of the project impacts on the Fairy Wren was not undertaken. Both sites proposed for the park have been largely cleared of their native vegetation for agricultural purposes. Less disturbed shrub habitat is present on the adjacent properties Avon Location 29014 (formerly Government Requirements Reserve 30364) and Government Requirements Reserve 30393 for which fauna such as the Fairy Wren could reasonably be expected to prefer.

The proposed landscape buffer on the periphery, and along the drainage channels, of the industrial park will introduce a new area of indigenous shrub habitat to the park site.

85. **Submission: What measures will be employed by the proponent to minimise visual intrusion of the project and consequent loss of amenity?**

Response: As stated on p.93 of the PER, peripheral landscape buffers will be established along all boundaries of the park to provide visual and noise screening. LandCorp will prepare development guidelines for on-site building design and construction to promote site aesthetics and lessen visual impact of the park operations. The guidelines will also address minimisation of external lighting and shielding of internal illumination to reduce the impacts of light spill.

86. **Submission: Has the proponent considered the possibility of unexploded ordinance in the area that in the past the army carried out live firing throughout the district?**

Response: This possibility has been brought to LandCorp's attention by the Unexpected Ordinance Branch of the West Australian Police. Based on present information, a search of the area for unexploded ordinance (UXO) was not recommended. A warning concerning UXO has been provided and will be made available to parties involved in development of the area.

87. Submission: Would any type of noxious industry be excluded from the Park?

Response: The proposal is to establish a special industrial park for animal-processing industries and associated service industries. As such, establishment of other noxious industries (as defined by the Health Act 1911-1979) which do not fit into these categories would be contrary to the purpose of the park, and will be excluded. All proposals to establish industry at the site will be subject to assessment of their acceptability by the EPA and Shire of Northam.

88. Submission: What would be the time frame for relocating the ten industries identified?

Response: It is emphasised that the ten industries discussed in the PER is a conceptual scenario only, and in reality the nominated combination and size of industries may not eventuate. The timing and nature of establishment of industries at the site will be subject to demand and may arise from industry relocation from elsewhere or establishment of new businesses. It is not possible to predict a time frame for industry establishment at site, as no specific industry has yet proposed to locate at the site.

89. Submission: How could the cumulative effects of industry at the Park be managed?

Response: The purpose of the PER is to assess whether the site can cope, in environmental terms, with the cumulative impacts of the park operation, rather than determining the acceptability of any individual industry proposal. Individual industries establishing at the site will be subject to environmental approval and licensing by the EPA and WAWA. In setting operating license conditions these authorities will assess the likely implications of the operation of the new site applicant in association with current activities of other industry(s) previously established at the site.

The Management Body will be legally responsible for ensuring compliance with all requirements imposed through conditions attached to environmental and other clearances relating to establishment of the proposed industrial park. Individual licensees (including the Management Body) will be responsible for complying with their licence requirements, including performance and reporting on appropriate impact monitoring programmes.

SOCIAL ISSUES COMPILED FROM PUBLIC SUBMISSIONS

Site Selection Process

90. **Submission:** The proponent justifies the Inkpen area on the basis of market studies and commercial viability of potential industries. What studies were undertaken and what were the findings? What industries have approached LandCorp and the Shire of Northam requesting land in the Inkpen area? What indicators are there of a demand for the Inkpen land?

Response: The studies that were undertaken and their findings are summarised in Section 2.2 of the PER.

Industries that have approached or been approached by the Shire of Northam and LandCorp include wool scours and rendering plants. The animal product processing industry has a demand for suitable land on which to establish new, and relocate existing, operations, in response to environmental restrictions in current locations on the Swan Coastal Plain. Socio-economic viability of a new site is dependent on reasonable proximity to the Perth metropolitan area and sources of raw materials (i.e. stock, skins, etc.). The industry as a whole has indicated that the Inkpen location is potentially suitable, as it meets these criteria.

91. **Submission:** The proponent has justified the two sites examined in the PER on the basis of an alternative site analysis study undertaken and the site selection criteria listed in the PER. What criteria do these two sites meet? What criteria do they not meet?

Response: The site selection criteria are outlined on pp.10-11 of the PER. Avon Location 27679 satisfies the vegetation, topography, soils, climate, services and access criteria. Compliance with water resources criteria is constrained by that portion of the site which lies within the Wooroloo Brook catchment, and some areas within the site which are subject to waterlogging during winter. The separation criterion of 5 km distance from the nearest town (i.e. Bakers Hill) is satisfied, but there are four houses within 1 km of the site. Consequently the criterion for 1 km separation from the nearest residence is not satisfied.

Avon Location 27680 was not examined as part of the alternative site analysis, but subsequent evaluation of this site shows that it has the same advantages and constraints as outlined above for Avon Location 27679.

- 92. Submission: Were the public consulted as part of the alternative site analysis study? Please explain.**

Response: The original proposal for establishment of the Park was at Avon Location 29014 (formerly Government Requirements Reserve 30364). An associated public consultation programme, comprising public meetings in the Bakers Hill community, raised a variety of concerns relating both to the biophysical and human environments, as well as other issues (e.g. demand for the proposed facility, availability of services, and access to road and rail transport).

AGC Woodward-Clyde was commissioned to undertake an alternative sites study, based on a desk-top review of existing information. The site selection criteria were based on issues raised by the public, as mentioned above, and guidance provided by the Environmental Protection Authority.

- 93. Submission: Was a social impact study undertaken as part of the site selection process?**

Response: See above response.

- 94. Submission: Other sites studied meet the criteria used to select and compare alternative sites, e.g. CSIRO land, Location 2039 - Site H. Why were these sites rejected? On what criteria were the Inkpen sites favoured?**

Response: In terms of their overall suitability there was very little difference between the five most highly ranked sites in the alternative sites study. Final site selection was based on the stated willingness of the owners of Avon Locations 27679 and 27680 to sell their properties.

- 95. Submission: Why is location 30364 unsuitable for industrial development?**

Response: Avon Location 29014 (formerly Government Requirements Reserve 30364) was considered unsuitable for industrial development mainly for the following reasons:

- The 265 hectare area of land comprising the former reserve is essentially uncleared bushland which on investigation was considered to have conservation value for fauna and flora.
- As a catchment area for the Wooroloo Brook, there were concerns that clearance of the site's vegetation would exacerbate local salinity and soil degradation problems in the catchment.

96. Submission: The PER states that one of the criteria used to select or reject sites was that the site should be at least 1 kilometre from residences. Why were the Inkpen sites chosen when there are 3 residences within 1 kilometre?

Response: Site selection is based on assessment of a set of criteria. Ideally all criteria should be satisfied, but in reality this is rarely achieved, and final site selection must be based on a balance of those criteria which are satisfied (wholly or partly) and those which are not.

97. Submission: Was the apparent willingness of the landholders to sell sites Avon Location 27679 and 27680 a factor in the choice of Inkpen? Did the unwillingness of owners to sell the other sites affect the decision not to investigate them further?

Response: Yes.

98. Submission: Has the proponent seriously examined the Meenaar Industrial Site for these industries? Please comment on social and environmental impact.

Response: Meenaar was one of the potential sites identified for establishment of the Park, however feedback given to LandCorp and the Shire of Northam by the animal processing industry indicated that it was not considered to be a suitable location owing to its distance from Perth. Meenaar is located further from the Perth Metropolitan region, and therefore was considered to be more constrained in terms of associated transport costs than the Inkpen site. As the animal processing industry had indicated that it did not support the Meenaar location, it was not considered viable to conduct any further social or environmental assessment of the site for the purposes of the current proposal.

Social Impact Study

- 99. Submission: The social impact study finds that the Inkpen community will be adversely affected. On what basis then did the study reach its conclusion?**

Response: In arriving at a judgement of social acceptability, the impact of the proposal on the broader community, not just the local community, has been considered. As described in the Social Impact Assessment there are potential economic benefits to the broader community.

As a result of the Social Impact Assessment, the site was considered acceptable with the provision that appropriate impact management measures and operating practices are implemented. Although the Social Impact Assessment acknowledges that local impacts are possible, implementation of LandCorp's impact management measures led to the conclusion that, on balance, when the positive impacts on the broader community are also considered, the site is socially acceptable. Any proposal to establish industrial facilities on the site will be subject to the EPA's environmental approvals process.

- 100. Submission: The social impact study certainly notes the objections and concerns of the Inkpen community about the proposed estate. However this does not appear to have been given any weight in the conclusion. Why?**

Response: The objections and concerns of the Inkpen community were given significant weight in reaching the conclusion on social acceptability. The conclusion of the social impact assessment included not only the judgement of the "acceptability" of the site but development of a range of impact management measures to address any predicted social impacts. In determining whether or not the site is acceptable, the ability of the proposed impact management measures to address the potential social impacts on the local Inkpen community was a significant consideration.

- 101. Submission: Did the social impact study consider and assess the impact of the proposed land zone over time on lifestyle, quality of life and social cohesion of the Inkpen community? Please explain.**

Response: The long term affects of introducing industrial land uses on lifestyle, quality of life and social cohesion was considered in the social

analysis. On the basis of past industrial projects and in particular the case studies developed for this study, the social impact analysts believe that no significant negative impact will occur. For example it is not anticipated that a significant number of local households will move away from the area if the site is established at Inkpen (Section 5.3.2 of the Social Impact Assessment). There is no evidence social cohesion will be significantly impacted in a negative manner.

- 102. Submission: Farmers may sell their land due to the presence of the Estate. Did the social impact study or any other study consider the impact of this on economic viability and rural social structure, with the possible reduction in community involvement in landcare initiatives? Please comment.**

Response: It is anticipated that few, if any, farmers will leave the area and thus there will be little impact on the rural structure of the area.

The establishment of a buffer area and implementation of the property value protection plan will also encourage local farmers to adopt a wait and see attitude toward the site's development.

- 103. Submission: Did the social impact study examine the loss of local business initiatives which rely on the rural amenity of the Inkpen area to attract business? Please comment.**

Response: Discussions were held with a number of business owners/operators in the Bakers Hill area but none were dependent on the rural amenity of the area to attract business. There did not appear to be any businesses in the area which were dependent on the rural amenity of the Inkpen area. Facilities such as those at El Caballo are sufficiently distanced from the Inkpen site to be unaffected in business terms.

- 104. Submission: Did the social impact or any other study examine the potential impact of the development of the industrial zone on the recently approved 83 lot subdivision near Bakers Hill? What are the implications of these two areas developing in proximity to each other?**

Response: The 83 lot subdivision is located north of Great Eastern Highway and was not considered. On the basis of the findings from the case studies of comparable facilities in Western Australia, it is not anticipated that there

would be significant negative impacts on residents in Bakers Hill if the two areas developed in proximity to each other.

- 105. Submission: Did the social impact or any other study examine land use compatibility? Please comment on the compatibility of a noxious industry zone in an area specifically zoned to maintain rural activities and to protect rural amenity.**

Response: Land use compatibility was included as one of a number of factors in the PER's social impact analysis. As discussed in Section 5.3.1 of the Social Impact Assessment, introduction of a special industries site would "not be compatible with the stated Council policy of restricting the development of Special Rural Zones to those areas where the effect on the rural character and economy would be minimal." However this is tempered by the Council's position that "it would support a change in zoning to industrial should the site be shown to be environmentally acceptable."

- 106. Submission: How can the proponent justify a re-zoning of this nature when the impacts of the zone over time will change the rural amenity and affect the lifestyle of the Inkpen community?**

Response: Assessment of the suitability and acceptability of the re-zoning application is the role of the Shire of Northam.

- 107. Submission: The social impact study discusses a telephone conversation survey conducted in 1991. Did this survey involve the Inkpen community? How were the results of the survey used in the social impact study?**

Response: Section 5.5 of the Social Impact Assessment discusses the telephone survey conducted in 1991. The discussion notes that only one member of the Inkpen community was interviewed as part of that survey. The results of the survey were used to indicate that, in general terms, Northam Shire residents are willing to accept industrial development of the type proposed for the Inkpen site provided such development did not result in environmental degradation. The limitations of the survey are discussed on page 25 of the social analysis.

- 108. Submission: The social impact study discusses visual intrusion. However it or other studies do not appear to have considered sight lines from local farms taking into account elevation, land contours and land form. Were these factors examined? Please comment.**

Response: As stated on p.93 of the PER the industrial park will be visible to varying extents to adjacent properties, however it is envisaged that the implementation of building design controls (through site development guidelines to be prepared by LandCorp) and establishment of the peripheral landscape buffer will reduce the visual impact.

- 109. Submission: The social impact study describes the population of the Inkpen area as "ageing". Of what relevance is this? How has it affected the findings and conclusion of the study?**

Response: Describing the age structure of a community is a standard step in the analysis of baseline social conditions. As discussed in Section 5.3.2.1 of the Social Impact Assessment, the social science literature indicates that older residents have, in general, more difficulty in coping with change and in particular relocation. This point is also raised in Appendix C of the Social Impact Assessment (p.44). The fact that the local population is aged was a sensitivity that was kept in mind by the social impact analysts during the course of the study.

- 110. Submission: The social impact study and the PER point to employment being one of the potential benefits of the industrial estate. Given that the PER accepts maximum employment will be 140 and most workers would likely commute from Perth, how does the proposal benefit the Inkpen community, Bakers Hill and the Shire of Northam?**

Response: The social analysis did not accept that maximum employment would be 140 workers and that most would commute from Perth. As noted in section 5.4 of the Social Impact Assessment (p.24), the number of workers and whether or not they would commute to Perth as opposed to living in the area could not be predicted.

It should be noted that the proposal to establish the special industrial park is to generally aid and enhance agriculture and therefore will provide economic benefits to the local and state-wide agricultural community.

111. **Submission:** While the social impact study discusses stress, it does so mainly in regard to stress if industry locates to the area. How has the stress experienced by some people in the Inkpen community as a result of the protracted study process been taken into account?

Response: Section 4.2 of the Social Impact Assessment (p.12) specifically discusses and acknowledges the stress that local residents have experienced as a result of the lengthy study process. While previous feelings of "stress" cannot be removed, impact management measures such as the property value protection policy and local resident input to the management of the Inkpen Industrial Park are designed to reduce potential future stress for local residents if the site is approved.

112. **Submission:** During the personal interviews conducted by CSIRO, alternative locations were suggested. Were these investigated? If not, why not?

Response: Personal interviews conducted by CSIRO were part of the Social Impact Assessment for the proposal to establish a special industry park at either Avon Locations 27679 or 27680. Alternative sites were not investigated because that was outside the objectives and scope of the existing proposal. However, a number of these have been previously considered in the site selection study conducted by AGC Woodward-Clyde for LandCorp in 1991.

113. **Submission:** The social impact study does not appear to have taken into account the dwelling on Location 27672 which is affected by the proposed buffer. Please comment.

Response: There are two houses on Location 27672 and both households were interviewed as part of the social impact analysis. Figure 1 should have shown two residences on location 27672 rather than one.

Buffer Zone/Property Values/Compensation

114. **Submission: The proposed buffer which restricts land owner's rights was not made known to affected land owners during the consultation processes of the social impact study. What are the implications of this in regard to the findings and conclusion of the social impact study?**

Response: The buffer zone had not been proposed at the time that interviews were held with area residents for the social impact analysis. In fact it was an outcome of the social and environmental impact assessments designed to address issues and concerns raised during consultation with the local community. The public had the opportunity to comment on the proposed management measures, including the buffer zone, during the information day on 25 October 1992 and through submissions to the EPA on LandCorp's PER document.

115. **Submission: The proposed 'buffer' does not meet the accepted precedents and definitions of what a buffer zone is. Why has the proponent chosen to restrict people's private land rights instead of purchasing lands, which is the accepted practice, e.g. Kemerton?**

Response: The proposed 1 km off-site buffer zone is based on the separation distances recommended in the EPA's Draft Environmental Code of Practice for Cattle Feedlots and Cattle Holding Stockyards and the Draft Environmental Code of Practice for Rendering Plants, as well as the Victorian EPA's Recommended Buffer Distances for Industrial Residual Air Emissions. These guidelines recommend a 1 km separation between industry and individual residences and a 5 km separation from gazetted townsites.

Land use restrictions within the buffer zone will be implemented by rezoning through the Shire's Town Planning Scheme. Land use control through zoning is a standard government land management practice.

There is no accepted practice pertaining to industrial back buffer acquisition. The Kemerton buffer, which is only partially Government owned, supports extensive farming activity. The decision to stand in the market to acquire the Kemerton Industrial Park buffer reflected the "heavy" nature of industry which will establish there.

- 116. Submission: The area of the proposed buffer does not cover the area of predicted impact. Will the proponent extend the off-site buffer area to at least 1.5 kilometres?**

Response: The 1 km off-site buffer extending from the boundary of the proposed industrial park site covers the off-site area most likely to experience adverse impacts. The buffer distance is consistent with the EPA's Draft Environmental Code of Practice for Cattle Feedlots and Cattle Holding Stockyards and the Draft Environmental Code of Practice for Rendering Plants, as well as the Victorian EPA's Recommended Buffer Distances for Industrial Residual Air Emissions, which recommend a 1 km separation between industry and individual residences and a 5 km separation from gazetted townsites. The proponent does not propose to extend the off-site buffer beyond 1 km.

- 117. Submission: Will the proponent compensate land owners for decreased property values? When will the proponent compensate land owners?**

Response: A 1 km off-site buffer zone is proposed, extending from the boundary of the industrial park. As explained on p.84 of the PER, LandCorp provides an undertaking that, in the event of a property within the buffer zone being offered for sale but being unable to realise fair market value for reasons attributable to the industrial park (verified by independent sources acceptable to the EPA, the property owner and LandCorp), LandCorp will pay the difference between the final sale value as achieved by sale at auction and the assessed fair market value as determined by valuation. In making this payment, LandCorp will lodge a memorial on the property title registering the fact that compensation has been paid with respect to the property and that no further claim exists. The compensation arrangement shall be effective from the date of gazettal of the amendment to the Shire of Northam's District Town Planning Scheme that formally establishes the buffer.

No compensation offer is open to properties which lie outside the 1 km buffer.

- 118. Submission: Will the proponent arrange for the town planning scheme to be amended so local farmers can subdivide as a form of compensation? i.e. the principle of preserving rural amenity under the existing zone will not be able to be met should the industrial zone proceed.**

Response: No. The Proponent does not consider that lodgement of rezoning applications relating to uses other than the industrial park and associated off-site buffer is an appropriate action to be undertaken LandCorp.

- 119. Submission: Will the proponent compensate land owners for injurious affectation and solace? How will this be determined?**

Response: No. Compensation offers only relate to financial compensation of existing property owners within the buffer for any property devaluation shown to result from the industrial park.

- 120. Submission: Will the proponent purchase all lands within the buffer and arrange for unencumbered separate title for the remaining portions? Will the proponent compensate for such things as stamp duty, and capital gains tax?**

Response: The on-site buffer will be contained within site land to be purchased by LandCorp. LandCorp does not intend to purchase the land within the off-site buffer. LandCorp undertakes to provide financial compensation only for reduced property value where this has been shown to result from the industrial park. Payment of the fees, duties and taxes will remain the responsibility of the vendor.

- 121. Submission: Will the proponent arrange to seal and air condition houses to stop dust and odours?**

Response: No.

- 122. Submission: Has the proponent considered using the external buffer as a tree farm to help recoup costs of developing the site?**

Response: In regard to the Inkpen site, it is not LandCorp's policy or intention to establish tree farming operations within the external buffer and therefore such considerations of cost recovery were not taken.

Rural Amenity/Lifestyle

123. **Submission: How can the proponent justify rezoning to noxious industry a rural area protected under the Shire's town planning scheme for agricultural purposes?**

Response: The Shire of Northam has indicated that it agrees in principle to rezoning of the proposed park site and associated off-site buffer zone for the specific purpose of establish an animal-processing industrial park.

124. **Submission: Is the proponent aware that applications for subdivision in the Inkpen area have been rejected because they would damage the rural character of the area?**

Response: Yes.

125. **Submission: The Inkpen community has been very active in implementing local landcare initiatives. Is the proponent aware of these initiatives and their importance in enhancing rural amenity and lifestyle? Were these programmes assessed as part of the social impact study? Please comment.**

Response: A number of those interviewed for the social impact assessment discussed their involvement with landcare activities. The social impact analysis, in discussing the characteristics of the local Inkpen community, describes the resident's close attachment to the land and the extensive tree planting programmes that have been undertaken by local farmers (Section 3.1.1 of the Social Impact Assessment; p.5) as a reflection of their commitment to the local environment. The potential impact on the community groups such as District Land Care Committee should members move from the area as a result of the LandCorp proposal was acknowledged in Section 5.3.2 of the Social Impact Assessment (p.23). However it was anticipated that few members would choose to leave the area.

126. **Submission: Given the local land care initiatives, if this proposal proceeds will the proponent commit to full replacement of any vegetation cleared on-site and for infrastructure corridors?**

Response: Any off-site clearance of vegetation will be related to supply of infrastructure and servicing to the site. This work will be undertaken by the

appropriate agencies (e.g. SECWA, Telecom, WAWA, etc.). The proponent has no official control over the clearing activities undertaken by these agencies, but as stated on p.80 of the PER, LandCorp provides an undertaking (Commitment 7.2.1 (viii)) that, in negotiating with the servicing authorities over completion of the required works, it will emphasise the need for all facets of the physical construction and installation processes to be undertaken in as environmentally sensitive manner as is feasible.

A plan for revegetation and landscaping of on-site buffer zones with indigenous trees and shrubs is outlined on p.85 of the PER and in Commitment 7.2.1 (viii).

Transport

- 127. Submission: Inkpen Road is regarded as a residential road by local people. The predicted increase of 400 vehicles per day conflicts with the road as a residential road and potentially puts people at risk, e.g. school buses. Has the proponent considered other roads, especially Colgongine Road?**

Response: As stated on p.96 of the PER, Inkpen and Oyston Roads are the routes most likely to attract increased traffic, however there is the potential for vehicles to use other roads (e.g. Colgongine Road). The proponent has no control over which access routes are used by traffic. The Shire of Northam has undertaken to implement remedial measures to address any problems which arise from increased usage of minor roads in the area.

- 128. Submission: Page 9 lists "access to major roads and a rail link". How can the Inkpen site be justified when there is no rail link?**

Response: Site selection criteria represent desirable objectives but are not mandatory and site satisfaction of all criteria is often not possible. In the case of this industrial park, a rail link could be useful, but its absence is not a constraint to the operations of the types of industries that are proposed for the site.

- 129. Submission: Page 10 lists as one of the site criteria "road access to the site should not introduce heavy vehicular traffic to residential and tourist routes". Why then is it being proposed to introduce heavy vehicles to Inkpen Road? Please explain the apparent contradiction.**

Response: Site selection criteria represent desirable objectives but are not mandatory and site satisfaction of all criteria is often not possible. The Shire of Northam has undertaken to monitor the need for upgrading Inkpen Road to cater for increased heavy traffic and take appropriate remedial action if the need is warranted. However, Inkpen Road was constructed to a high standard to allow access to the Wundowie Foundry by heavy logging trucks.

- 130. Submission: Who will be responsible for road works, including maintenance? Who will determine this and when?**

Response: As stated on p.96 of the PER, the Shire of Northam will be responsible for monitoring traffic numbers and for assessing the need to upgrade roads to cater for the increased loads. Remedial measures will be taken by the Shire to address any problems associated with increased usage of roads within its jurisdiction, in line with the Shire's general responsibility for road maintenance as a local government.

- 131. Submission: Appendix C, page 7 indicates that the proposed realignment of the Great Eastern Highway is to the south of its present location. However, it is understood that Council supports realignment north of the present location. What are the implications of the northern realignment option?**

Response: A northern alignment as opposed to a southern realignment of the Great Eastern Highway would have no affect on any of the conclusions of the social impact assessment.

Other

- 132. Submission: If the proposal proceeds, will the proponent commit to increasing the number of Inkpen residents on the various management/monitoring committees?**

Response: LandCorp has made a commitment to establish an advisory board (the Inkpen Special Industrial Park Advisory Board) to the Management

Body. The advisory board will comprise representatives of the relevant State and Local Government authorities and local community. No specific number of representatives from any of these organisations and groups has yet been nominated, but at the time of establishing the advisory board, the Inkpen community will be consulted to identify an appropriate level of local community representation on the board.

133. **Submission: The odour 'modelling' appears inadequate. Did the proponent take into consideration the fact that residents up to 4 kilometres from the Tip Top abattoir experience odours?**

Response: It was acknowledged on p.88 of the PER that odour complaints have been registered by residents up to 3-4 km from animal products processing industries. The 1 km off-site buffer extending from the boundary of the proposed industrial park site covers the off-site area most likely to experience adverse impacts. The buffer distance is consistent with the EPA's Draft Environmental Code of Practice for Cattle Feedlots and Cattle Holding Stockyards and the Draft Environmental Code of Practice for Rendering Plants, as well as the Victorian EPA's Recommended Buffer Distances for Industrial Residual Air Emissions, which recommend a 1 km separation between industry and individual residences and a 5 km separation from gazetted townsites.

134. **Submission: Did the various studies examine the potential impact of emissions on rainwater used by local farmers for domestic purposes? If the estate proceeds, will the proponent arrange for connection to the proposed scheme water supply at no cost to the land owner to compensate?**

Response: In the absence of a specific proposal for an industry/industries to establish at the site, only qualitative assessment of the potential impacts of air emissions was presented in Section 6.4.3 of the PER.

Air emissions from the individual industries and the centralised facilities will be licensed by the EPA, and the licensees will be legally bound to comply with licence conditions. A licence condition will be monitoring of air emissions. If, in the opinion of the EPA, air emissions from the park are shown to have caused adverse impacts on rainwater used for local domestic purposes, then the licensee will be required to take remedial action to the satisfaction of the

EPA. Any public compensation claims would be assessed on their merit at that time.

135. Submission: Was the Swan River Management Council consulted?

Response: The Swan River Management Council was invited to comment on this proposal during the public review period for the PER.

136. Has the proponent considered the relocation of the Midland Saleyards to the Inkpen area?

Response: The Western Australian government has recently announced that it will retain the Midland saleyard complex and is proceeding with acquisition and upgrading of the facility.

137. Can the proponent ensure that all impacts are contained within the site boundary, i.e. industry should not be seen, heard or smelled beyond the site boundaries?

Response: It is recognised that the proposed industrial park will potentially produce some changes within the surrounding environment that could be regarded by some as both socially and environmentally undesirable. The emphasis of operational management programmes incorporated into LandCorp's proposal is to minimise and contain potentially adverse environmental impacts wherever feasible. The suitability of these management programmes will be subject to the approval of the EPA and other relevant regulatory authorities, and the effectiveness of the management programmes will be monitored and reported to the authorities in compliance with licence conditions.

- 3 LandCorp will finalise the legal and administrative arrangements for establishing the Management Body, which will comprise representatives of property owners/industrial operators within the industrial park. The Management Body will be established before any title for new created lots are issued. By way of covenants attached to the Title of all allotments within the industrial park, all landowners within the park will become members of the Management Body upon purchase of their property therein, and be compelled to adhere to its rules and regulations. LandCorp will prepare articles for the Management Body to satisfy the requirements of all relevant regulatory authorities.
- 4 LandCorp will establish an advisory board to the Management Body, the Inkpen Special Industrial Park Advisory Board, which will comprise representatives of relevant State and Local Government authorities and the local community. The Role of this advisory board will be incorporated into the articles of association for the Management Body.
- 5 LandCorp will finalise the ultimate design of the industrial park in consultation with the relevant regulatory authorities before the commencement of any site development works.
- 6 During the detailed planning process that will precede establishment of the park, LandCorp will liaise with the Shire of Northam and the relevant State Government agencies concerning augmentation of existing emergency service facilities serving the general region, and contribute towards such augmentation in a mutually agreed manner.
- 7 LandCorp will co-ordinate and supervise site development to the stage where serviced allotments would be made available for sale to incoming industrial operators. In so doing LandCorp will ensure that all necessary services will be provided throughout the site, and will comply with all requirements of the servicing authorities.
- 8 In negotiating with the servicing authorities over completion of the required works, LandCorp will emphasise the need for all facets of the physical construction and installation processes to be undertaken in as environmentally sensitive a manner as is feasible. Particular issues that will be stressed in this context will include:
 - minimising the direct and indirect disturbance of vegetation;
 - limiting the extent of direct and indirect disturbance from earthworks;
 - reshaping and otherwise treating areas affected by earthworks to meld with the surrounding landscape;
 - dieback hygiene requirements;
 - re-establishing appropriate native vegetation on disturbed areas where feasible;
 - maintaining surface drainage features; and

- restricting construction/installation activities to reasonable times to limit intrusion upon the human environment.
- 9 In engaging contractors to undertake on-site developmental works, LandCorp will emphasise the need for all facets of the physical construction to be undertaken in as environmentally sensitive a manner as is feasible. Particular issues that will be stressed in this context will include those listed above in Commitment (viii) and, as appropriate, environmental management initiatives during the site construction phase will include:
- topsoil will be stripped from areas subject to earthworks and will be respread following completion of works;
 - disturbed areas will be seeded with appropriate native species;
 - to safeguard scouring of disturbed earth surfaces, earthworking programmes will incorporate drainage control contour banking, in situ containment of runoff and surface sheeting of disturbed areas;
 - where any internal road has to cross a watercourse, appropriate sized culverts will be installed;
 - during earthworks, water will be applied to still dust should a problem arise;
 - all waste materials generated during construction activities will be contained and removed for off-site disposal/recycling;
 - any servicing or refuelling of machinery and vehicles will be confined to a designated area, wherein drainage would be contained, and any hydrocarbon contaminated soil would be removed from this area upon completion of the construction programme;
 - site development operations will be limited to hours acceptable to the Shire of Northam.
- 10 LandCorp will construct internal roads within the industrial park and will conform with standards specified by the Shire of Northam. In accordance with normal procedures, these roads will become the Shire's responsibility once constructed.
- 11 LandCorp will design, site and construct the centralised wastewater treatment and disposal facilities to the satisfaction of the EPA and WAWA. Limiting the spread of odours to a distance of approximately 500 m from the boundaries of the facility site will be a specific design criterion of the centralised wastewater treatment and disposal facility.
- 12 LandCorp will ensure that the design and construction of the ponds will be in accordance with accepted civil and geotechnical engineering standards and will allow for seismic disturbance in accordance with the

Standards Association of Australia's Earthquake Code (AS 2121-1979) and draft revised Earthquake Code (AS 1170.4). The design freeboard of the ponds will allow sufficient storage capacity to cater for a one in 10 year return period rainfall event in addition to normal loading capacity, and all ponds will incorporate a secure spillway structure to avoid uncontrolled overtopping of the pond walls. Construction of the ponds, including the extraction of construction materials, will be supervised by an appropriately qualified engineer.

- 13 In the event that material of Aboriginal origin is exposed during on-site construction works, LandCorp will ensure that requirements under the *Aboriginal Heritage Act 1972-80* are satisfied.

Compensation in Off-site Buffer

- 14 LandCorp provides an undertaking that, in the event of a property within the buffer zone being offered for sale but being unable to realise fair market value for reasons attributable to the industrial park (verified by independent sources acceptable to the property owner and LandCorp), LandCorp will pay the difference between the final sale value as achieved at sale by auction and the assessed fair market value as determined by valuation. In making this payment, LandCorp will lodge a memorial on the property title registering the fact that compensation has been paid with respect to the property and that no further claim exists. This compensation offer shall be effective from the date of gazettal of the amendment to the Shire of Northam's District Town Planning Scheme that formally establishes the buffer.

Commitments Made by the Management Body Regarding Site Operation

- 15 The Management Body will ensure compliance with all site operational requirements imposed through conditions attached to environmental and other approvals for site operation, to the satisfaction of the EPA, WAWA and the Shire of Northam.
- 16 The Management Body will maintain the commonage areas within the industrial park (i.e. the peripheral landscape buffers and the stream buffers).
- 17 The Management Body will operate and maintain the centralised wastewater treatment and disposal facilities, in particular:
 - the common collection and centralised wastewater disposal facilities on the site;
 - operation of the centralised wastewater disposal facilities;
 - management of surface drainage; and
 - monitoring of the wastewater quantity and quality discharged to the environment.

- 18 Specific environmental monitoring requirements arising as a consequence of establishing the industrial park will be the responsibility of the Management Body. In all instances, the specific programmes will be designed, initiated and implemented in consultation with the relevant regulatory authorities. The monitoring strategies outlined in this PER will form the basis of the detailed programme designs.
- 19 As part of the on-going monitoring process, a public complaints register will be maintained, by the Management Body, within which complaints about adverse environmental impacts attributed to the existence and/or operation of the industrial park will be recorded. The register of complaints, and the response to complaints lodged, will form part of each periodic performance report submitted to the regulatory authorities. Such reports will also be made available to the community, through the Inkpen Special Industrial Park Advisory Committee and the Shire of Northam.
- 20 The Management Body will immediately advise the regulatory authorities of any unforeseen event and of remedial action implemented in response to the event. The Management Body will respond to any unforeseen events in consultation with the EPA and other relevant regulatory authorities.
- 21 The Management Body will ensure that desludging of the centralised wastewater ponds will be performed only when the prevailing wind direction will direct any odour away from nearby residences. Prior notice of this operation will be given to neighbouring residences by the Management Body.
- 22 The Management Body will ensure compliance (by individual operators) with development guidelines for the industrial park and other requirements specified in its articles.
- 23 The Management Body will ensure that solid wastes from the centralized wastewater treatment and disposal plant will be disposed of at a landfill site acceptable to the regulatory authorities.

Attachment 2

Environmental criteria for industries proposing to establish in the Special Industrial Park at Inkpen Estate, Bakers Hill (June 1993)

NOTE: These environmental criteria are to be met to the requirements of the Environmental Protection Authority, and are subject to modification. Additional matters may need to be addressed in later versions.

1. General

Any development in the Special Industrial Park shall be carried out according to all relevant government statutes and agency requirements, and shall be referred to the Environmental Protection Authority at the earliest opportunity.

2. Solid and Liquid Waste Management

- 2-1 Wastewater treatment and disposal systems within the industrial park shall be appropriately designed and installed to meet the requirements of the Water Authority of WA.
- 2-2 Prior to approval and construction of such wastewater treatment facilities, each industry shall supply details of the location and design of that facility to the proposed Inkpen Estate management body and, obtain necessary statutory approvals for these prior to commencing construction.
- 2-3 In the event of leakage from any wastewater treatment ponds causing an unacceptable environmental impact, immediate action shall be taken to advise the Water Authority of WA and the Environmental Protection Authority. A plan should immediately be developed to identify the cause of the leakage and to rectify the problem.
- 2-4 Solid waste (including solid waste associated with the centralised waste treatment plant) shall be disposed of to a landfill approved by the Health Department of WA or in such other ways approved by the Environmental Protection Authority and Health Department of WA.

3. Noise Limits

All operations should be conducted so that noise emissions do not unreasonably impact on the surroundings.

3-1 Noise emissions from any project shall not exceed:

- 40 dB L_{A10} , 1 hour slow and 50 dB $L_{A \max}$ slow between 2200 hours and 0700 hours on any day when measured on any noise-sensitive premises;
- 45 dB L_{A10} , 1 hour slow and 55 dB $L_{A \max}$ slow between 1900 hours and 2200 hours on any day, and between 0700 hours and 1900 hours on Sundays and gazetted public holidays, when measured on any noise-sensitive premises;
- 50 dB L_{A10} , 1 hour slow and 70 dB $L_{A \max}$ slow between 0700 hours and 1900 hours on Monday to Saturday inclusive, when measured on any noise-sensitive premises; and
- 65 dB L_A slow when measured at or near the boundary of premises that are not noise-sensitive premises (other industries);

where such emissions would result in the noise level present at the affected premises exceeding the ambient noise level present at any time by more than 5 dB L_A slow.

- 3-2 Noise emissions from those activities which are of concern to occupiers of noise-sensitive premises shall not exhibit tones, amplitude and frequency modulation and impulsiveness of a nature which increases the intrusiveness of the noise.

- 3-3 Noise surveys and assessments shall be conducted in consultation with the Environmental Protection Authority.

The following definitions apply to these criteria.

"ambient noise" means the generally non-intrusive noise which is always present due to such sources as motor vehicles operating on roads (other than those adjacent to the premises where the noise environment is being assessed), general industrial, commercial and other activities where individual noise sources such as fans, machinery, refrigeration and air-conditioning plant and vehicles cannot be identified and natural noise sources such as wind-induced vegetation noise but not the noise caused by the allegedly offending source or sources;

"dB LA10, 1 hour slow " means the A weighted noise level exceeded for 10% of the time, determined over a time period of one hour with a sound level meter set to measure in slow dynamic response mode, and

"noise-sensitive premises" means any land or building that is used as a residence, guest house, hotel, motel, caravan park, school, church, hospital, or as an office or consulting rooms, where such office or consulting rooms are not located in an industrial area.

4. Air Quality

NB All air quality values are at zero degrees Celsius, 101.325 kilopascals, dry and over specified time-weighted average exposure periods. These are ambient ground level concentrations.

Proponents who establish industries in the industrial park should control their atmospheric contaminants to levels which conform to proposed Environmental Protection Authority ambient air quality guidelines.

4-1 Sulphur dioxide

Concentrations shall not exceed 350 micrograms of sulphur dioxide per cubic metre ($\mu\text{g}/\text{m}^3$) averaged over a 1-hour time period.

4-2 Particulate matter

The annual mean concentrations shall not exceed 90 micrograms of particulate matter per cubic metre ($\mu\text{g}/\text{m}^3$) averaged over a 24-hour (1-day) time period.

4-3 Nitrogen dioxide

Concentrations shall not exceed 320 micrograms of nitrogen dioxide per cubic metre ($\mu\text{g}/\text{m}^3$) averaged over a 1-hour time period.

4-4 Odour

No offensive odours should be detectable at residences

5. Risks and Hazards

- 5-1 The Special Industrial Park should comply with the requirements and approach to be adopted for evaluation of risks and hazards as detailed in Environmental Protection Authority Bulletin 611 (Criteria for the Assessment of Risk from Industry, Environmental Protection Authority Guidelines, 1992). These requirements include the principle of "avoiding avoidable risk" and include the following criteria for individual fatality risk levels:

- (1) A risk level in residential zones of one in a million per year or less, is so small as to be acceptable to the Environmental Protection Authority.
- (2) A risk level in "sensitive developments", such as hospitals, schools, child care facilities and aged care housing developments of between one half and one in a million per year is so small as to be acceptable to the Environmental Protection Authority.
- (3) Risk levels from industrial facilities should not exceed a target of fifty in a million per year at the site boundary for each individual industry and the cumulative risk

level imposed upon an industry should not exceed a target of one hundred in a million per year; and

(4) A risk level for any non-industrial activity located in buffer zones between industrial facilities and residential zones of ten in a million per year or lower, is so small as to be acceptable to the Environmental Protection Authority.

5-2 Each intending occupier who would be engaged in hazardous activities in the Special Industrial Park shall participate in the preparation of a model of cumulative risk levels which should be generated to ensure that the above criteria are met.

6. Decommissioning

The satisfactory decommissioning of any project, removal of plant and installations and rehabilitation of the site and its environs is the responsibility of each future proponent.

6-1 At least six months prior to decommissioning of any project, a decommissioning and rehabilitation plan shall be prepared and subsequently implemented.

Appendix 1

**List of Government agencies and members of the public who made
submissions**

Conservation Council of WA
Water Authority Western Australia
Department of Planning and Urban Development
Health Department of Western Australia
Department of Resources Development
Waterways Commission
Western Australia Police
Western Australian Department of Agriculture
Water Authority of Western Australia Central Region
Muresk Institute of Agriculture

Shire of Northam
Town of Northam
Shire of Beverley
Shire of Mundaring

Northam Environmental Society inc
Northam Land Conservation District Committee
Wildflower Society of Western Australia
Inkpen Residents Action Group (c/- Peter D Webb and Associates)
Woorloo Brook Land Conservation District Committee
York Environmental Society

Mr M W Trenorden
D & N Broadribb
M Mackintosh
J Jujnovich
W & M Diamond
R Poulton
MR K R Evans
Miss K Jujnovich
R E Sarti
G J & S D Ward
Mr H Hepburn
Mr T Shingles
Mr T Poynton
J H Wilding
A & I Seskas
R & J Spittle
J R Ferguson
W & J Staude
R Brayshaw
T & S Wilding
G & G James
Mr P Murray

Mr A Abordi
J C Grasby
Sheila Forte
Mr M Murphy
Miss A Jujnovich
LW & AS Vanzetti
The Kramers
J K Horwood
P & F Pendragon
R & A Chester
Mr G James
Messr Poynton & Pratt
A Herlihy
J & L Moore
RJ & JA Priestley
GM & HJ Horne
Mr C Poynton
Mr B Hart
KA & AJ Boase
C E Jubb
S & A Kuiper
Mr J Jury

Appendix 2

Proponent's response to public submissions

THE PURPOSE OF THIS REPORT

This report contains the Environmental Protection Authority's environmental assessment and recommendations to the Minister for the Environment on the environmental acceptability of the proposal.

Immediately following the release of the report there is a 14-day period when anyone may appeal to the Minister against the Environmental Protection Authority's report.

After the appeal period, and determination of any appeals, the Minister consults with the other relevant ministers and agencies and then issues his decision about whether the proposal may or may not proceed. The Minister also announces the legally binding environmental conditions which might apply to any approval.

APPEALS

If you disagree with any of the contents of the assessment report or recommendations you may appeal in writing to the Minister for the Environment outlining the environmental reasons for your concern and enclosing the appeal fee of \$10.

It is important that you clearly indicate the part of the report you disagree with and the reasons for your concern so that the grounds of your appeal can be properly considered by the Minister for the Environment.

ADDRESS

Hon Minister for the Environment
12th Floor, Dumas House
2 Havelock Street
WEST PERTH WA 6005

CLOSING DATE

Your appeal (with the \$10 fee) must reach the Minister's office no later than 5.00 pm on 2 July 1993.

Environmental Impact Assessment (EIA) Process Timelines in weeks

Date	Timeline commences after receipt of full details of proposal from the proponent	Time (weeks)
12/10/92	Proponent Document Released for Public Comment	8
7/12/92	Public Comment Period Closed	
22/2/93	Issues Raised During Public Comment Period Summarised by EPA and Forwarded to the Proponent	11 (Note - Proponent was provided full copies of substantial submissions on 18/12/92)
3/5/93	Proponent response to the issues raised received	10
4/6/93	EPA reported to the Minister for the Environment	5

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