

**Soccer and recreation development,
Progress Drive, Bibra Lake**

City of Cockburn

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

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Summary and recommendations

This report is to provide the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for the Environment, about the proposal by the City of Cockburn to develop a soccer and recreational facility at Lot 14 Progress Drive, Bibra Lake. The report is based on the environmental factors relevant to the proposal.

The City of Cockburn wishes to develop firstly a senior soccer pitch, clubhouse facility and carpark, and at a later stage a multiple function public concourse. A public picnic area and toilet changeroom is also proposed for the second stage.

The site is located within the Beeliar Regional Park, and is part of the System 6 Reserve, M93.

The land is zoned for Parks and Recreation in the Metropolitan Region Scheme and was identified for use for recreation in the Beeliar Regional Park.

Relevant Environmental Factors

In the EPA's opinion, the following are the environmental factors relevant to the proposal:

- (a) wetland - Tapper's Lake; (Section 3.1)
- (b) terrestrial fauna; (Section 3.2)
- (c) surface and groundwater water quality; (Section 3.3)
- (d) noise; and (Section 3.4)
- (e) heritage. (Section 3.5)

Conclusions

The EPA has considered the proposal by the City of Cockburn to develop a soccer and recreational facility at Lot 14 Progress Drive, Bibra Lake, and believes the proposal can be managed in an environmentally acceptable manner provided the proponent's commitments and conditions recommended in Section 5 and set out in detail in Appendix 1 are imposed.

The EPA considers that the key environmental factor associated with this proposal is management of surface and groundwater quality. The EPA considers that a nutrient and irrigation management plan should be implemented to control nutrient and irrigation application to acceptable levels for the life of the proposal. The plan should include monitoring to ensure that acceptable nutrients levels are achieved.

Conditions

In the EPA's opinion, this proposal should be subject to the conditions set out in Section 5 and summarised below:

- (a) the proponent's consolidated commitments statement (reproduced in Appendix 1) be made enforceable;
- (b) the proponent put in place a nutrient and irrigation management plan (NIMP) to the requirements of the Environmental Protection Authority and on advice from the DEP and the Water and Rivers Commission. The NIMP must address, but not be limited to:
 - i) the use of nutrients and irrigation water used in turf management;
 - ii) soil, soil moisture and water quality monitoring

- iii) performance criteria to be achieved to ensure that the phosphorus retention capacity of the soil in fertilised areas is not exceeded;
 - iv) long term management of amended soils and nutrient stripping basins, including removal of nutrient saturated soil;
 - v) contingency plans in the event of excessive groundwater drawdown and unacceptable nutrient export from the site;
 - vi) regular monitoring and reporting to ensure compliance with these conditions; and
- (c) the proposal be implemented in stages, with the proponent demonstrating satisfactory performance of the initial stage of the NIMP to the Minister for the Environment before approval for subsequent stages is granted. The initial stage should not exceed that outlined in the CER.

Recommendations

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

1. That the Minister for the Environment considers the report on the relevant environmental factors and EPA objectives set for each factor.
2. That the Minister for the Environment notes that the EPA has concluded that the proposal can be managed to meet the EPA's objectives, and thus not impose an unacceptable impact on the environment, provided that there is satisfactory implementation by the proponent of the recommended conditions set out in Section 5.
3. That the Minister for the Environment imposes the conditions and procedures consistent with Section 5 and set out in informal detail in Appendix 1 of this report.

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1. Introduction

This report is to provide the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for the Environment on the environmental factors relevant to the proposal by the City of Cockburn to develop a soccer and recreation facility at Lot 14 Progress Drive, Bibra Lake.

The proposal was referred to the EPA in October 1996, and the level of assessment was set at Consultative Environmental Review. The Consultative Environmental Review report (Everall Consulting Biologist 1997), hereafter referred to as the CER, was made available for public review between 9 and 23 June 1997. It can be viewed at the DEP library.

In compiling this report, the EPA has considered the environmental factors associated with the development, issues raised by the public, specialist advice from government agencies, and the proponent's response to issues raised.

The report sets out the environmental factors that the EPA considers are relevant to the proposal and the conditions and procedures which should be applied if it is implemented. The report also provides other recommendations that the EPA sees appropriate.

2. The proposal

The proposal by the City of Cockburn is to develop a soccer and recreational facility at Lot 14 Progress Drive, Bibra Lake. The development is proposed for Council-owned land within the Beeliar Regional Park and System 6 Reserve M93, and the land proposed to be developed, hereafter referred to as the proposal site, is zoned Parks and Recreation. When compiling recommendations for the Beeliar Regional Park, the then Department of Planning and Urban Development classified the areas to the west and south of Bibra Lake as suitable for Recreation, Leisure and Sport (DPUD 1992). Areas assigned this land use category were mostly cleared sites and were recognised as being suitable for active recreation pursuits with high usage.

A location map is shown in Figure 1 and a development plan in Figure 2. Bibra Lake is located to the east and South Lake to the south. The proposal site is bordered by Progress Drive, Forrest Road, Bibra Drive and Adventure World.

The proposal is to be implemented in two stages: firstly, a senior soccer pitch, clubhouse facility and carpark; and secondly, a multiple function concourse with public picnic area and toilet changeroom. The first stage of the development is proposed for the northwest of the site, between Adventure World and Tapper's Lake (Figure 2). The south eastern portion of the site will remain undeveloped until the second stage is implemented.

The senior soccer pitch will entail a full size soccer pitch surrounded by a 2m high grassed embankment on three sides. The clubhouse will be embedded into the embankment to the west of the pitch and will comprise a floor area of around 2400 m². Time frames for the second stage of the development have not been proposed and are dependent on demonstrated demand and budgetary constraints of the City of Cockburn.

3. Environmental factors

Having considered the proposal as demonstrated in the CER, public and government submissions (Appendix 2) and appropriate references (Appendix 3), in the EPA's opinion the following are the environmental factors relevant to the proposal:

- (a) wetland - Tapper's Lake; (Section 3.1)
- (b) terrestrial fauna; (Section 3.2)
- (c) surface and groundwater water quality; (Section 3.3)
- (d) noise; and (Section 3.4)
- (e) heritage. (Section 3.5)

Table 1 summarises the environmental factors considered by the EPA from which the relevant factors were determined. Detail on the relevant environmental factors and their assessment is contained in Sections 3.1 to 3.5 below.

3.1 Wetland — Tapper's Lake

Description

The proposal site contains a small sumpland, Tapper's Lake (Figure 2), named after the pioneering family who first developed the property. The sumpland is a link in a chain of wetlands extending from Banganup to North Lake and is situated between South and Bibra Lakes. The chain of wetlands is an integral component of the recently proclaimed Beeliar Regional Park.

The proposal may affect the sumpland by disturbing surrounding vegetation, or water levels of the sumpland. The potential impacts of the proposal on terrestrial fauna which may inhabit the sumpland are considered in Section 3.2, and potential impacts on water quality in Section 3.3.

Assessment

The area considered for assessment of this environmental factor is the sumpland on the proposal site, Tapper's Lake.

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

Tapper's Lake is considered by the WRC to be in hydrological connection with South Lake. South Lake is protected by the EPA's Environmental Protection (Swan Coastal Plain) Policy 1992, and has been assigned a 'conservation' management category by the WRC (1992).

The EPA notes that the sumpland and surrounds have been considerably altered by cattle and associated farming practices in the past, and more recently grazing by horses, with very little of the natural vegetation remaining intact.

The development will not impact directly upon the sumpland, which will be retained in its present configuration. The first stage of the development is proposed for the northern side of Tapper's Lake.

The proponent has made a commitment to rehabilitate vegetation fringing Tapper's Lake and part of Bibra Lake, and has expressed a desire to consult with the Wetlands Conservation Society on wetland rehabilitation techniques.

The Water and Rivers Commission (WRC) is satisfied that the drawdown in the groundwater at Tapper's Lake is likely to be less than 10 cm. The groundwater abstraction will be licenced by the WRC.

To minimise any changes in wetland water level induced by the irrigation water, the proponent has also given commitments in the CER to:

- incorporate a surface water drainage system to direct irrigation water from the soccer pitch away from Tapper's Lake; and
- locate bores supplying irrigation water away from the lake.

Having particular regard to:

- (a) the fact that the development will not directly disturb Tapper's Lake and its fringing vegetation;
 - (b) the proponent's commitment to rehabilitate the fringing vegetation of Tapper's Lake;
 - (c) the WRC's advice that drawdown in groundwater will not be large; and
 - (d) the proponent's commitment to manage drainage so as to avoid discharge to the lake,
- it is the EPA's opinion that the proposal can be managed to meet its objective for this factor.

3.2 Terrestrial fauna

Description

Tapper's Lake is a link between the large permanent waterbodies of Bibra and South Lakes and may be used as a feeding and nesting site by the long-necked tortoise (*Chelodina oblonga*). This species is able to migrate the length of the chain of the Beeliar wetlands. Other fauna that have been observed feeding on the mudflats of the sumpland include the waterbirds ibis, egrets and spoonbills.

For nesting, long-necked tortoises require well drained soil not prone to inundation. The clubhouse is to be situated over possible suitable nesting sites.

Assessment

The area considered for assessment of this environmental factor is the proposal site and Bibra Lake.

The EPA's objective in regard to terrestrial fauna is to "maintain the abundance, species diversity and geographical distribution of terrestrial fauna".

The EPA notes that no evidence of nesting sites or tortoise activity were observed at the site in surveys undertaken for the CER (Everall pers comm). Most road deaths of tortoises were observed on Hope Road, between Bibra and North Lake, with few seen on Progress Drive or Forrest Road. It is also noted that the proposed planting and rehabilitation around Tapper's Lake as detailed in the CER, will provide replacement nesting areas for the tortoises near the sumpland and its surrounds.

Ibis, spoonbills and egrets use the lake for feeding, and are transient visitors to the sumpland. The recreational centre will only be used on an occasional basis, allowing the birds to visit the sumpland for feeding at other times. As the sumpland itself will be undisturbed, ample feeding opportunities for the visiting birds will remain.

To establish the frequency with which the proposal site is used by tortoises, the proponent has given a commitment to initiate a monitoring program to determine the usage of Tapper's Lake

Table 1: Identification of Environmental Factors Requiring EPA Evaluation

| Factors | Proposal Characteristics | Government Agency Comments | Identification of Relevant Factors |
|---|---|--|--|
| Biophysical | | | |
| Vegetation communities | Construction of soccer grounds will involve clearing up to 40 trees. Understorey has been heavily grazed in the past. A Priority 4 species has been recorded from the site, but is no longer present. Substantial revegetation and rehabilitation will be undertaken. | No comments were received concerning protection of vegetation. | Proponent is committed to: <ul style="list-style-type: none"> • minimise clearing of bushland areas through strict operational controls; • recreate habitats with plant species endemic to the site; and • implement measures to prevent the spread of dieback disease. No further evaluation is required. |
| Wetlands | Tapper's Lake will be retained in its present configuration. The sumpland is to be revegetated and rehabilitated. | Government: WRC: Water and Rivers Commission is satisfied the proponent plans to revegetate Tappers Lake with endemic species. Public: The site is the last remaining link between Bibra and South Lakes, near the centre of an unbroken chain of wetlands from the Spectacle to Blue Gum. It is on a migration route for terrestrial fauna. | This factor warrants further evaluation. |
| Terrestrial fauna | Construction of clubhouse and soccer ground may impact on tortoise nesting areas. | Public: Tapper's Lake is used by long-necked tortoises for breeding purposes. Tapper's Lake is used by waterbirds for feeding and loafing. | This factor warrants further evaluation. |
| Pollution | | | |
| Water quality | Groundwater flows away from Bibra Lake. Establishment of irrigated turf has the potential to exacerbate nutrient enrichment of Tapper's and South Lakes. | Government: WRC: The potential impacts on Tapper's and South Lakes is low and capable of being managed provided a nutrient and irrigation management plan, including use of pesticides and herbicides, is developed and implemented. CALM: Management of nutrient stripping basins will be required in the long term. Public: Additional fertiliser application in the vicinity of Bibra and South Lakes will increase the existing eutrophication problems. | This factor warrants further evaluation. |
| Noise | Noise is expected to be generated by crowds during soccer matches, and post match entertainment. | Public: A retirement village nearby will suffer from increased noise. The noise associated with a sporting venue will diminish the peaceful amenity of Bibra Lake. | This factor warrants further evaluation. |
| Social Surroundings | | | |
| Heritage (indigenous and non-indigenous cultures) | Development has potential to disturb an area of significance to Aboriginal people. Moreton Bay figs on-site are to be retained. | Government: Heritage Council: Moreton Bay figs are significant in the City of Cockburn's Municipal Inventory. Public: Figs may suffer from proximity to driveway of soccer ground. | This factor warrants further evaluation. |
| Social | Increase in traffic will be experienced on days of training and matches. | Public: Safety problems associated with increased volume of traffic. Carpark does not have the capacity to safely handle 60 cars. | This factor should be managed by the local authority and does not require further evaluation by the EPA. |

and surrounds for feeding and nesting by tortoises. Initial monitoring is intended for the coming breeding season (Spring 1997).

Having particular regard to:

- (a) the reparation and rehabilitation of the fringing vegetation of the sumpland proposed by the proponent for the first stage of the development;
- (b) the limited evidence of use of the proposal site by tortoises for nesting;
- (c) the proponent's commitment to monitor the proposal site for usage by tortoises, and provide and enhance suitable habitat in rehabilitation works; and
- (d) the transient use of the sumpland by waterbirds,

it is the EPA's opinion that the proposal can be managed to meet its objective for terrestrial fauna.

3.3 Surface and groundwater quality

Description

The development is proposed for the western side of Bibra Lake, and is in close proximity to South Lake (Figure 1). Both these lakes are listed in the Environmental Protection (Swan Coastal Plain Lakes 1992) Policy and as such have high conservation value. South and Tapper's Lakes may be in hydrological connection.

The proposal site is situated over the junction of the Bassendean and Spearwood dune systems. Groundwater flows in a westerly direction away from Bibra Lake at this site, and drains sharply where it enters the highly permeable Tamala limestone beneath the western shore of Bibra Lake (Davidson 1983). It is not expected that water quality in Bibra Lake will be affected by the proposal as groundwater flows away from the lake to the west. There is however, potential for nutrients applied on the site to affect Tapper's Lake and South Lake. Depth to groundwater varies over the site, but is as close as 1m in places.

The proponent has proposed a Nutrient and Irrigation Management Plan (NIMP) be prepared to control nutrient export from the site to acceptable levels. The plan is to incorporate the use of soil conditioners with a Phosphorus Retention Index (PRI) greater than 10, basins to remove nutrients from drainage waters and a soil and water monitoring program. The revegetation, drainage and nutrient management areas are shown in Plan 2 of the CER.

Concerns were expressed in public submissions on the adequacy of methods proposed to limit nutrient discharge and the potential exacerbation of eutrophication and algal blooms of Bibra and South Lakes.

Assessment

The area considered for assessment of this environmental factor is the proposal site, including the groundwater beneath it.

The EPA's objective for water quality is to "maintain or improve the quality of surface and groundwater to ensure that existing and potential uses, including ecosystem maintenance are protected, consistent with the draft WA guidelines for Fresh and Marine waters (EPA 1993)".

The WRC considers that the potential for impact from nutrients and irrigation on Tapper's and South Lakes from the development is low and capable of being managed to an acceptable level,

provided a NIMP is implemented. The NIMP should be designed and implemented on advice from the WRC and DEP.

Wetlands on the Swan Coastal Plain are typically phosphorus (P) limiting with respect to potential eutrophication. Threshold concentration for P eutrophication is 0.02 - 0.05 mg/L (Vollenweider, 1985), although levels up to 0.1 mg/L have been considered acceptable for metropolitan wetlands (EPA 1989).

Research by the CSIRO for the Water Authority (Sharma *et al* 1996) has shown that phosphorus concentrations in irrigation water leaching beneath urban lawns in Perth ranged from 0.003 to 0.034 mg/L PO₄-P. These levels were achieved without specific management measures in place to limit P leaching. Provided the soils at the proposal site are conditioned to ensure adequate P retention and nutrient and irrigation applications are managed, leaching of phosphorus to the groundwater should be controlled to acceptable levels. Ongoing monitoring of the phosphorus retention capacity of the soils, and the underlying groundwater, should be carried out to ensure that unacceptable phosphorus leaching does not occur.

The EPA notes that the strategies proposed by the proponent to be included in the NIMP:

- restrict fertiliser application;
- direct all water away from Tapper's Lake to absorption swales and basins;
- manage irrigation to limit water passing the root zone; and
- trap nutrients in soil beneath the turf, and in nutrient stripping basins;

Some information of the NIMP has been provided in the CER including annual phosphorus load and rates of application, and irrigation rates. The implementation of a soil, soil moisture and surface water monitoring plan will provide information for efficient use of fertiliser and water on the turf.

Having particular regard to:

- (a) the local groundwater flow;
- (b) the advice of the WRC on the need for a NIMP to be developed and implemented; and
- (c) the proposed staging of the development,

it is the EPA's opinion that the proposal can be managed to meet the EPA's objective provided the proponent is required to prepare and implement a NIMP that outlines:

- i) the use of nutrients and irrigation water used in turf management;
- ii) soil, soil moisture and water quality monitoring
- iii) performance criteria to be achieved to ensure that the phosphorus retention capacity of the soil in fertilised areas is not exceeded;
- iv) long term management of amended soils and nutrient stripping basins, including removal of nutrient saturated soil;
- v) contingency plans in the event of excessive groundwater drawdown and unacceptable nutrient export from the site;
- vi) regular monitoring and reporting to ensure compliance with these conditions; and

The proponent should demonstrate that the NIMP has been implemented and is effective before the second stage of the development, as stated in the CER, proceeds.

3.4 Noise

Description

Noise associated with the proposal will be intermittent and result from spectators, the public address system and whistles during matches and training sessions. The nearest residence is 800m to the southeast, and a retirement village a further 50m. There are closer residences to the northwest, however these are buffered from noise by a nearby hill.

The recently gazetted Environmental Protection (Noise) Regulations will apply to the development.

The noise modelling report appended to the CER was based on a capacity crowd of 5000 spectators. The proponents have advised the DEP that a crowd of 1000 would rarely be exceeded.

Assessment

Based on public concern about noise from the site during events, the area considered for assessment of this relevant environmental factor, noise, is a radius of 1 km from the site.

The EPA's objective in relation to this relevant environmental factor is to "protect the amenity of nearby residents from noise associated with the proposal by ensuring noise levels meet statutory requirements and acceptable standards".

The noise modelling information provided in the CER indicates that noise emitted from the site would comply with regulations, with the exception of the period 2200 to 0700 hours for the residence to the southeast. The proponents have advised the DEP that the venue will not be used during this period, 2200 to 0700 hours, for soccer matches. If outdoor concerts are planned to be held, the proponents will need to apply and be granted permission by the DEP to hold the event. The proposed regulations allow for a maximum of two permits to be granted for such events per venue per year.

Having particular regard to:

- (a) the proponent's assessment of crowd capacity and noise levels generated; and
- (b) the anticipated compliance of the proposal with Noise Regulations,

it is the EPA's opinion that its objective for noise can be met by the proposal, provided outdoor concerts on site are the subject of special application to the DEP.

3.5 Heritage

Description

Aboriginal heritage

In pre-European times, the wetlands of the Swan Coastal Plain were extensively used by local Aborigines as a source of food and water. The area around North and Bibra Lakes is listed on the Register of the National Estate as a Site of Aboriginal Significance. The region south of Fremantle was referred to as the Beeliar district after the Beeliar tribe of Aboriginal people who inhabited the area (Seddon 1972), and gives its name to the Beeliar Regional Park (DPUD 1992).

Consultants (McDonald Hales and Associates) employed by the proponent have conducted an aboriginal sites survey and investigated the archaeological and historical significance of the site to aborigines. No artefacts were found. The City of Cockburn is currently consulting local aboriginal elders regarding the anthropological and ethnographic importance of the site to aborigines.

European heritage

The site was in the past used as a dairy farm, owned and run by the pioneer Tapper family. Two large Moreton Bay figs remain today near the site of the original homestead. The trees are listed as significant in the City of Cockburn's Municipal Inventory, and are to be retained and incorporated into the picnic area.

Assessment

The area considered for this relevant environmental factor is the proposal site.

The EPA's objective for heritage is to "comply with statutory requirements in relation to areas of cultural or historical significance".

The EPA notes the results of the surveys for sites of aboriginal significance undertaken so far, and the intention of the proponent to consult local aboriginal elders to ascertain the anthropological and ethnographic importance of the site to aborigines.

Having particular regard to:

- (a) the requirements for proponents to comply with the *Aboriginal Heritage Act* and the *WA Heritage Act* for Aboriginal and European heritage sites;
- (b) surveys completed to date, with no evidence of artefacts uncovered; and
- (c) the continuing consultation by the proponent with local aboriginal elders,

it is the EPA's opinion that it is likely that the EPA's objective for heritage will be met by this proposal.

4. Other advice

4.1 Site selection

Some concern was expressed in public submissions about whether a soccer club was an appropriate use of a site within the recently proclaimed Beeliar Regional Park and a System 6 area.

When developing the management guidelines for use of areas within the Beeliar Regional Park, the then Department of Planning and Urban Development classified the areas to the west and south of Bibra Lake as suitable for Recreation, Leisure and Sport (DPUD 1992). Areas assigned this land use category were mostly cleared sites and were recognised as being suitable for active recreation pursuits with high usage. The soccer club as proposed is consistent with the recommendations for the Beeliar Regional Park and the zoning included in the Metropolitan Region Scheme.

Many alternative sites were considered by the proponents and dismissed for various reasons, including greater perceived environmental values. A site commonly identified by public submissions was adjacent to the Lakeside Health Club. This site is currently leased to a local church group and unavailable to the City of Cockburn for a soccer club.

5. Conditions

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

In developing recommended conditions for each project, the EPA's preferred course of action is to have the proponent provide an array of commitments to ameliorate the impacts of the proposal on the environment. The commitments are considered by the EPA as part of its assessment of the proposal, and following discussion with the proponent the EPA may seek additional commitments.

The EPA recognises that not all of the commitments are written in a form which makes them readily enforceable, but they do provide a clear statement of the action to be taken as part of the proponent's responsibility for and commitment to continuous improvement in environmental performance. The commitments then form part of the conditions to which the proposal should be subject if it is to be implemented.

The EPA may of course, also recommend conditions additional to that relating to the proponent's commitments.

In the EPA's opinion, this proposal should be subject to the conditions set out in Appendix 1 and summarised below:

- (a) the proponent's consolidated commitments statement (reproduced in Appendix 1) be made enforceable;
- (b) the proponent put in place a nutrient and irrigation management plan (NIMP) to the requirements of the Environmental Protection Authority and on advice from the DEP and the Water and Rivers Commission. The NIMP must address, but not be limited to:
 - i) the use of nutrients and irrigation water used in turf management;
 - ii) soil, soil moisture and water quality monitoring
 - iii) performance criteria to be achieved to ensure that the phosphorus retention capacity of the soil in fertilised areas is not exceeded;
 - iv) long term management of amended soils and nutrient stripping basins, including removal of nutrient saturated soil;
 - v) contingency plans in the event of excessive groundwater drawdown and unacceptable nutrient export from the site;
 - vi) regular monitoring and reporting to ensure compliance with these conditions; and
- (c) the proposal be implemented in stages, with the proponent demonstrating satisfactory performance of the initial stage of the NIMP to the Minister for the Environment before approval for subsequent stages is granted. The initial stage should not exceed that outlined in the CER.

6. Conclusions

The EPA has considered the proposal by the City of Cockburn to develop a soccer and recreational facility at Lot 14 Progress Drive, Bibra Lake, and believes the proposal can be

managed in an environmentally acceptable manner provided the proponent's commitments and conditions recommended in Section 5 and set out in detail in Appendix 1 are imposed.

The EPA considers that the key environmental factor associated with this proposal is management of surface and groundwater quality. The EPA considers that a nutrient and irrigation management plan should be implemented to control nutrient and irrigation application to acceptable levels for the life of the proposal. The plan should include monitoring to ensure that acceptable nutrients levels are achieved.

7. Recommendations

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

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

1. That the Minister for the Environment considers the report on the relevant environmental factors and EPA objectives set for each factor.
2. That the Minister for the Environment notes that the EPA has concluded that the proposal can be managed to meet the EPA's objectives, and thus not impose an unacceptable impact on the environment, provided that there is satisfactory implementation by the proponent of the recommended conditions set out in Section 5.
3. That the Minister for the Environment imposes the conditions and procedures consistent with Section 5 and set out in detail in Appendix 1 of this report.

Table 2. Summary of assessment of relevant factors.

| Factor | Relevant Area | EPA Objective | Assessment | EPA Advice |
|-------------------------|-------------------------------|---|--|--|
| Wetland - Tapper's Lake | Tapper's Lake. | Maintain the integrity, functions and environmental values of wetlands. | <p>The proposal will not impact directly on Tapper's Lake.</p> <p>Vegetation fringing the lake will be rehabilitated by the proponent.</p> <p>The WRC has advised that drawdown in Tapper's Lake will not be large.</p> <p>Proponent's commitment: Rehabilitate fringing vegetation of Tappers Lake and part of Bibra Lake.</p> | <p>Having particular regard to:</p> <ul style="list-style-type: none"> • the fact that the development will not directly disturb Tapper's Lake and its fringing vegetation; • the proponent's commitment to rehabilitate the fringing vegetation of Tapper's Lake; • the proponent's commitment to manage drainage so as to avoid discharge to the lake; and • the WRC's advice on groundwater drawdown, <p>it is the EPA's opinion that the proposal can be managed to meet its objective for this factor.</p> |
| Terrestrial fauna | Proposal site and Bibra Lake. | Maintain the abundance, species diversity and geographical distribution of terrestrial fauna. | <p>The EPA notes that no evidence of nesting sites or tortoise activity were observed at the site in surveys undertaken for the CER. It is also noted that the proposed planting and rehabilitation will provide replacement nesting sites for tortoises near the sumpland.</p> <p>Proponent's commitments: Re-create habitats using native species in accord with revegetation and landscaping plan.</p> <p>Initiate monitoring (Spring 1997) to establish usage of Tapper's Lake and surrounds by tortoises for nesting and feeding. Implement measures to protect tortoises to comply with the requirements of the <i>Wildlife Protection Act</i> (1950).</p> | <p>Having particular regard to:</p> <ul style="list-style-type: none"> • the reparation and rehabilitation of the fringing vegetation of the sumpland proposed by the proponent for the first stage of the development; • the limited evidence of use of the site by tortoises for nesting; • the transient use of the sumpland by waterbirds; and • the proponent's commitment to monitor the site for usage by tortoises, <p>it is the EPA's opinion that the proposal can be managed to meet its objective for terrestrial fauna.</p> |

| | | | | |
|---------------|---|--|---|---|
| Water quality | Proposal site, including the groundwater beneath. | Maintain or improve the quality of groundwater to ensure that existing and potential uses, including ecosystem maintenance are protected, consistent with the draft WA guidelines for Fresh and Marine waters (EPA, 1993). | <p>The Water and Rivers Commission has advised that with the provision of a nutrient and irrigation management plan, the impacts on Tapper's and South Lakes can be managed to an acceptable level.</p> <p>Proponent's commitments: Provide drainage and nutrient management structures. Amend soils in turf and drainage management areas with soil conditioner. Implement a nutrient and irrigation management plan. Implement a soil and water monitoring program. Locate bores away from the lake and other bores on the eastern side of nutrient management areas. Construct a surface water drainage system to direct water away from wetlands.</p> | <p>Having particular regard to:</p> <ul style="list-style-type: none"> • the local groundwater flow; • the advice from the WRC on the need for a NIMP to be developed and implemented; and • the proposed staging of the development, <p>it is the EPA's opinion that the proposal can be managed to meet the EPA's objective provided the proponent is required to prepare and implement a NIMP that outlines proposed nutrient and irrigation management to the satisfaction of the EPA on the advice of the DEP and WRC. The objectives of the NIMP are to ensure no unacceptable nutrient contamination of Tapper's and South Lakes occurs. The NIMP should also ensure that the development does not result in excessive drawdown in the lakes. The proponent should demonstrate that the NIMP has been implemented and is effective before subsequent stages of development proceed.</p> |
| Noise | 1 km radius from proposal site. | To protect the amenity of nearby residents from noise associated with the proposal by ensuring noise levels meet statutory requirements and acceptable standards. | <p>Noise modelling information based on a crowd of 5000 spectators indicates compliance with existing and proposed regulations of noise emitted from the premises. Crowds of over 1000 will rarely be exceeded.</p> <p>Proponent's commitments: Ensure compliance with noise regulations. Any proposed outdoor entertainment involving bands will be the subject of special application to the DEP. Provide tree screening to buffer crowd noise for recreational users of Bibra Lake.</p> | <p>Having particular regard to:</p> <ul style="list-style-type: none"> • the proponent's assessment of crowd capacity and noise levels generated; and • the anticipated compliance of the proposal with Noise Regulations, <p>it is the EPA's opinion that its objective for noise can be met by the proposal, provided outdoor concerts on site are the subject of special application to the DEP.</p> |
| Heritage | Proposal site. | Comply with statutory requirements in relation to areas of cultural or historical significance. | <p>Surveys for sites of aboriginal significance undertaken so far have revealed no evidence of use of the site by aborigines. The EPA notes the intention of the proponent to consult local aboriginal elders to ascertain the anthropological and ethnographic importance of the site to aborigines.</p> <p>Proponent's commitments: Undertake surveys and other work as advised by the Dept of Aboriginal Affairs and WA museum.</p> | <p>Having particular regard to:</p> <ul style="list-style-type: none"> • the requirements for proponents to comply with the Aboriginal Heritage Act and the WA Heritage Act for Aboriginal and European heritage sites; • surveys completed to date, with no evidence of artefacts uncovered; and • the continuing consultation by the proponent with local aboriginal elders, <p>it is the EPA's opinion that it is likely that the EPA's objective for heritage will be met by this proposal.</p> |

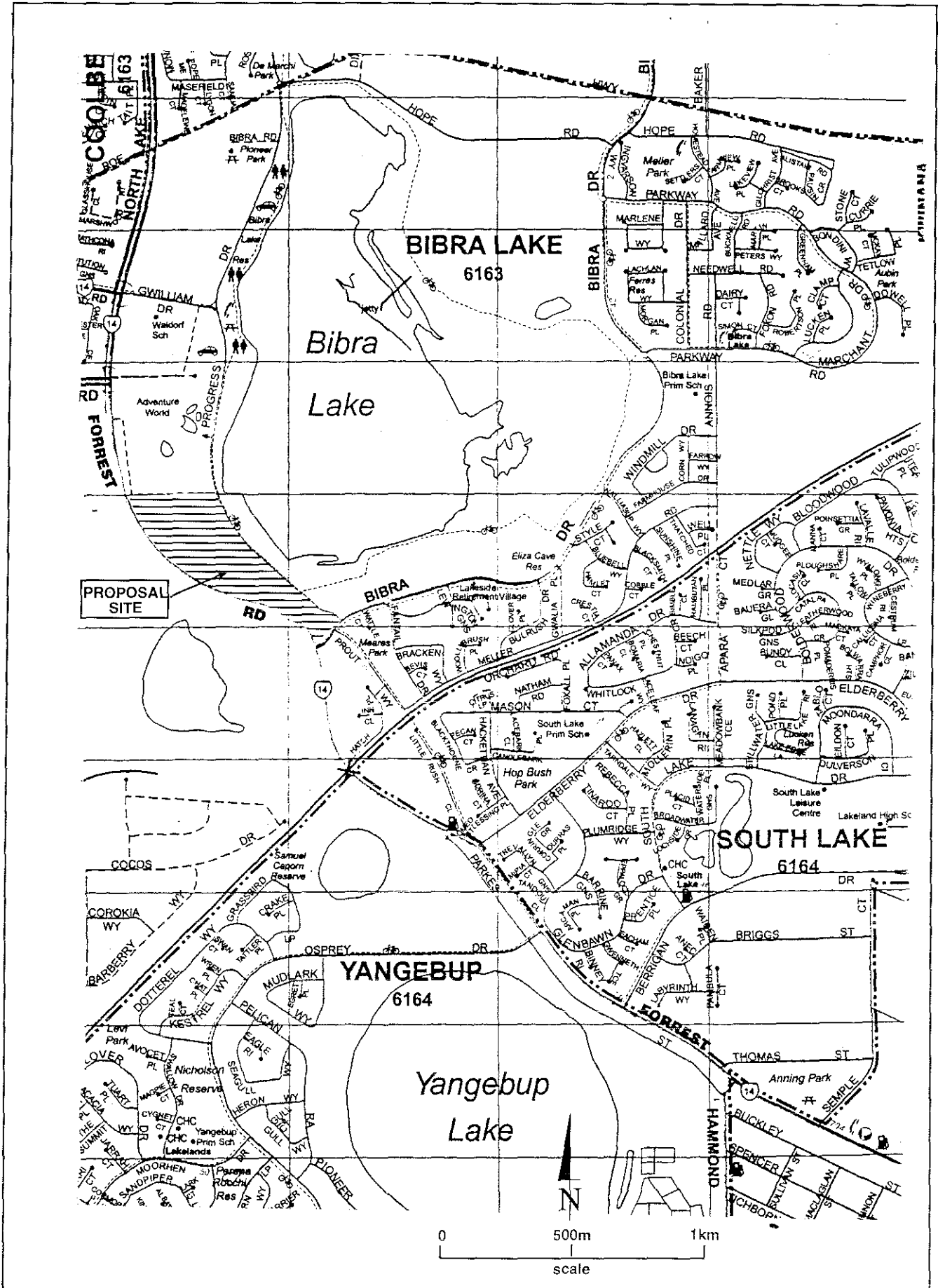


Figure 1. Proposal location.

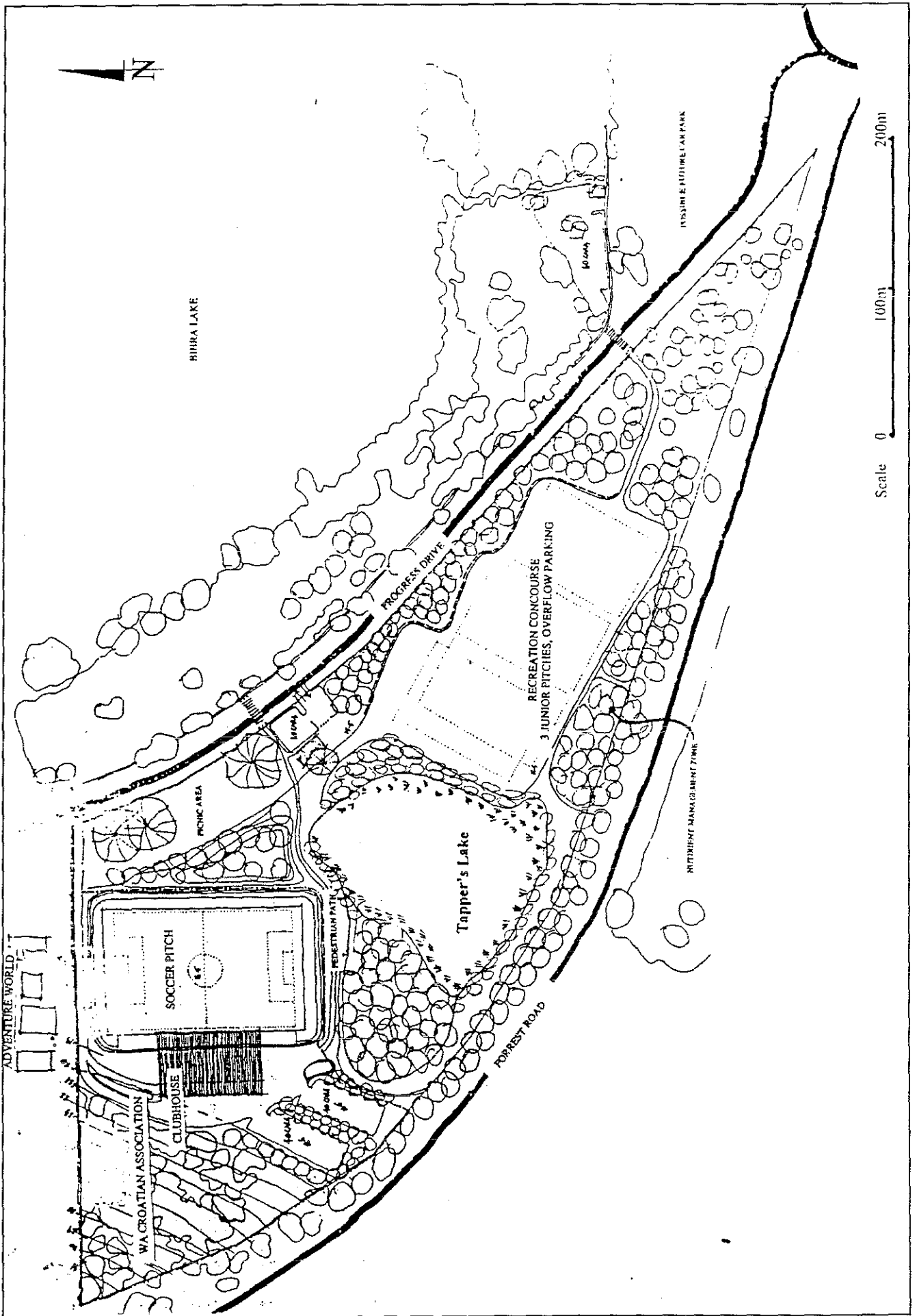


Figure 2. Development plan, lot 14 Progress Drive, Bibra Lake.

Appendix 1

**List of recommended Ministerial Conditions and
proponent's consolidated commitments.**

**STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED
(PURSUANT TO THE PROVISIONS OF THE
ENVIRONMENTAL PROTECTION ACT 1986)**

**SOCCKER AND RECREATION DEVELOPMENT,
PROGRESS DRIVE, BIBRA LAKE (1076)**

CITY OF COCKBURN

This proposal may be implemented subject to the following conditions:

1 Proponent Commitments

The proponent has made a number of environmental management commitments in order to protect the environment.

- 1-1 In implementing the proposal, the proponent shall fulfil the commitments made in the Consultative Environmental Review and subsequently during the environmental assessment process conducted by the Environmental Protection Authority and those made as part of the fulfilment of the requirements of conditions in this statement requiring the preparation of a Nutrient and Irrigation Management Plan; provided that the commitments are not inconsistent with the conditions or procedures contained in this statement.

In the event of any inconsistency, the conditions and procedures shall prevail to the extent of the inconsistency.

The attached consolidated environmental management commitments form the basis for consideration by the Chief Executive Officer of the Department of Environmental Protection for auditing of this proposal in conjunction with the conditions and procedures contained in this statement.

2 Implementation

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

- 2-1 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.

2-2 Where, in the course of the detailed implementation referred to in condition 2-1, the proponent seeks to change the designs, specifications, plans or other technical material submitted to the Environmental Protection Authority 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.

3 Proponent

These conditions legally apply to the nominated proponent.

3-1 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.

4 Environmental Management System

The proponent should exercise care and diligence in accordance with best practice environmental management principles.

4-1 In order to manage the environmental impacts of the project, and to fulfil the requirements of the conditions and procedures in this statement, prior to construction, the proponent shall prepare environmental management system documentation with components such as those adopted in Australian Standards AS/NZS ISO 14000 series, in consultation with the Department of Environmental Protection.

4-2 The proponent shall implement the environmental management system referred to in condition 4-1.

5 Nutrient and Irrigation Management Plan

The proponent should minimise nutrient export from the site into the groundwater, Bibra and South Lakes, and Tapper's Lake.

5-1 Prior to any ground-disturbing activity, the proponent shall prepare a Nutrient and Irrigation Management Plan to the requirements of the Environmental Protection Authority, on advice of the Department of Environmental Protection and the Water and Rivers Commission. The NIMP must address, but not be limited to:

- i) the use of nutrients and irrigation water used in turf management;
- ii) soil, soil moisture and water quality monitoring;
- iii) performance criteria to be achieved to ensure that the phosphorus retention capacity of the soil in fertilised areas is not exceeded;
- iv) long term management of amended soils and nutrient stripping basins, including removal of nutrient saturated soil;
- v) contingency plans in the event of excessive groundwater drawdown and unacceptable nutrient export from the site; and
- vi) regular monitoring and reporting to ensure compliance with these conditions.

5-2 The proponent shall implement the Nutrient and Irrigation Management Plan required by condition 5-1.

5-3 Prior to implementation of the second stage of the project, the proponent shall demonstrate compliance with criteria for stage one, as outlined in the Nutrient and Irrigation Management Plan required by Condition 5-1, to the requirements of the Environmental Protection Authority on advice from the Department of Environmental Protection and Water and Rivers Commission.

6 Compliance Auditing

To help determine environmental performance and compliance with the conditions, periodic reports on the implementation of the proposal are required.

- 6-1 The proponent shall submit periodic Performance and Compliance Reports, in accordance with an audit programme prepared by the Department of Environmental Protection in consultation with the proponent.

Procedure

- 1 Unless otherwise specified, the Department of Environmental Protection is responsible for assessing compliance with the conditions contained in this statement and for issuing formal clearance of conditions.
- 2 Where compliance with any condition is in dispute, the matter will be determined by the Minister for the Environment.

Note

The Environmental Protection Authority reported on the proposal in Environmental Protection Authority Bulletin 869 (November 1997).

Proponent's Environmental Management Commitments

SEPTEMBER 1997

**SOCGER AND RECREATION DEVELOPMENT,
PROGRESS DRIVE, BIBRA LAKE (1076)**

CITY OF COCKBURN

SUMMARY OF ENVIRONMENTAL MANAGEMENT COMMITMENTS

| Commitment (What) | Objective (Why) | Action (How/Where) | Timing (When) | Whose Advice (to whom) | Measurement / Compliance Criteria |
|---|---|--|------------------------------|--|--|
| 1. Flora Implement a Landscape program using native species | To replace cleared vegetation and ensure no significant loss of locally and regionally significant vegetation associations. To provide a wildlife corridor and habitat To provide buffers for midge and noise management and facilitate nutrient management | Minimise clearing and re-create habitats using native species in accord with an approved revegetation and landscaping program . Implement measures to prevent the spread of die back disease S6.1. | Stage 1 and 2 | Wetland Conservation Society and Department of Environmental Protection. | Achieve completion criteria. WCS and DEP approval. |
| 2. Fauna Implement measures to protect tortoises | To protect tortoises and provide for movement to egg laying habitat. | Monitor tortoise movements during laying and hatching periods. Erect signs on roads. Alter fencing if required. | Ongoing | CALM | Monitoring report submitted to CALM. CALM approval to DEP. |
| 3. Tapper's Lake. Rehabilitate the fringing vegetation of Tapper's Lake and part of Bibra Lake. | To conserve wetlands and habitat and provide vegetation buffers. | Where possible key wetland functions are to be retained or enhanced. Where not possible key wetland functions are to be retained through replacement. Re-create habitats using native species in accord with a revegetation and landscaping program . | Stage 1 and 2 | Wetland Conservation Society | Achieve completion criteria. WCS and DEP approval |
| 4. Bibra and South Lake Protect the environmental values of Bibra Lake and South Lake | To ensure that surface and groundwater does not flow to Bibra Lake from proposal. | Implement surface drainage structures Implement a soil and water nutrient monitoring program. | Stage 1 and 2 Ongoing | WRC | Achieve completion criteria. Annual monitoring report to WRC. WRC approval to DEP. |
| 5. Nutrients Manage turf to ensure there is no export of nutrients offsite | To ensure that fertiliser and irrigation regimes do not contribute to contamination of ground or lake waters. | Amend soils in turf and drainage management areas with soil conditioner. Implement a nutrient and irrigation management plan. Nutrient input to the site will not exceed 30 Kg per year of phosphorus (P). Implement a soil and water nutrient monitoring program | Stage 1 and 2 Ongoing | WRC | Achieve completion criteria. Annual Performance Compliance report to WRC. WRC approval to DEP. |

| | | | | | |
|---|---|---|---------------------------------------|-----------------|--|
| <p>6. Ground Water Protect Ground water from pollution</p> | <p>To maintain or improve groundwater. To ensure that surface and groundwater is not adversely affected by nutrient use and run off from turf areas. To ensure that the impact of groundwater extraction on the environment in the vicinity of the project is minimised.</p> | <p>Locate bores away from the lake and other bores on the eastern side of nutrient management areas. Construction of a surface water drainage system to direct water away from wetlands. Implement a nutrient and irrigation management plan. Implement a soil and water monitoring program</p> | <p>Stage 1 and 2 Ongoing</p> | <p>WRC</p> | <p>Achieve completion criteria. Annual Performance Compliance report to WRC. WRC approval to DEP.</p> |
| <p>7. Noise Minimise noise generation</p> | <p>To protect the amenity of nearby residents from noise resulting from activities associated with the proposal by ensuring that noise levels meet statutory requirements and acceptable standards. To protect the amenity of people recreating in nearby areas by minimising noise levels.</p> | <p>Ensure compliance with noise regulations. Any proposed outdoor entertainment involving bands will be the subject of special application. Provide tree screening to improve amenity for recreational users of Bibra Lake.</p> | <p>Ongoing</p> | <p>DEP, CCC</p> | <p>Annual Performance Compliance report to DEP.</p> |
| <p>8. Midge Management Reduce midge nuisance</p> | <p>Compliance with the City of Cockburn's Integrated Midge Control Strategy To ensure no nutrient pollution of wetlands occurs which could contribute to midge nuisance</p> | <p>Minimise light sources and conduct night time sporting and social events outside known midge nuisance periods. Plant and maintain dense fringing native vegetation around Tapper's Lake and Bibra Lake foreshore.</p> | <p>Ongoing</p> | <p>CCC</p> | <p>Annual Performance Compliance report to DEP.</p> |
| <p>9. Stormwater Disposal</p> | <p>To contain and manage all stormwater on site. To provide for the management of drainage waters entering the site. To direct surface water on turf areas away from wetlands. To minimise nutrient content of drainage waters through detention and absorption.</p> | <p>Implement a comprehensive drainage system composed of swales and nutrient management basins. Amend soil in swales and basins with a soil conditioner. Plant basins densely with sedges, shrubs and wetland plants. Direct unmanaged drainage water from Forrest Road and Adventure World into swales and nutrient management sites</p> | <p>Stage 1 and 2</p> | <p>WRC</p> | <p>Achieve completion criteria. WRC approval to DEP.</p> |
| <p>10. Sewage Disposal Dispose of sewage off site</p> | <p>To prevent sewage spills and ensure that no sewage can flow to or affect wetlands</p> | <p>Pump waste from the area through a rising main to the Water Corporation Sewer. Locate sewerage pipes, storage well and pump away from the wetland. Install failsafe mechanisms Initiate a regular maintenance and monitoring program for sewerage system.</p> | <p>Stage 1 and 2</p> | <p>WRC</p> | <p>Achieve completion criteria. WRC approval to DEP.</p> |

| | | | | | |
|--|---|---|---------------|---------------------------------------|--|
| 11. Traffic Management Minimise traffic impact | To reduce as far as practicable the impacts of road traffic resulting from the proposal | Provide adequate carparking. | Stage 1 and 2 | CCC | Achieve completion criteria. |
| 12. Heritage Protect heritage values | To comply with statutory requirements for Heritage. To comply with the requirements of the City of Cockburn Municipal Heritage Inventory. | Undertake surveys and other work as advised by the Department of Aboriginal Affairs and the WA Museum | Before start | CCC, Department of Aboriginal Affairs | Achieve completion criteria. CCC and DAA approval to DEP. |
| 13. Community Consultation | To ensure the local community is adequately consulted regarding the proposed development. To ensure ongoing consultation and resolution of problems. | Implement community and local authority consultation program. Implement CER consultation program. | Ongoing | EPA, CCC | Annual Performance Compliance report to DEP. |

Appendix 2

List of submitters

State and local government agencies:

- Waters and Rivers Commission
- Heritage Council of Western Australia
- Department of Conservation and Land Management

Organisations:

- Conservation Council of Western Australia Inc
- Wetlands Conservation Society
- Wildflower Society of WA Inc
- Wetlands Education Centre Inc

Members of the Public:

- | | | |
|------------------|---------------|-------------|
| • A Armstrong | • P Howlett | • M Shaw |
| • M Armstrong | • D James | • AJ Smith |
| • J Archibald | • P Jennings | • PE Smith |
| • T Barrett | • J Kendrick | • AJ Thorne |
| • BR & T Bocking | • I Kitching | • C Tory |
| • A Bradshaw | • S McNully | • M Webster |
| • G Burnett | • DC Meredith | • J Wishart |
| • J Connolly | • B Moyle | • S Wishart |
| • Corbyn family | • V Oliver | • W Vincent |
| • B Davis | • S Rennie | • E Young |
| • D&L Gray | • RT Sallur | • J Zaknic |

+ petition with 232 signatures

Appendix 3

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