

Floreat Lakes Residential Development, Northwest Sector, Herdsman Lake: Change to Environmental Conditions

Sherwood Overseas Co Pty Ltd

**Section 46 Report and recommendations
of the Environmental Protection Authority**

**Environmental Protection Authority
Perth, Western Australia
Bulletin 1222
June 2006**

Section 46 Report Timelines

Date	Progress stages	Time (weeks)
01/06/05	Section 46(1) report request from the Minister	-
27/06/05	Advertised by the EPA	3
07/06/06	Section 46(6) report to the Minister	49
12/06/06	EPA bulletin released	1
26/06/06	End of two week comment period	2

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Summary and recommendations

The proposal to develop a residential subdivision in the north-west sector of Herdsman Lake (Floreat Lakes) was approved in 1989. Part of the proposal included dredging to continue a moat adjacent to the subdivision area, to create a water-orientated residential development similar to Floreat Waters and a central conservation zone. A major portion of the moat had been created by previous developments at Herdsman Lake in the south-western sector (Floreat Waters), the north-eastern sector (Herdsman Industrial Park) and the south-eastern sector.

The dredging of the moat has not been completed and the proponent proposes to construct a 200 metre (m) long channel approximately 40 m wide with a notional depth of 3m to connect to the existing moat.

It is now known that peaty sediments such as occur at Herdsman Lake have the potential to become acid sulfate soils if they are exposed to air by excavation. Dredging of the final section of this proposal could contribute to environmental degradation of Herdsman Lake.

In view of concerns of potential impacts from acid sulfate soils, the Minister for the Environment requested the Environmental Protection Authority (EPA) in June 2005 to report on whether any changes should be made to the environmental conditions.

Section 46(6) of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on whether or not the conditions should be changed, in addition, the EPA may make any other recommendations that it thinks appropriate.

This report provides the EPA's advice and recommendations to the Minister for the Environment on whether or not the environmental conditions should be changed.

The EPA is also required to have regard for the principles set out in section 4A of the *Environmental Protection Act 1986*.

Relevant issues and principles

The EPA considers that the issues of Water and Sediment Quality and Timing for Completion required detailed evaluation in the report.

Water and Sediment Quality requires investigation as the risk of environmental impacts from the proposed dredging have not been characterised.

The key issue in considering the timing for completion of the project is the length of time since the proposal was initially given environmental approval, and the ongoing presence of the cutter-suction dredge in Floreat Lakes, the materials storage areas on adjacent land and that project completion works such as the creation of foreshores and landscaping of parklands have not been carried out.

The following principles were considered by the EPA in relation to the investigation of the change to conditions:

- (a) precautionary principle;
- (b) intergenerational equity; and
- (c) conservation of biological diversity and ecological integrity.

Conclusion

The EPA has considered the environmental conditions for the proposal by Sherwood Overseas Co Pty Ltd to develop a residential subdivision in the north-west sector of Herdsman Lake (Floreat Lakes), including dredging to continue a moat adjacent to the subdivision area.

The EPA has concluded that dredging should not be allowed to occur at Herdsman Lake, until appropriate investigations have been undertaken. The proponent should undertake an ecological risk assessment that meets the requirements of the latest standards to investigate the potential impacts from dredging, which should indicate whether dredging is still an appropriate activity to be undertaken in Herdsman Lake.

If the proponent fails to demonstrate within twelve months that water and sediment quality criteria can be met, either through lack of testing, or testing that suggests that water and sediment quality criteria cannot be met, the proponent should dismantle and remove the dredge and finalise all project completion activities.

The EPA has therefore recommended that Condition 3 should be changed as recommended in Appendix 3, to require appropriate investigations to be undertaken prior to dredging, and that the proposal be finalised within twelve months.

Recommendations

That the Minister amends the conditions for the proposal as recommended in Appendix 3 of this report.

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1. Introduction and background

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for the Environment on whether or not the environmental conditions should be changed, for the proposal by Sherwood Overseas Co Pty Ltd to develop a residential subdivision in the north-west sector of Herdsman Lake (Floreat Lakes), including dredging to continue a moat adjacent to the subdivision area.

The proposal to develop a residential subdivision in the north-west sector of Herdsman Lake (Floreat Lakes) was approved by the Minister for the Environment in February 1989.

An essential component of this proposal was dredging to continue a deep and wide moat to create a water-orientated residential development similar to Floreat Waters and a central conservation zone within Herdsman Lake.

A major portion of the moat had been created by previous developments at Herdsman Lake in the south-western sector (Floreat Waters), the north-eastern sector (Herdsman Industrial Park) and the south-eastern sector.

One of the major environmental issues identified for the proposal during the assessment by the EPA in 1988 was the depth, extent and management of the moat. Concern for water quality focussed on impacts from increased algal biomass, a potential algal bloom, and/or nutrient enrichment (EPA Bulletin 360, 1988). Condition 3 of the Minister for the Environment's statement required a management and monitoring program to address water quality of the moat and peat management (Appendix 2).

A Floreat Lakes Monitoring and Management Programme was approved by the EPA in April 1989 for the first phase of dredging. Dredging occurred between 1991 and 1995 to recover sand for fill for the Floreat Lakes residential development. The proponent submitted intermittent water quality monitoring reports to the EPA, focussing mostly on the eutrophic state of the lake and also monitored for evidence of pesticide and metals contamination as a result of the dredging program.

The dredging program ceased in July 1995 prior to completion due to the need to negotiate access with an adjacent private landowner.

In 2003 the proponent started discussions with relevant stakeholders regarding completion of the dredging works as per the original proposal. The Department of Conservation and Land Management (CALM) and the Department of Environment (DoE) raised concerns about the potential impact on the environment and queried whether it was still appropriate to continue the next phase of dredging.

Work carried out in March 2005 in preparation for the proposed dredging involved disturbing the embankments of the Osborne Park Branch Drain (an open drain) in order to divert the drain.

In view of concerns of potential impacts from acid sulfate soils, the Minister for the Environment requested the EPA in June 2005 to report on whether or not any proposed changes to conditions and procedures should be allowed, or to make other recommendations as it sees fit.

2. The proposal

The dredging of the moat has not been completed and the proponent proposes to construct a 200 metre (m) long channel approximately 40 m wide with a notional depth of 3 metres to connect to the existing moat (Figure 1).

The channel is proposed to be constructed with a cutter-suction dredge and the dredged material returned immediately to the deep enclosed part of Herdsman Lake in front of Floreat Waters Estate where it would be allowed to settle to the base of a 10 m deep enclosed embayment.

3. Discussion

Water and Sediment Quality

Knowledge about the potential impact that this proposal may have on the environment has developed since this proposal was granted environmental approval in 1989, particularly with regard to acid sulfate soils.

Acid sulfate soils are naturally occurring soils that contain iron sulfide minerals, especially the mineral pyrite. They are found in waterlogged swampy environments, particularly near the coast, and are benign if not disturbed. However if they are dewatered, drained or excavated without careful management, the sulfide minerals will react with oxygen from the air to form sulfuric acid. Acidic water leaching from these soils often has high concentrations of arsenic and heavy metals, and can cause severe environmental problems if it is discharged to waterways or leached into groundwater. The oxidation of iron sulfide minerals (mainly the mineral pyrite) also may make the soil become extremely acidic and capable of damaging sub-surface concrete and steel infrastructure. Once disturbed, it is very difficult to stop soils generating acidity, and disturbed sites may continue to discharge sulfuric acid and metals into the environment for many centuries, or even millennia. (Appleyard, 2005)

Herdsman Lake is one of a group of wetlands that used to stretch in an arc from the Swan River at Claisebrook through Northbridge and Leederville, and up to low lying areas in Wembley and Floreat.

Large areas of the catchment to Herdsman Lake are underlain by peaty and sandy soils that contain substantial quantities (up to 15%) of the iron sulfide mineral pyrite (Appleyard, 2005). These soils have the potential to generate large amounts of acidity and leach heavy metals and nutrients if they are exposed to air by lowering the watertable or excavation.

The proponent submitted a *Preliminary Acid Sulfate Soils Risk Management Plan for Herdsman Lake Dredging Program* (ATA, 2005). The DoE provided comment on the report and has advised that:

- The sediment chemical analyses provided in the report showed exceedances of ANZECC 2000 criteria for arsenic, mercury, lead and zinc, as well as indicators of acid generation capacity. Chemical data from sediments and water from the vicinity of the dredging and dredge spoil disposal areas indicate that there is a risk of aquatic impacts from metals, arsenic, hydrogen sulfide, ammonia and iron monosulfides as a result of dredging.
- Dredging has the capacity to change both the physical properties (e.g. finer particle size) and the chemical properties (e.g. sediments partially oxidised) of sediments to make metals more bioavailable.
- There is a significant risk of acute (i.e. immediate but short-lived) ecological impacts – such as widespread death of macroinvertebrates – during the dredging program caused by the release of hydrogen sulfide, ammonia and iron monosulfide oozes.
- The risk of impacts has not been characterised, and therefore a risk assessment of dredging and subsurface disposal of spoil at Herdsman Lake should be undertaken within the framework set by the ANZECC 2000 water and sediment guidelines. Additionally, the risk assessment approach should follow the ecological risk assessment methodology set out in the DoE contaminated site guideline entitled *The Use of Risk Assessment in Contaminated Site Assessment* (2005).

Specifically, if the required risk assessment methodology is followed (as per ANZECC and DoE), it is most likely that the proponent will be required to undertake ecotoxicological testing to determine the potential environmental impacts from dredging.

Water Corporation Drains

The proponent carried out some preparatory works for the proposed dredging in March 2005, which included disturbing the Osborne Park Branch Drain (shown on Figure 1) allowing drainage to directly enter Herdsman Lake.

The Water Corporation agreed in 2004 to the disturbance of the Osborne Park Branch Drain and the Herdsman Main Drain during the proposed dredging work and detailed the work required to reinstate the drains following completion of dredging.

It is understood that the Osborne Park Branch Drain has very recently been reinstated by the proponent (May 2006), to the requirements of the Water Corporation.

Timing for Completion

The majority of the work for this proposal was completed by 1995. The issue of the remaining channel to be dredged has held up completion of the proposal and associated finishing works, such as: removal of the dredge and materials storage areas; creation of foreshores; and landscaping of parklands.

CALM and members of the public have continued to question the ongoing presence of the dredge and materials storage area in what is now an established residential area (Floreat Lakes) and Herdsman Lake Regional Park. The completion of the proposal has stalled, however with a clear description of the work required to investigate the potential impacts of dredging, the proponent should be able to determine whether dredging is still an appropriate part of this proposal.

Should the risk assessment conclude that dredging would cause unacceptable impacts to Herdsman Lake, the dredge should be dismantled and removed and all other completion works should be finalised within twelve months.

4. Recommended conditions

Water and Sediment Quality

Condition 3 of the existing statement should be changed to require the proponent to undertake an ecological risk assessment meeting the requirements of the latest standards to investigate the potential impacts from dredging in Herdsman Lake.

The proponent should undertake a risk assessment of dredging and subsurface disposal of spoil at Herdsman Lake to demonstrate that it can meet the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC, 2000) water and sediment guidelines.

Additionally, the risk assessment approach should follow the ecological risk assessment methodology set out in the DoE Contaminated Sites Management Series entitled *The Use of Risk Assessment in Contaminated Site Assessment* (2005).

Specifically, if the required risk assessment methodology is followed (as per ANZECC and DoE), it is most likely that the proponent will be required to undertake ecotoxicological testing to determine the potential environmental impacts from dredging.

The proponent should carry out water and sediment quality monitoring and report the results to the DoE as was originally required in the Minister's conditions of 1989.

Water Corporation Drains

It is acknowledged that the proponent has reinstated the Osborne Park Branch Drain which was breached in March 2005 as part of preparatory works for dredging.

The banks of the drain should not be breached again until all approvals have been granted for the proposed final stage of dredging.

Timing for Completion

Condition 3 should be modified to require the proposal to be completed in twelve months. The proponent should demonstrate whether dredging is still an appropriate activity for Herdsman Lake and either complete the dredging or abandon the dredging component and finalise the project within twelve months.

If the proponent can demonstrate that the water and sediment quality criteria can be met, as per the investigations required in Condition 3:

1. all water and sediment quality testing;
 2. all dredging activities; and
 3. project completion activities,
- should be completed within twelve months.

If the proponent fails to demonstrate that water and sediment quality criteria can be met, either through lack of testing, or testing that suggests that water and sediment quality criteria cannot be met, or any other reason that is under the proponent's control, the proponent should finalise all project completion activities within twelve months.

Completion activities include removal of the dredge and materials storage areas, the creation of foreshores and landscaping of parklands.

A set of amended conditions that the EPA recommends be imposed are presented in Appendix 3.

It should be noted that other regulatory mechanisms relevant to the proposal are:

- City of Stirling planning legislation that requires a Development Application be approved for the operation of the materials storage area;
- the Western Australian Planning Commission (WAPC) is the owner of some of the land in the proposal area;
- WAPC planning approval is required to carry out the proposed dredging works;
- CALM is the management agency for most of Herdsman Lake Regional Park, including the portion of the proposal area; and
- the Water Corporation is responsible for the Herdsman Main Drain and the Osborne Park Branch Drain, proposed to be impacted by dredging.

5. Conclusions

The EPA has considered the environmental conditions for the proposal by Sherwood Overseas Co Pty Ltd to develop a residential subdivision in the north-west sector of Herdsman Lake (Floreat Lakes), including dredging to continue a moat adjacent to the subdivision area.

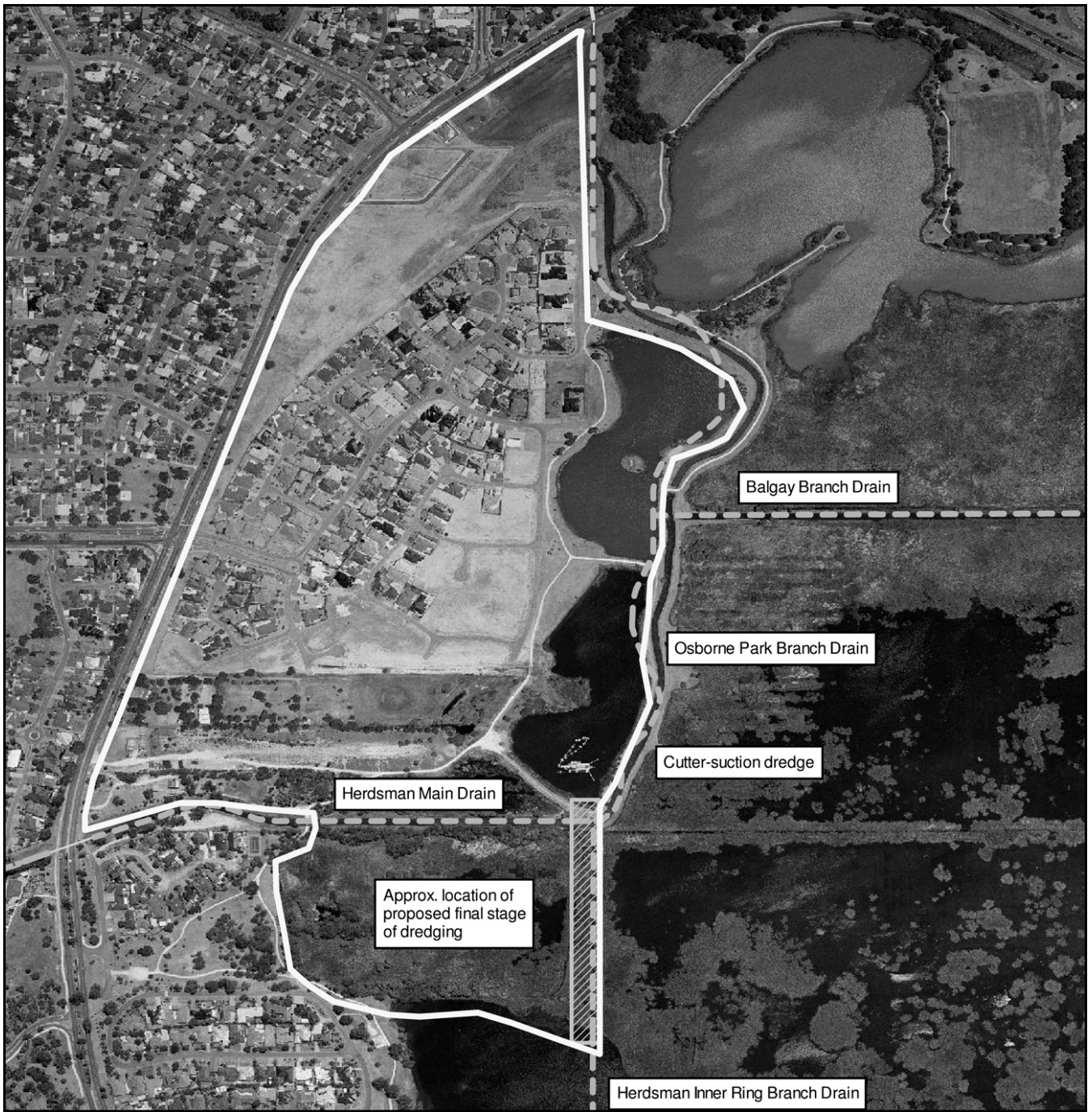
The EPA has concluded that dredging should not be allowed to occur at Herdsman Lake, until appropriate investigations have been undertaken. The proponent should undertake an ecological risk assessment that meets the requirements of the latest standards to investigate the potential impacts from dredging, which should indicate whether dredging is still an appropriate activity to be undertaken in Herdsman Lake.

If the proponent fails to demonstrate that water and sediment quality criteria can be met within twelve months, either through lack of testing, or testing that suggests that water and sediment quality criteria cannot be met, the proponent should dismantle and remove the dredge and finalise all project completion activities.

The EPA has therefore recommended that Condition 3 should be changed as recommended in Appendix 3, to require appropriate investigations to be undertaken prior to dredging, and that the proposal be finalised within twelve months.

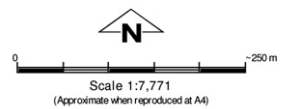
6. Recommendations

The EPA recommends that the Minister amends the conditions for the proposal as detailed in Appendix 3 of this report.



LEGEND

- Proposal Features
- Proposal Area
- Local Authority Drain
- - - Open Drain
- · · Piped Drain
- Swan Coastal Plain North 40cm Orthomosaic - DLI 05



Geocentric Datum of Australia 1994
 Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

Prepared by: MacleoM
 Prepared for:
 Date: Wednesday, 17 May 2006 16:02

Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.



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Figure 1: Floreat Lakes residential development, north-west sector, Herdsman Lake

Appendix 1

References

Appleyard, S. (2005) *An Overview of Acid Sulfate Soil Management Issues, and a Preliminary Assessment of Impacts within the Herdsman Lake Catchment*. Draft technical report, Department of Environment, February 2005.

ATA Environmental (2005) *Preliminary Acid Sulfate Soils Risk Management Plan for Herdsman Lake Dredging Program – Version 1 June 2005*. ATA Environmental, Perth.

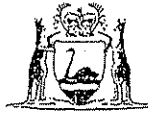
Australian and New Zealand Environment and Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. National water quality management strategy.

Department of Environment (2005) *The Use of Risk Assessment in Contaminated Site Assessment: Guidance on the overall approach (Draft)*. Department of Environment, January 2005.

Environmental Protection Authority (1988) *Floreat Lakes Residential Development, North West Sector, Herdsman Lake*. Environmental Protection Authority Bulletin 360, November 1988.

Appendix 2

Existing Environmental Conditions and Commitments



MINISTER FOR ENVIRONMENT

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

FLOREAT LAKES RESIDENTIAL DEVELOPMENT,
NORTH WEST SECTOR, HERDSMAN LAKE

SHERWOOD OVERSEAS CO PTY LTD

This proposal may be implemented subject to the following conditions:

1. The proponent shall adhere to the proposal as assessed by the Environmental Protection Authority and shall fulfil the commitments made and listed in Environmental Protection Authority Bulletin 360 (copy of commitments attached).
2. Prior to the commencement of dredging, the proponent shall prepare a detailed design of the final moat and the realigned Osborne Main Drain in consultation with the Department of Conservation and Land Management, to the satisfaction of the Water Authority of Western Australia and the Environmental Protection Authority. The moat design shall meet the following criteria:
 - (1) no more than 850,000 cubic metres of sand fill to be obtained from the moat;
 - (2) peat not to be placed in the Industrial Lake, but to be used in the Floreat Lakes moat to reduce the area of deep water; and
 - (3) final contours after placement of peat in the moat to be such that the area of deep water is minimised, and conversely, that the area of shallow water (less than 1m in summer) is maximised.
3. Prior to commencement of dredging, the proponent shall finalise the monitoring and management programme for Floreat Lakes to the satisfaction of the Environmental Protection Authority. Matters addressed in this programme shall include:
 - (1) maintenance of water quality in the moat; and
 - (2) peat management.

The proponent shall report the results of the Floreat Lakes Monitoring and Management Programme to the Environmental Protection Authority every two years, and following handover, the agency responsible for management of Herdsman Lake should continue to provide those reports to the Environmental Protection Authority.

4. The proponent shall ensure that all works associated with the proposal, including the realigned Osborne Main Drain, do not encroach upon the central conservation area as defined by the "limit of dredging" line in the Metropolitan Region Scheme Improvement Plan Number 21.
5. Prior to completion of the Floreat Lakes development, an overall water management plan for Herdsman Lake shall be prepared by the State Planning Commission in consultation with the Department of Conservation and Land Management, the Water Authority of WA, and the City of Stirling, to the satisfaction of the Environmental Protection Authority.
6. The proponent shall undertake the necessary dust control measures during development of the site to ensure that dust is minimised, to the satisfaction of the Environmental Protection Authority.
7. The proponent shall ensure that noise impacts associated with the proposed development are minimised. The following will require particular attention:
 - (1) hours of operation, in particular the timing of any noisy procedures;
 - (2) use of quietest machinery available; and
 - (3) routes to be used by service and construction vehicles and machines.

Measures to ensure the minimisation of noise impacts shall be formulated in consultation with the City of Stirling and to the satisfaction of the Environmental Protection Authority.

8. The proponent shall provide a post-construction report to the Environmental Protection Authority on completion of the development. This report shall detail any unexpected impacts, problems encountered and the means used to resolve them, and shall include a survey of the moat to show the finished size and depth.
9. 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 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.



Commitments

Sherwood Overseas Co Pty Ltd (Sherwood) makes the following commitments relating to the proposed Floreat Lakes residential development:

1. To complete the land transactions necessary and to develop a high quality residential area in the north west sector of Herdsman Lake.
2. To allocate land in accordance with Table 1 and Figure 3 of the PER. The areas allocated to Parks and Recreation will be planted with appropriate vegetation cover and provided with appropriate services and facilities.
3. To complete the proposed protective moat between the development and the central conservation zone, under supervision by the State Planning Commission (SPC).
4. To construct the new drainage system according to the directions of the SPC, including stop-log structures.
5. To use peat from the development area for landscaping parklands and foreshores to SPC requirements.
6. To dispose of metals and toxic material found in the excavated areas during development at an approved disposal point.
7. To install and maintain suitable sediment controls and environmental protective measures during the construction phase by isolating the dredge pond from the rest of Herdsman Lake Regional Park.
8. To maintain dust levels below accepted standards during construction.
9. To provide stormwater and drainage discharge facilities in accordance with SPC policy.
10. To provide suitable road access to the residential development.
11. To retain liability for defects in open space construction for a period of 12 months until management is fully taken up by the SPC.
12. To fulfil agreements between Sherwood and the SPC including adherence to a \$150,000 bond negotiated between them.
13. To comply with all statutory requirements and agreements as listed in Section 2.3 of the PER. Specifically Sherwood will comply with the provisions of Sections 79 and 84 of the Environmental Protection Act 1986 with respect to noise emission and in particular the Noise Abatement (Neighbourhood Annoyance) Regulations, 1979 and all other statutes.
14. The SPC and Sherwood will prepare a water management and monitoring programme in consultation with the EPA, CALM, WA of WA and CoS for the period from commencement, until handover to the SPC. The SPC and Sherwood will be collectively responsible for management and monitoring until handover to the SPC.
15. To manage peat in accordance with the Peat Management Plan.
16. To retain an environmental consultant to oversee the project and provide appropriate advice when required, with the power of direction to stop work. Sherwood has nominated Dr David Bennett to perform this task.
17. To remove no more than 850 000 cubic metres of sand fill from the moat.
18. To continue to bid competitively for sand to be imported to the site for fill.

The SPC is responsible for development control of subdivision matters at Herdsman Lake, and for administering Improvement Plan 21. Also, the SPC has the role of acquiring land reserved in Improvement Plan 21 for Parks and Recreation. As a reflection of its involvement in Herdsman Lake, the SPC makes the following commitments:

1. To complete Improvement Plan 21 by replanning the North West Sector including the relocation of Stephenson Highway.
2. To complete the amalgamation of lands for Herdsman Lake Regional Park for vesting in the National Parks and Nature Conservation Authority.

3. To fulfil agreements between the SPC and Sherwood, including supervision of the construction of the moat, which will not extend beyond the limit of dredging line in Improvement Plan 21.
4. The SPC and Sherwood will prepare a water management and monitoring programme in consultation with the EPA, CALM, WA of WA and CoS for the period from commencement of construction until handover to the SPC. The SPC and Sherwood will be collectively responsible for management and monitoring until handover to the SPC.

Appendix 3

Recommended Environmental Conditions

**STATEMENT TO AMEND CONDITIONS APPLYING TO A PROPOSAL
(PURSUANT TO THE PROVISIONS OF SECTION 46 OF THE
ENVIRONMENTAL PROTECTION ACT 1986)**

**FLOREAT LAKES RESIDENTIAL DEVELOPMENT
NORTH WEST SECTOR, HERDSMAN LAKE**

Proposal: Residential subdivision in the north-west sector of Herdsman Lake (Floreat Lakes), including dredging to continue a moat adjacent to the subdivision area.

Proponent: Sherwood Overseas Co Pty Ltd

Proponent Address: 321 Selby Street, OSBORNE PARK WA 6017

Assessment Number: 1572

Previous Assessment Number: 063

Previous Statement Number: Statement No. 058 (published on 27 February 1989)

Report of the Environmental Protection Authority: Bulletin 1222

Previous Report of the Environmental Protection Authority: Bulletin 360

The implementation of the proposal to which the above reports of the Environmental Protection Authority relate is subject to the conditions and procedures contained in Ministerial Statement No. 058 (27 February 1989), as amended by the following:

Condition 3 (Floreat Lakes Monitoring and Management Programme) of Statement No. 058 is deleted and replaced by the following conditions:

3 Water and Sediment Quality

- 3-1 Prior to commencement of any dredging activities in Herdsman Lake, the proponent shall undertake a risk assessment of the effects on water quality and sediments of the dredging and subsurface disposal of spoil to demonstrate that the water and sediment quality in the area of the proposed dredging will meet the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC, 2000) water and sediment guidelines to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority and the Department of the Environment. (see Note 1)
- 3-2 If the proponent can demonstrate that the water and sediment quality guidelines can be met, as required by condition 3-1,
1. all water and sediment quality testing;

2. all dredging activities; and
 3. project completion activities (see Note 2),
shall be completed within twelve months of the date of this statement, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.
- 3-3 If the proponent fails to demonstrate that water and sediment quality guidelines can be met, either through lack of testing, or testing that suggests that water and sediment quality criteria cannot be met, or any other reason that is under the proponent's control, the proponent shall finalise all project completion activities within twelve months of the date of this statement, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority, the Department of Conservation and Land Management and the Western Australian Planning Commission. (see Note 2)
- 3-4 The proponent shall update the previously approved Floreat Lakes Monitoring and Management Programme (approved in April 1989) within two months of the date of this statement, to include water and sediment quality monitoring for appropriate parameters, and shall report the results annually to the Department of Environment, until the management of Herdsman Lake is handed over to the Western Australian Planning Commission.

Notes to the conditions to be inserted after condition 9 of Statement No. 058 as follows:

Notes:

- 1 The risk assessment approach required by condition 3-1 should follow the ecological risk assessment methodology set out in the Department of Environment's Contaminated Sites Management Series entitled *The Use of Risk Assessment in Contaminated Site Assessment* (2005).

Specifically, if the required risk assessment methodology is followed (as per ANZECC and DoE), it is most likely that the proponent will be required to undertake ecotoxicological testing to determine the potential environmental impacts from dredging.

- 2 "Completion activities" include, inter alia, removal of the dredge and materials storage areas, the creation of foreshores and landscaping of parklands.