

**Construction of reservoir within Reserve 34537
and associated pipework through Neerabup
National Park, Wanneroo**

Water Authority of Western Australia

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

**Environmental Protection Authority
Perth, Western Australia
Bulletin 747
July 1994**

ICD.

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 recommendations.

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 assessment report 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 29 July 1994.

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Summary

The Water Authority of Western Australia (WAWA) proposes to construct a service reservoir within the Neerabup Water Supply Reserve 34537 together with associated pipework within the Neerabup Water Supply Reserve 34537 which would be built through Neerabup National Park.

The Water Reserve has been vested in the WAWA for water supply purposes since 1977. The reserve is also an enclave within the southern part of Neerabup National Park, and forms part of the System 6 area M6.

The proposal seeks to meet future water supply requirements for the North-West Corridor. The proposal involves the construction of a roofed reservoir of 128ML capacity, an earth sump, and associated pipelines to and from the pond by 1995 and a second similar storage facility in the year 2007.

A number of environmental issues were identified by the Environmental Protection Authority and in public submissions and included:

- the relationship of proposal to System 6 Recommendation M6, North-West Corridor planning and management of Neerabup National Park;
- visual impacts;
- flora conservation;
- impacts from provision of services, and
- construction impacts.

The Environmental Protection Authority considers that the WAWA has evaluated the potential impacts from the above environmental issues and believes that the proposal will not have any significant adverse environmental impacts.

The WAWA has prepared a comprehensive design and management strategy and the Environmental Protection Authority has reaffirmed the need to implement the commitments given by the WAWA.

The Environmental Protection Authority has concluded the project is environmentally acceptable subject to the proponent commitments and recommendations in the assessment report.

	Summary of Recommendations
1	<ul style="list-style-type: none">• The proposal is acceptable subject to environmental conditions
2	<ul style="list-style-type: none">• Clearing of vegetation shall be minimised• A timetable for the rehabilitation programme is required

1. Introduction and background

In order to meet future water supply requirements for the rapidly developing North-West Corridor, the Water Authority of Western Australia (WAWA) proposes to construct a reservoir together with associated pipework within the Neerabup Water Supply Reserve 34537.

As the water reserve is an enclave within the southern part of the Neerabup National Park, which forms part of System 6 area M6 (Refer to Figure 1), the Environmental Protection Authority (EPA) decided that the proposal should be formally assessed at the level of Consultative Environmental Review (CER). The Environmental Protection Authority issued guidelines in September 1993 and the CER document was made available for a four week public review period which ended on 5 April 1994.

The key objectives for undertaking this assessment were to:

- identify environmental issues;
- ensure the protection of the environment; and
- identify management strategies to alleviate any environmental problems.

The planning context

In response to the expected rapid growth of Perth, the North-West Corridor structure plan was developed to provide a framework for the development of the corridor to the year 2021 (DPUD, 1992).

The purpose of this plan is to ensure a comprehensive approach to planning and development in the corridor and contains proposals for residential development, the provision of services and infrastructure, and conservation and protection of the environment (DPUD, 1992).

This plan recommends that water supply sites on reserves, such as Neerabup, be designated as public utility reserves in the Metropolitan Region Scheme to remove any misunderstandings about their future use. The plan also clearly indicates that the water supply reserve is not part of Neerabup National Park (DPUD, 1992).

2. Summary description of proposal

The following summary comes from the CER document prepared by Chiang, P and Bosman, K (1994).

The area proposed for the water storage is located within Water Reserve 34537 which has been vested in the Water Authority for water supply purposes since 1977. The land for the supply and delivery pipelines is located within corridors situated (in private property), partly in the Neerabup National Park, and partly including the Tamala Park tip site (refer to Figure 2).

The proposal involves the construction of a roofed reservoir of 128ML capacity, an earth sump, and associated pipelines to be constructed by 1995 and a duplicate storage facility in the year 2007 or at such other time as the water demand requires the provision of additional storage on the site.

The proposed pond is to be constructed of internally concrete lined earth embankments below and above natural ground surface. The reservoir roof would be of steel construction and colour coated to blend in with the environment while the proposal pipelines would be constructed below ground.

Reservoir development would be confined to a small portion of the site, which would be fenced. Water supplying the storages at Neerabup will be drawn from the Quinns borefield. The remainder of the reserve would be managed by CALM (Chiang, P and Bosman, K, 1994).

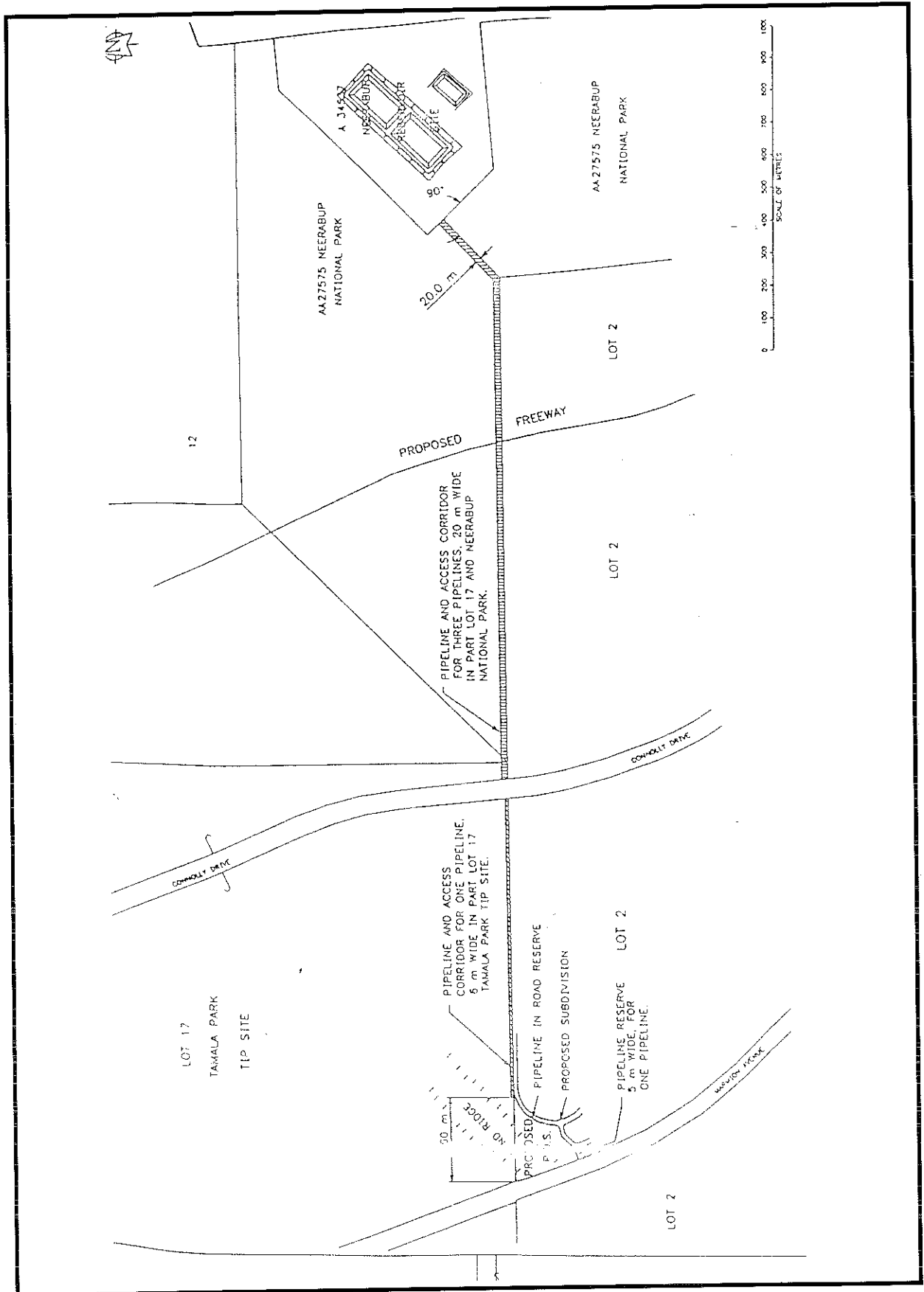


Figure 2: Neerabup Reservoir Pipeline and Access Corridors

3. Environmental impact assessment method

The environmental impact assessment for this proposal followed the *Environmental impact assessment administrative procedures 1993*. The Proponent's revised commitments following the response to submissions, appears in Appendix 1. The summary of submissions and the proponent's response to those submissions appears in Appendix 2.

In addition to the administrative procedures, officers of the Department of Environmental Protection undertook site visits to become familiar with the area and to establish the extent of clearing after the geotechnical investigation. Officers also discussed the proposal with the proponent, interested parties and other government departments, including the Department of Conservation and Land Management (CALM).

Limitation

This evaluation has been undertaken using information currently available. The information has been provided by the proponent through preparation of the Environmental Review document (in response to guidelines issued by the Department of Environmental Protection), by Department of Environmental Protection officers utilising their own expertise and reference material, by utilising expertise and information from other State government agencies, and by contributions from Environmental Protection Authority members.

The Environmental Protection Authority recognises that further studies and research may affect the conclusions. Accordingly, the Environmental Protection Authority considers that 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.

4. Evaluation

The major environmental issues related to this proposal which have been identified through the environmental impact assessment process include:

- the relationship of the proposal to existing public proposals, for example System 6 area M6, North-West Corridor planning, and management of Neerabup National Park;
- visual impacts;
- flora conservation (including minimising clearing and preventing the introduction of dieback);
- impacts from provision of services (including access, water pipelines and power) to the site; and
- construction impacts (including dust, noise and maintaining site security).

These environmental issues have been addressed in greater detail below.

4.1 Relationship of proposal to System 6 Recommendation M6 - Neerabup National Park

4.1.1 Objective

To protect the intent of System 6 Recommendation M6.

4.1.2 Evaluation framework

4.1.2.1 Technical information

In 1972, the Environmental Protection Authority established the Conservation Through Reserves Committee to make recommendations with respect to National Parks and Nature Reserves of the State (DCE, 1983a).

Western Australia was divided into 12 different systems each representing a natural and demographic entity. The Perth metropolitan area was included in The Darling System or System 6 as it has come to be known. System 6 is the most intensively used part of the State where land values are high and where competition for differing land uses is often intense (DCE, 1983a).

The System 6 report on M6 (Neerabup National Park) indicates that the park "...constitutes open space of regional significance because of its high conservation and recreational value and its proximity to Perth residential areas". The park forms a long north-south strip which will be readily accessible to residents of the North-West Corridor, however, this long narrow shape makes management difficult and poses problems in the development of recreational facilities (DCE, 1983b).

Recommendations 15 and 16 of the System 6 Report (see Appendix 3), suggests that the area comprising M6, including Reserve 34537 and Neerabup National Park, be designated as Regional Park with responsibility for co-ordinating the planning and management going to the National Parks Authority (now National Parks and Nature Conservation Authority (NPNCA))(DCE, 1983a).

4.1.2.2 Comments from key government agencies

The National Parks and Nature Conservation Authority (NPNCA) advised the Environmental Protection Authority that this proposal alone is considered to have minimal environmental impact upon Neerabup National Park (NPNCA submission, 12 April 1994 See Appendix 4).

4.1.2.3 Public submissions

Members of the public criticised the CER as they considered that the impact on the integrity and conservation value of Neerabup National Park and System 6 area M6 had not been adequately addressed.

4.1.2.4 Proponent's response

In response, the proponent indicated that Water Reserve 34537 had been vested in the Water Authority for water supply purposes since 1977, before the System 6 recommendations were accepted in 1983.

The proponent also pointed out that one of the issues recognised in the System 6 study was the need to provide adequate management to protect conservation, amenity and other land values, based on proper resource inventory and allocation responsibilities (Proponent's response to submissions, 3 May 1994 See Appendix 2).

4.1.3 Evaluation

The Environmental Protection Authority considers that the proposal is consistent with the purpose of Reserve 34537 and System 6 Recommendation M6, given that:

- 1) the National Parks and Nature Conservation Authority considers the proponent would have minimal impact on Neerabup National Park;

- 2) the site has been zoned for public utilities in the North West Corridor Structure Plan;
and
- 3) reservoir development will be confined to a small area of the site, which will be fenced,
and the remaining extent of the site will be managed by CALM.

The Environmental Protection Authority has concluded that the commitments proposed by the proponent to minimise any adverse impact on Neerabup National Park to be environmentally acceptable.

4.2 Visual impact

4.2.1 Objective

To ensure that the visual impact of the reservoir from vantage points inside and outside Neerabup National Park is protected.

4.2.2 Evaluation framework

4.2.2.1 Comments from key government agencies

The City of Wanneroo has commented that given the information obtained in the CER document, visual impact resulting from low level roofed reservoirs should not be great, assuming the site re-vegetation is successful. The City of Wanneroo therefore concluded that the issue of visual impact can be regarded as adequately addressed (City of Wanneroo submission, 1994).

4.2.2.2 Public submissions

Public submissions indicated :

- consideration should be given to breaking lines of sight along permanent access roads;
- all services should be underground, and
- that visual impact was not an issue based on information in the CER.

4.2.2.3 Proponent's response

In response, the proponent indicated that consideration would be given to breaking line of sight and re-iterated their commitments to install all services underground and to build the reservoirs using materials sympathetic to the environment (Proponent's response to submissions, 3 May 1994 See Appendix 2).

4.2.3 Evaluation

The Environmental Protection Authority has concluded that the commitments and management strategy, proposed by the proponent as detailed in the CER to minimise visual impact from the development of the reservoir to be environmentally acceptable.

4.3 Flora conservation

4.3.1 Objective

To ensure the conservation of flora within the water supply reserve. This includes preventing the introduction and spread of dieback, preventing weed invasion, minimising the extent of clearing and ensuring rehabilitation of the site.

4.3.2 Evaluation framework

4.3.2.1 Technical information

A botanical study was undertaken by Mattiske, E.M and Associates (1990). A total of 38 families, 94 genera and 126 vascular plant species were recorded. Of these 23 species have been introduced. Mattiske, E.M and Associates (1990) found that scrub communities were dominated by the families Proteaceae, Papilionaceae and Mimosaceae and that local variations in the scrub appeared to relate to the time since the last fires and depth of sand over the limestone outcropping. The deeper sand supports a range of woodlands and low open forests ranging from Tuart to Jarrah. All plant communities are represented elsewhere in other nearby National Parks and Nature Reserves and no gazetted rare species or geographically restricted species were recorded in the study area.

4.3.2.2 Public submissions

Concern expressed in submissions focussed on:

- clearing - excessive clearing for site investigation in contravention of DEP approval
- preference of Scenario A with regard to clearing for construction
- rehabilitation - revegetation should be carried out using local species and local seed and use should be made of local conservation groups
- introduction of dieback
- introduction of weed invasion
- inadequacy of the flora survey to make informed decisions.

4.3.2.3 Proponent's response

In response to these issues, the proponent reiterated commitments as stated in the CER to:

- 1) rehabilitate those areas within the water reserve and the Neerabup National Park cleared for the investigation and construction of the project;
- 2) rehabilitate cleared areas with local species and in accordance with a program developed with the Department of Conservation and Land Management (CALM);
- 3) Develop a comprehensive rehabilitation plan in conjunction with CALM;
- 4) Consult with CALM before clearing commences on the need to save and relocate certain plants which may be deemed practical and worthwhile saving, and
- 5) Develop a Jarrah dieback prevention management plan in conjunction with CALM.

The proponent admitted that clearing had occurred in excess of the DEP's approval and that this was regretted and inadvertently carried out by field staff.

The proponent still maintains that Scenario B (construction of pond one using on-site granular material derived from the excavation of the future pond two) is the most viable option and that ultimately under Scenario A (construction of pond 1 using imported granular material), more land would be required for clearing (Proponent's response to submissions, 3 May 1994 See Appendix 2).

4.3.3 Evaluation

The Environmental Protection Authority recognises the results obtained from the flora survey conducted by Mattiske, E.M and Associates (1990) indicate there were no gazetted rare species or geographically restricted species on the reserve.

The Environmental Protection Authority notes the results obtained from a fauna survey conducted by the Department of Conservation and Land Management (1993) which indicated there were no gazetted rare species or geographically restricted species on the reserve.

It is further noted by the Authority, that two bird species (White Breasted Robin and the Golden Whistler) were recorded in the survey area and are deemed to be scarce to rare on the Swan Coastal Plain.

The Environmental Protection Authority concludes that the commitments relating to rehabilitation and dieback control, proposed by the proponent to minimise the impact on flora from the development of the reservoir to be environmentally acceptable.

4.4 Impacts from the provision of services

4.4.1 Objective

To minimise the impact from the provision of services (for example water pipelines and power).

4.4.2 Evaluation framework

4.4.2.1 Public submissions

Public submissions suggested that all services should be underground.

4.4.2.2 Proponent's response

In response, the Water Authority of Western Australia re-iterated its commitment to install all services underground including pipelines and power supply.

The proponent also stated in the CER all pipelines would be laid generally not less than 750mm below ground and that the pipelines would be constructed within an east west corridor as shown in Figure 2 and incorporating the fire control strip. A change in orientation is proposed near the western end of the pipe corridor before Marmion Avenue to avoid a sand ridge which is known to be of ethnographic significance.

Access to the pipe corridor would be located within the fire break except where the pipe route deviates to avoid the sand ridge.

4.4.3 Evaluation

The Environmental Protection Authority has concluded that the commitments and management strategy detailed in the CER, and proposed by the proponent to minimise impact from the provision of services to the site and Neerabup National Park to be environmentally acceptable.

4.5 Construction impacts

4.5.1 Objective

To minimise construction impacts during Stage 1 and 2 of the development.

4.5.2 Evaluation framework

4.5.2.1 Public submissions

Issues raised in public submissions focussed on control of access during the construction phase, embankment earthworks, site hygiene management, dust management and noise control.

4.5.2.2 Proponent's response

In response to these issues the proponent stated its commitment to install boom gates at the commencement of construction. The proponent indicated that:

- 1) boom gates would be installed at the commencement of construction;
- 2) should earth embankment material need to be imported from quarries outside Neerabup National Park, this material will be checked by CALM for the presence of Phytophthora and
- 3) it is their intention to use material from the future pond 2 area for the embankment.

(Proponent's response to submissions, 3 May 1994 See Appendix 2).

4.5.3 Evaluation

The Environmental Protection Authority has concluded that the commitments proposed by the proponent to minimise construction impacts from the development of the reservoir to be environmentally acceptable. In particular it notes the commitment to use effective dust techniques if necessary and to comply with appropriate noise regulations.

4.6 Other Issues

4.6.1 Alternatives to the proposal

The CER provided an outline of the alternative options that were examined to meet the identified primary objective, to provide a water supply service to development in the North-West Corridor.

Public submissions raised questions about the adequacy of the investigation by the Water Authority of alternatives to a reservoir in the Neerabup National Park.

The Environmental Protection Authority believes, while the information presented in the CER was brief with regard to alternative water supply sites, the evaluation was adequate.

5. Discussion and synthesis

Of primary interest to the Environmental Protection Authority in relation to this proposal was the need to ensure that development of the water reserve was necessary, and that such development could be undertaken consistent with the areas of high environmental value.

The Authority considers that in relation to the environmental issues arising from the proposal, including:

- the relationship of the proposal to existing public proposals, for example System 6 area M6, North-West Corridor planning, and management of Neerabup National Park;
- visual impacts;
- flora conservation (including minimising clearing and preventing the introduction of dieback);
- impacts from provision of services (including access, water pipelines and power) to the site; and
- construction impacts (including dust, noise and maintaining site security).

The Water Authority of Western Australia has evaluated the potential impacts and prepared a comprehensive design and management strategy. It is for this reason that the Authority has essentially reaffirmed the need to implement the commitments given by the WAWA. By doing so, the Environmental Protection Authority believes that the proposal will not have any significant environmental impacts.

6. Conclusions and recommendations

The Environmental Protection Authority concludes that the proposal can be made environmentally acceptable provided the Proponent's commitments and the recommendations of this report are implemented.

Recommendation 1

The Environmental Protection Authority concludes that the proposal by the Water Authority of Western Australia for the construction of a reservoir and associated pipework within Neerabup National Park is environmentally acceptable. In reaching this conclusion, the Environmental Protection Authority identified the main environmental factors requiring detailed consideration as:

- **relationship to existing public proposals, for example System 6 area M6, management of Neerabup National Park and North-West Corridor planning;**
- **visual impacts;**
- **flora conservation;**
- **impacts from provision of services; and**
- **construction impacts.**

The EPA concludes that the environmental factors mentioned above have been addressed adequately by either environmental management commitments given by the proponent or by the EPA's recommendations in this report. Accordingly, the EPA recommends that the proposal could proceed subject to:

- the EPA's recommendations in this report, and
- the proponent's commitments (Appendix 1).

Recommendation 2

The Environmental Protection Authority recommends that:

- clearing of vegetation for the proposal be minimised, and
- the rehabilitation programme referred to in Commitment 1 shall include a timetable for its implementation and shall be to the requirements of the Environmental Protection Authority on advice from the Department of Conservation and Land Management.

The Environmental Protection Authority has established an implementation and auditing system which requires the proponent to advise the Authority on how it would meet the requirements of the environmental conditions and commitments of the project. The proponent would be required to develop a Progress and Compliance report for this project as a section of the recommended audit programmes.

The Environmental Protection Authority's experience is that it is common for details of a proposal to alter through the detailed design and construction phase. In many cases alterations are not environmentally significant or have a positive effect on the environmental performance of the project. The Environmental Protection Authority believes such non-substantial changes, and especially those which improve environmental performance and protection, should be provided for.

The Environmental Protection Authority believes any approval for the proposal based on the 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.

7. Recommended environmental conditions

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

1 Proponent's 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 in response to issues raised following public submissions provided that the commitments are not inconsistent with the conditions or procedures contained in this statement. These commitments are included in Environmental Protection Authority Bulletin 747 as Appendix 1. (A copy of the commitments is attached.)

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. 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.

3 Flora Management

- 3-1 The proponent shall ensure that clearing of vegetation is minimised.
- 3-2 To achieve the objective of condition 3-1, prior to the commencement of clearing, the proponent shall liaise with the Environmental Protection Authority and the Department of Conservation and Land Management.
- 3-3 The rehabilitation programme referred to in Commitment 1 shall include a timetable for its implementation and shall be to the requirements of the Environmental Protection Authority on advice from the Department of Conservation and Land Management.

4 Proponent

These conditions legally apply to the nominated proponent.

- 4-1 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.

5 Time Limit on Approval

The environmental approval for the proposal is limited.

- 5-1 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.)

6 Compliance Auditing

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

- 6-1 To help verify environmental performance, the proponent shall prepare periodic progress and compliance reports 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.

7. References

1. Chiang, P. & Bosman, K. 1994, *Neerabup Carbooda Zone Water Supply, Consultative Environmental Review For Proposed Neerabup Roofed Reservoir And Water Supply Mains*, Water Authority of Western Australia, Perth, Western Australia
2. Department of Conservation and Land Management 1993, *Fauna Studies in Water Supply Reserve ^34537, Adjacent To Neerabup National Park*, Unpublished report to Water Authority of Western Australia.
3. Department of Planning and Urban Development 1992, *North-West Corridor Structure Plan (North of Hepburn Avenue)*, Department of Planning and Urban Development, Perth, Western Australia.
4. Environmental Protection Authority 1983a, *Conservation Reserves for Western Australia as recommended by the Environmental Protection Authority, the Darling System - System. Part I General Principles and Recommendations*, Department of Conservation and Environment, Western Australia, Report 13.
5. Environmental Protection Authority 1983b, *Conservation Reserves for Western Australia as recommended by the Environmental Protection Authority, the Darling System - System 6. Part II: Recommendations for Specific Localities*, Department of Conservation and Environment, Western Australia, Report 13.
6. Mattiske, E.M. & Associates 1990, *Botanical Studies In Neerabup National Park (A^27575) And Water Supply Reserve (^34537, 9538) Botanical Studies In Neerabup National Park (A^27575) And Water Supply Reserve (^34537, 9538)*, Unpublished Report to the Water Authority of Western Australia.
7. National Parks & Nature Conservation Authority (1994) Comments on CER.
8. City of Wanneroo (1994) Comments on CER.

Bibliography

1. Dobson, B., Macintyre, K., Harris, J. & Quartermaine, G. 1993, *Report On An Ethnographic And Archaeological Survey At Neerabup Reservoir, Pipeline And Access Reserve*, Unpublished Report for the Water Authority of Western Australia.

Appendix 1

**Ammended Summary of Commitments by the Water Authority of
Western Australia**

AMENDED SUMMARY OF COMMITMENTS BY THE WATER AUTHORITY

9.0 AMENDED SUMMARY OF COMMITMENTS BY THE WATER AUTHORITY

The Water Authority will undertake the following commitments:

- 9.1 Rehabilitate those areas within Water Reserve †34537, and the Neerabup National Park cleared for the investigation and construction of the project by the Water Authority, which are:
- Rehabilitation of the tracks created for the geotechnical investigation and which lie outside the reservoir area
 - more than 15 metres from the pond roof lines or to the top of the outside embankment slope;
 - more than 3 metres either side of the pond security fence
 - more than 3 metres outside the sump fence lines
 - more than 3 metres outside the pipeline access track or furthest pipeline from the fence;
 - more than 4 metres outside the main access road in Water Reserve †34537
- Rehabilitation will be carried out using local species in accordance with programme developed in conjunction with CALM. These will be carried out as soon as practicable after the construction of earthworks, protected from vehicular damage during subsequent construction work, and will include some of the cleared vegetation back onto the cleared tracks created for the geotechnical investigation. A comprehensive rehabilitation plan linking clearing rehabilitation and top-soil stripping will be developed in consultation with CALM.
- 9.2 Consult with CALM before clearing commences on the need to save and relocate certain plants which may be deemed practical and worthwhile saving from clearing.
- 9.3 In conjunction with CALM establish prior to commencement of earthwork external sources of suitable granular material that is free of Jarrah die-back infection. The Water Authority will only import materials from these source(s).
- 9.4 In conjunction with CALM, develop prior to commencement of clearing a jarrah die back prevention management plan and to put into effect procedures to prevent introduction of the infection during and after the construction.
- 9.5 An agreement will be made with CALM for the management of the unfenced areas of Water Reserve 34537 and the pipeline corridor within the Neerabup National Park including annual fire breaks as an integral part of the Neerabup National Park management plan.
- 9.6 All services such as power lines, pipeowrks, burried valves, flowmeters and valve and meter pits will be installed underground. This work will be carried out during the construction phase. Top of the pits will be at about 300mm above finished ground level and fitted with safety rails or cover.
- 9.7 Liaise with the Wanneroo City Council prior to commencement of earthworks construction to establish an acceptable arrangement for vehicular traffic access from Burns Beach Road to the reservoir site.
- 9.8 The roof and wall cladding and accessories for the reservoir roof will be constructed of steel in either "Mist Green" or "River Gum" finish.
- 9.9 Except for the fenced off areas for the pond and sump, Water Reserve †34537 will be left accessible by the public on foot.
- 9.10 Boom gates will be installed to secure the Reserve from public vehicles. Gate keys will be made available to CALM.

Appendix 2

Proponent's response to issues raised in submissions



**WATER
AUTHORITY**
of Western Australia

Your Ref 10A21543H Enq.166/93
Our Ref 10A27647P
Enquiries P. Chiang
Tele Direct 420 2164

629 NEWCASTLE STREET
LEEDERVILLE W.A.
Postal Address: P.O. Box 100 Leederville
Western Australia 6007
Telephone: (09) 420 2420 Telex: AA 95140
Facsimile: (09) 328 2619

Director
Evaluation Division
Department of Environmental Protection
Westralia Square
141 St. Georges Terrace
PERTH W AUST 6000

DEPARTMENT OF ENVIRONMENTAL PROTECTION	
- 4 MAY 1994	
File No 1	166/93 Initials RVD
File No 2	Initials

Att. Mr Ron Van Delft,

CONSTRUCTION OF RESERVOIR AND ASSOCIATED PIPEWORK, WATER SUPPLY RESERVE 34537, WITHIN NEERABUP NATIONAL PARK (827)

Please find enclosed the Water Authority's response to the summary of Public Submissions with respect to the above project.

We also confirm a copy of the response has been forwarded by facismile earlier to Mr R. Van Delft.

Please do not hesitate to contact Mr Pan Chiang on 09 420 2164 for any query on this matter.

Yours faithfully,

Pan Chiang

for K.L. Barrett

3 May, 1994

75030 /

**CONSTRUCTION OF RESERVOIR AND ASSOCIATED PIPEWORK
WATER SUPPLY RESERVE 34537,
WITHIN NEERABUP NATIONAL PARK (827)**

RESPONSE TO SUMMARY OF SUBMISSION

Comment: 1. General Comments

1.1 Lack of context in Consultative Environmental Review

1.1.1 *The Consultative Environmental Review fails to properly address alternatives, indicates the proponent is already committed to the proposal and does not view the proposal in context but considers the proposal in isolation from off-site impacts and other threats to the System 6 area.*

Response: The Water Authority's Supporting Objectives in carrying out its Role and Mission are, to:

- Operate in a commercial manner using best management and operating practices consistent with the overall policies of the Government.
- Provide services at minimum long term cost.
- Ensure the provision of agreed community services on behalf of the Government.
- Meet all Regulatory and Environmental obligations.

Within the above context the results of six alternatives were listed. Investigations of these alternatives were carried out examining cost benefits to the community at large. All alternatives were considered on a stand-alone basis. This CER can only assess the impact of the proposed project on System 6 area. Off-site impact due to this project was assessed in the CER with respect to dust and noise and visual aspects and considered to be minimum given adequate control of the construction activities and attention to details of design.

Comment: 1.1.2 *We oppose the plan because it has an incremental effect and clears bushland in good condition in the core of the southern part of the park.*

Response: Water Reserve 34537 was vested in the Water Authority for Water Supply purposes in 1977 before the system 6 recommendations were accepted in 1983. In its conclusion the System 6 study, Part 1, restated one of "the four main issues recognised" being "the need to provide adequate management to protection conservation, amenity and other land values, based on proper resource inventory and allocation of responsibilities."

The areas within the Water Reserve to be cleared for the ultimate stage is about 10.5 Ha. out of the total Water Reserve area of 31.95 Ha. Total Neerabup National Park has an area of 111.5 Ha. Thus the clearing proposed constitutes about 7.3% of the total bushland near the southern fringe of the Park. About half of this cleared area will be revegetated with same plant communities. The net cleared area therefore constitutes 3.5% to 4% of the total Park and Water Reserve areas. The revegetation will lead to compatible bushland in the future.

Comment: 1.1.3 *The Consultative Environmental Review deal flippantly with issues, does not demonstrate an understanding of nature conservation values and impact of this proposal on those values.*

Response: The Water Authority considers this project with the objective to achieve minimum long term cost whilst managing the environment issues in a sensible manner. One of our Corporate Objectives, is to actively fulfil our environmental commitment and the principles of environmentally sustainable development. This is demonstrated by the site meetings with community groups, CALM, Department of Environmental Protection, Department of Conservation and Land Management and the Wanneroo City representatives prior to the CER publication and subsequent discussion with community groups, consultation with internal environmental branch, carrying out flora, fauna and Ethnographic and archaeological surveys by reputable consultants.

Comment: 1.2 Visual Impacts

1.2.1 *All services should be underground*

Response: All services such as power lines, pipeworks buried valves flow meters and valve and meter pits will be underground. Top of valve pits will be at no more than 300mm above finished ground level.

Comment: 1.2.2 *Serious consideration should be given to breaking lines of sight along permanent access roads for this project.*

Response: The Water Authority will undertake this requirement. This was stated in sub clauses 6.6.1 and 6.6.2 of Section 6 of the CER.

Comment: 1.2.3 *Visual impacts are not an issue based on information in Consultative Environmental Review.*

Response: The Water Authority has taken a serious view on the visual impact from the reservoir structure and has proposed methods to reduce its impact by various ways, viz:

- Keep roof to a low pitch and low profile.

- Provide a compatible colorbond finished roof and wall to blend in with bush colour.
- Mulching of earth embankments and seeding of local plant communities vegetation to reduce the stark contrast as soon as earthworks programme allows.
- Rehabilitate as in Water Authority Commitments clause 9.1 of Section 9 of the CER..
- Locate access ramp to a location with least visual impact while complying with operational requirements.

1.3 Other General Comments

Comment: 1.3.1 *The Consultative Environmental Review executive summary fails to mention the pipeline route across the National Park and System 6 area.*

Response: The pipeline route is not mentioned in the Executive Summary but is shown in Clause 6.3 of the CER.

Comment: 1.3.2 *Where is the Quinns borefield in relation to the park? Will operation of this borefield affect the park?*

Response: The planned production bores are along Marmion Avenue, the southern section of Conolly Drive, and east and north of Mindarie Keys. A plan which contains minor modifications to that submitted to the EPA in 1991 and showing locations is attached. Water Authority studies show that operation of the borefield is unlikely to have any significant effect on the Park. The Environmental Protection Authority has informally assessed the borefield (Quinns Water Scheme) concept in September 1991 and is satisfied that it can be implemented without any significant environment issues being raised.

Comment: 2. Site Investigation clearing and public participation

2.1 *Clearing occurred before public participation demonstrating that the Water Authority is fully committed to project and that consultation is just a public relations exercise.*

Response: The Water Authority is fully committed to this project in order to meet its obligation to the community for the needed water services, but as well considers it important to carry out the project with proper resolution and management of environmental issues.

The Water Authority considers it proper and adequate to have the concurrence of the Department of Environmental Protection and Department of Conservation and Land Management for preliminary ground investigation within its Water Reserve. The clearing referred to herein is necessary to carrying out the preliminary ground investigation. Failure to properly assess the viability of the site and the full impact on the environment will be remiss on the part of the Water Authority.

Comment: 2.2 *A map should have been provided showing the extent of existing clearing from site investigations in relation to proposed ponds and facilities.*

Response: This information is shown in Figure 7.3 except for some drafting omissions of four western branches of the clearing. Reading Figure 7.1 in conjunction to Figure 7.3 will however give a reasonably accurate idea of the relationship. A preliminary sketch showing the clearing and the relationship between the clearing and the ponds location was forwarded to EPA and CALM. A corrected sketch is enclosed herewith.

Comment: 2.3 *Clearing in contravention of Department of Environmental Protection approval is not adequately dealt with in Consultative Environmental Review.*

Response: The clearing in excess of Department of Environmental Protection approval is regretted and was inadvertently carried out by field staff. . The Water Authority will rehabilitate the tracks cleared as required by the Department of Environmental Protection in its correspondence of 30th December, 1993. The Water Authority has now put in place workshop programmes to encourage work practices to be more environmentally sensitive.

Comments: 2.4 *It is not possible to revegetate an area of comparable value.*

Response: The Water Authority concedes that revegetation will not be of comparable value to original bushland. The Water Authority has committed to do its best to rehabilitate the areas using local species.

Comment: 3.1 *Scenario A is preferred because less vegetation (4ha) would be cleared. Consider that the Water Authority has objections to Scenario A could be easily overcome.*

Response: The Water Authority remains convinced that Scenario B should be adopted for the following reasons:

The total area that will need to be cleared at the ultimate stage (i.e. when the second pond is phased in) for Scenario A is more than that for Scenario B, even though initially a smaller area 6.5Ha needs only to be cleared, because:

- the construction of pond 1 requires area outside the fenced area to be cleared for earthmoving machinery manoeuvrability as stated in the CER.
- additional equivalent area will eventually need to be cleared for pond 2 for its construction at the ultimate stage.

In addition to the cost saving of \$600,000 (in present value term) Scenario B has other advantages:

- Least likelihood of disturbances to area outside the fenced areas during construction.
- This will result in minimal importation of sand for earthworks, and likely further cost saving and other fringe benefits to the community.
- Minimum risk with respect to introduction of *Phytophthora dieback* through sand importation, if required for pond 1 construction.

Comment: 3.2 *Given the perception that Water Reserve is National Park, have some reservations about consideration of alternatives with emphasis on economic grounds. Environmental Protection Authority must be satisfied.*

Response: As discussed in the response to 1.1.1 the Water Authority's objectives and realities dictate that water services be provided at minimum long term cost to the community. The Water Authority plans and assesses projects on good economic ground whilst ensuring the resulting environment is compatible with the needs of the community. Qualitative issues which could not easily be translated into economic terms could only be assessed subjectively.

Comment: 3.3 *No concentrated effort to look at alternatives. Other alternative, particularly "Hill T" should be reconsidered - Hill T may be more important as a reservoir and a quarry.*

Response: "Hill T" is practically not an alternative as it had been precluded by earlier State Government from further consideration.

4. Construction Related Issues

Comment: 4.1 *Essential to control access during construction phase. Not clear when boom gate is to be installed.*

Response: Boom gate and appropriate signage will be installed at commencement of construction to prevent unauthorised vehicle entry.

Comment: 4.2 *Source of earth embankment import material not specified; must not come from within the National Park.*

Response: Under Scenario B it is intended that majority of the earth embankment materials will come from the future pond 2 area. However if any imported earth embankment materials is required it will be from quarries outside the Neerabup National Park and checked by CALM to be free of *Phytophthora dieback*.

- Comment: 4.3 *Lack of detail regarding site management matters such as containment and removal of construction debris and refuelling/servicing of vehicles. Must ensure high standard and that workers are aware of need to comply.*
- Response: Details of site hygiene management and similar matters will be specified in the Tender document and will be enforced rigorously.
- Comment: 4.4 *Movement of vehicles over unconsolidated surfaces could cause a dust problem which would need to be managed. Recognise dust not an issue at reservoir.*
- Response: Contract specification requiring measures for dust control regular water spraying on unconsolidated surfaces of construction vehicle access track will be included and enforced to overcome dust problem from this source.
- Comment: 4.5 *No quantitative analysis of noise impacts from machinery. Also no consideration of annoyance factors and relationship of working hours to off-site impacts.*
- Response: Noise abatement compliance to DOSHWA requirements will be included in the Contract document to minimise noise impacts. Working hours will be specified to be within the hours of 7.00am to 6.00pm Monday to Saturday to reduce off-site impact.
- Comment: 4.6 *Water Authority commitments must be followed.*
- Response: Yes. This will be ensured through internal audit for compliance and reporting to Department of Environmental Protection.
- Comment: 4.7 Clearing Issues
- 4.7.1 *Burning debris from clearing vegetation should be considered environmentally unacceptable.*
- Response: The Water Authority will seek advice from CALM and DEP and will abide by the relevant regulatory requirements in this matter.
- Comment: 4.7.2 *Substantial timber should be salvaged for use as domestic firewood.*
- Response: The Water Authority has no objection to this but it is not sure if this action could lead to adverse future false impression in the public that "it was O.K. to get firewood from the Water Reserve or the National Park".

Comment: 4.7.3 *An integrated approach needs to be adopted which links clearing/rehabilitation and topsoil stripping.*

Response: The Water Authority will liaise with CALM in this matter at the earliest opportunity to facilitate the actions as much as practicable. There will be areas where rehabilitation can not be implemented until earthworks is completed. A comprehensive rehabilitation plan linking clearing, rehabilitation and top-soil stripping will be developed in consultation with CALM.

Comment: 4.7.4 *Revegetation should be carried out using local species, local seed and local conservation groups. The Department of Conservation and Land Management could advise.*

Response: Agreed. This will be included in the rehabilitation plan.

5. Flora and fauna

Comment: 5.1 *"Flora survey" may meet standard required for a Consultative Environmental Review" but lacks sufficient depth to make informed decisions about the site. Consider reserve contains some of the most significant vegetation in Neerabup National Park.*

Response: The Water Authority considers it had taken action to observe environmental conservation process by carrying out the flora survey by reputable consultant in this field. Its further commitment to consult with CALM before clearing commences on the need to save and relocate certain plants which may be deemed practical and worthwhile saving is an additional step in the right direction.

Comment: 5.2 *Dispute that loss of half the Water Reserve would not cause any loss of flora and fauna, particularly as the reserve is in the middle of the National Park and development would open up the park to weed invasion, diseases and trail bikes.*

Response: The Water Reserve is at the southern fringe of the Neerabup National Park. Given that control of maintenance access is maintained regularly the construction of the reservoir and pipe lines make little difference, if any, to the National Park with respect to trail bikes activities. The installation of boom gates and appropriate signage will discourage such unauthorised access. The CER stated that there is not likely "..... any loss of flora and fauna species in the region as a whole". However it is accepted that there will be loss of flora and fauna within the reservoir and sump areas. Weed invasion will be controlled as part of the site maintenance and management programme.

Comment: 5.3 *Displaced fauna will be lost because adjacent territories already occupied. Statement that loss of reserve has minimum impact invalid on this ground.*

Response: Agreed that displaced fauna could be lost but this does not have major impact on the region as a whole since all species are represented in conservation reserves.

Comment: 5.4 *Valve and metering pits should be covered so that they don't trap fauna. if these are to be fenced, rather than covered, fencing should be fine to prevent entry of small reptiles.*

Response: Agreed. The Water Authority will undertake these requirements.

5.5 *Phytophthora dieback*

Comment: 5.5.1 *To minimise the risk of introducing Phytophthora infections from soil transport, roads (including pipeline inspection & parking areas) should be sealed to a high standard.*

Response: Dieback control measures will be implemented in liaison with CALM in the management plan. As stated in Sub clauses 6.6.1 & 6.6.3 in the CER the main access road and ramp will be sealed to an acceptable standard.

6. Incremental impacts on conservation value of National Park

Comment: 6.1 *Shape of park and incremental developments such as this reduce capacity of park to maintain long term ecological integrity. concerns about incremental development & environmental impacts expressed when land excised for Water Supply in 1974 (no environmental impact assessment then!). Large blackboy stands already destroyed by a mistake. Opportunities to set aside adequate representative areas have been missed.*

6.2 *The Environmental Protection Authority should request the State Planning Commission to review transport and public utility service corridors (existing and proposed) to service the North West Corridor which will impact on Neerabup National park.*

6.3 *The Environmental Protection Authority should make firm recommendations within the context of this proposal, the proposed additions under System 6 should be secured and urgent action to protect remains of Neerabup National Park.*

Response: These are issues that can only be dealt with at macro level by Department of Environmental Protection. It is beyond the scope of the CER.

Appendix 3

System 6 Recommendations Relevant to Recommendation M6.1

SYSTEM SIX RECOMMENDATIONS RELEVANT TO RECOMMENDATION M6.1

5.3 Regional Parks

The concept of Regional Open Space introduced to Western Australia by Stephenson and Hepburn in 1955¹⁸ was intended to provide for the protection of open space of regional significance. They gave as examples:

- i) ocean beaches
- ii) rivers and their foreshores
- iii) areas of landscape value
- iv) picnic areas, camping rounds, tourist cabin areas etc.
- v) nature reservations
- vi) central parks (e.g. Kings Park, Bold Park)
- vii) zoological gardens
- viii) motor parkways (i.e. scenic drive areas)
- ix) open country

Planning procedures such as those discussed in Chapter 4 tend to produce concentrations or nodes of open space in the more attractive areas, often connecting along such linear natural features as rivers, foreshores and beaches. The concept clearly involves private as well as public land, with National Parks often forming the core of the major concentrations of open space of regional significance (Figure 1).

There is, of course, a definitional problem of when open space is regional in character, as distinct from a local amenity. If regional, in the sense of attracting users from beyond the locality, then there is a case for external funding, whether through direct government grant or by some form of regional rating system. Whatever the means of funding adopted, there are administrative advantages in the clear recognition of the areas to which they are appropriate and applicable.

Recommendation

15. Areas identified through planning procedures as open space of regional significance should, where appropriate, be designated as Regional Parks.

5.4 Coordination of Management

Management of the system of regional open space involves both conservation and provision for public access, it requires the coordination of the activities of the government agencies and other holders of land affected, and it may call for technical advice and financial assistance to owners and managing agencies which require them. If it affects privately owned land, and our earlier Recommendation 14 suggests that it should, then it implies constraints on development or incentives to ensure compatible management. It could also involve negotiation to provide managed access to private land or provision for passage through it. This is not so revolutionary as it may seem, since the public will inevitably attempt to reach attractive features, especially if in rural areas. Managed access, directed to where it will do least harm, would thus be in the interests of owners as well as the public. Again, there may be a case for financial compensation or assistance to owners in return for the acceptance of constraints or for maintenance made necessary by public use of the land.

There will be thus a variety of tenure, ownership and management agencies in a Regional Park with, in most cases, a substantial proportion of publicly owned land, some of it presently classified as National Park or recreation reserve. It will be necessary to define management objectives for each Regional Park and its component parts, designated for differing primary purposes, taking account of its role in relation to others; leading then to the identification of the most suitable managing agencies for each component, and a recognition of the need for coordination of their activities.

There would appear to be advantages in giving these functions to a body with appropriate expertise and experience on the ground. The National Parks Authority, with its capability in the management of natural areas while permitting use and enjoyment by the public, is immediately indicated.

Recommendation

16. The National Parks Authority should be given the responsibility for coordinating the planning and management of areas identified as Regional Parks, and for the following functions:
 - i) the provision of technical and other advice to managing agencies and owners;
 - ii) an examination of the present funding and coordination of development programmes.

These changes to the role of the National Parks Authority may require some legislative changes.

Appendix 4

Advice from the National Parks and Nature Conservation Authority

ADVICE FROM THE NATIONAL PARKS AND
NATURE CONSERVATION AUTHORITY



National Parks and
Nature Conservation Authority

FAXED
12/4/94

The Chairman
Environmental Protection Authority
8th Floor, Westralia Square
141 St George's Tce
PERTH WA 6000

OFFICE

Attention: Mr Ron Van Delft.

DEPARTMENT OF ENVIRONMENTAL PROTECTION	
14 APR 1994	
File No 1	166/93 Initials RVC
File	Initials

Dear Sir

Consultative Environmental Review - construction of Reservoir and Associated Pipework,
Water Supply Reserve 34537, within Neerabup National Park

Thank you for referring this Consultative Environmental Review document to this Authority for comment. The proposed project impinges on part of the Neerabup National Park. As the vesting body for this Park the following comments on the proposal are offered:

INTRODUCTION

The National Parks and Nature Conservation Authority (NPNCA) considers that this proposal alone will have minimal environmental impact upon the Neerabup National Park. We do offer some comments on additional safeguards that the proponent should undertake.

While it is acknowledged that the Water Authority of WA (WAWA) is more open with its major services planning - a general concern is that town planning statutory plans don't extend to the location proposals for major utility service distribution systems. In particular, little is known publicly about electricity, gas, sewerage and telecommunication main facility proposals relating to the Neerabup National Park. Along with road and freeway corridors, the collective impact of the total future developments is potentially high.

Accordingly the EPA should give serious consideration to suggesting the State Planning Commission co-ordinate a review of transport and public utility service corridors that exist and will be needed to service future urban and industrial development in this sector of the North-West Corridor - and which will impact upon this National Park.

PHYTOPHTHORA DIEBACK

(Sections 6.3, 6.6.1, 6.6.3 and 6.6.4 refers.)

The term 'jarrah dieback' is outdated. More appropriate terms used by The Department of Conservation and Land Management (CALM)/NPNCA are 'Phytophthora dieback' or 'dieback

disease'. There are seven Phytophthora species killing native flora species in Western Australia. In terms of overall conservation, the impact they are having on species other than jarrah is of the utmost concern to the community and to the State Government.

While the Neerabup area might be less susceptible to Phytophthora infection, it still needs to be guarded against. While WAWA controls are likely to be stringent in this regard during the construction phase of the Neerabup service reservoir project - it is inevitable that they will be relaxed over the many years thereafter at the location, especially if contract maintenance is used.

It is therefore important that a higher finished standard be imposed for service tracks. All final roads, tracks and vehicle parking areas within the Reservoir Site (including access to the sump) should be sealed to minimise soil transport. Similarly, the short section of Pipeline Corridor service road within the national park and approaches should be sealed.

LINES OF SIGHT

(Section 6.6.1 and 6.6.2 refers.)

It is strongly supported that serious consideration should be given to breaking lines of sight along permanent access roads developed for this project.

POWERLINES AND OTHER SERVICES

(Section 6.4 refers.)

It is strongly supported that powerlines for operating the Service reservoir be located underground through the National Park. Similarly, construction water services, telecommunications and other services laid to the site should be located below ground.

VALVE AND METERING PITS

(Section 6.5 refers.)

These facilities should not be left exposed for native fauna to become entrapped (e.g. reptiles). Covers appear to be both less obtrusive and more secure than fenced surrounds. If fenced, the system should be supplemented with fine mesh.

SOURCE OF EARTH MATERIAL

(Section 7.3 refers.)

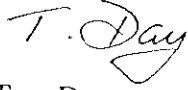
The source of earth embankment material imports is not given. Such material should not be obtained from the National Park, nor any waste material disposed of within the National Park.

QUINNS BOREFIELD

The precise location of the borefield is not given. It is presumed that the pipeline corridor will intersect a borefield main originating from a more distant location. If the borefield is in

close proximity to the National Park, the impacts of the WAWA borefield management and extraction rates need to be publicly assessed.

Yours sincerely

A handwritten signature in cursive script that reads "T. Day". The signature is written in dark ink and is positioned above the typed name.

Tom Day
ACTING CHAIRMAN

12-4-94

JG.