

**Ten Mile Brook reservoir  
Margaret River town water supply**

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**Water Authority of Western Australia**

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

**Environmental Protection Authority  
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## **Summary and recommendations**

The Water Authority of Western Australia has proposed to construct a new water supply for the town of Margaret River, based on a dam on Ten Mile Brook and pumpback from a site on the Margaret River. The sites are located within State Forest.

During public review of a Consultative Environmental Review on the proposal, the Environmental Protection Authority received submissions which questioned whether this proposal was the most suitable means of providing that supply, having regard to environmental as well as recreational and economic impacts.

The Water Authority has indicated to the Environmental Protection Authority that the rapid rate of population increase in the region, which would be expected to be supplied from this source, may bring forward future expansion of this proposed storage.

The Environmental Protection Authority believes that the proposal can be constructed without causing unacceptable environmental impacts, while at the same time providing opportunities for sympathetic community facilities to be developed to enhance the environmental and recreational values of the area. Further, it supports the construction of a source that is capable of supplying regional water supply requirements in an area that has many competing land uses, especially those related to conservation and landscape protection.

Where regional demand requires the development of additional water supply capacity, the Authority considers that, to the extent that that could be achieved by raising the dam wall height by up to 1 metre, there would be no unacceptable environmental impacts and that any statement giving approval for this proposal should allow for such modification.

### **Recommendation 1**

**The Environmental Protection Authority concludes that the proposal to construct a water supply storage on Ten Mile Brooks and a pumpback from the Margaret River, as modified during the process of interaction between the proponent, the Environmental Protection Authority, the public and government agencies that were consulted, is environmentally acceptable.**

**In reaching this conclusion, the Authority identified the main environmental factors requiring detailed consideration as:**

- **the evaluation of alternative means of supplying the water;**
- **impact on existing recreational and conservation values of Ten Mile Brook and Bramley Forest Block;**
- **location of services affected by the proposal.**

**The Environmental Protection Authority notes that these environmental factors have been addressed adequately by environmental management commitments given by the proponent. Accordingly, the Environmental Protection Authority recommends that the proposal could proceed subject to the proponents commitments to environmental management (Appendix 1)**

## **Recommendation 2**

**The Environmental Protection Authority recommends that the land that is to be purchased to compensate for the area within Bramley Forest Block that would be affected by this proposal should be selected on the basis of it possessing equivalent environmental values, should relate to the Leeuwin-Naturaliste area and should be reserved and managed to protect those values, to the satisfaction of the Minister for the Environment upon the advice of the Environmental Protection Authority and the Department of Conservation and Land Management.**

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# 1. Introduction

The town of Margaret River is currently supplied by a reticulated water supply from a concrete pipehead dam located on the Margaret River, immediately upstream of the town. The Water Authority of Western Australia has been investigating options to either supplement or replace the existing water supply to the town of Margaret River for a number of years. This need has arisen as a consequence of a number of factors, including the continuing growth of the town demand near the safe supply capacity of the pipehead dam and potential water quality concerns, mainly related to high colour levels. After reviewing alternative sources, the Water Authority has proposed that a new dam be constructed on Ten Mile Brook, a tributary of the Margaret River (Figure 1).

Following referral of the proposal by the Water Authority, the Environmental Protection Authority determined that the proposal should be subject to formal environmental impact assessment as a Consultative Environmental Review (CER). The CER was made available for comment for a period of four weeks, ending on 26 April 1990. During this period, six submissions were received. The Water Authority undertook discussions with a number of groups which made submissions and then prepared its response to the issues raised during the public review period. This is addressed further in Section 3 and Appendices 2 and 3 of this report.

Following the public review period, the Water Authority was approached by consultants to a proposed residential-resort development at Prevelly Park, located on the coast west of Margaret River. This development could significantly increase the water supply demand from the Ten Mile Brook Dam. As a consequence the Water Authority has indicated that it may need to construct the dam with a larger initial capacity, if that development is approved prior to detailed design. Both the Department of Conservation and Land Management and the Shire of Augusta-Margaret River were advised of the revised proposal and their views sought as to whether this change would be considered to raise additional issues or change the nature of those issues previously identified. Their responses have been incorporated in this assessment.

## 2. Proposal

Ten Mile Brook, a tributary of the Margaret River and located approximately four kilometres upstream from the town of Margaret River, has been identified as a potential water supply storage by the Water Authority to meet the long term requirements of the local region. Although the Brook itself has insufficient flow to satisfy that requirement, the Water Authority has proposed that water also be drawn from the Margaret River during winter flows and stored in the dam. Almost the entire catchment of Ten Mile Brook is contained within the Bramley Forest Block, part of State Forest.

The proposal outlined in the CER includes the following major elements:

- a 17 metre high homogeneous earth fill embankment;
- an embankment crest length of approximately 190 metres;
- a capacity at full supply level (87 metres AHD) of approximately 1,500,000 cubic metres;
- a surface area at full supply level of approximately 28 ha;

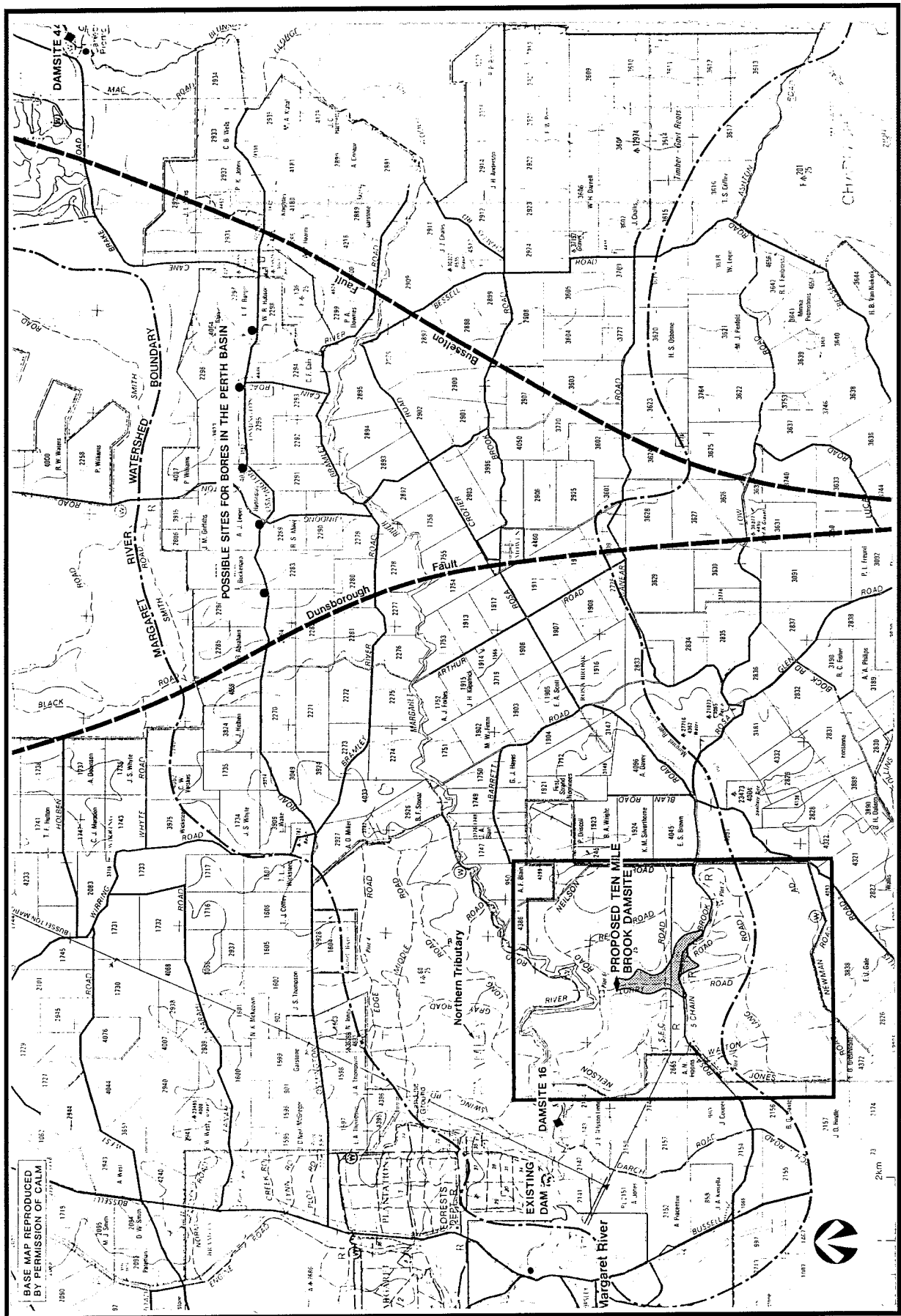


Figure 1: Location of Ten Mile Brook Dam (from CER)

- a pump offtake within the Margaret River and pipeline to the dam located along existing tracks;
- relocation of Rosa Brook Road close to the limit of the Brook's catchment; and
- possible relocation of Telecom and SECWA lines along the new Rosa Brook alignment.

As part of the development of the dam, dieback and erosion control strategies would be established and recreational amenities provided.

In its response to comments made on the CER, the Water Authority advised the Authority that it intended to construct the dam with a full supply level at 88 metres AHD, with consequential increases in the height, length and volume of the embankment and larger surface area (Appendix 2). This change would lead to approximately 32 hectares of Bramley Forest Block being cleared for the dam and spillway and a total of 40 hectares affected by the project. The CER had indicated that future expansion of the dam proposed at the time might occur in the future.

This change has since been clarified by the Water Authority, which has advised that it would expect to build the dam as described in the CER unless the proposed residential development near Prevelly Park had been approved prior to the dams design being initiated (Appendix 3).

Other changes to the proposal outlined in the CER which followed consideration of points raised during the public consultation process included:

- the SECWA powerline would not need to be relocated but its ground clearance raised; and
- the realignment of Rosa Brook Road would be reviewed with the Department of Conservation and Land Management to minimise the loss of scenic attraction of the new route.

### 3. Public review

A total of 6 submissions were received during the four week public review period. These were received from the following people and organisations;

Shire of Augusta-Margaret River	
Department of Conservation and Land Management	
B James	Margaret River
Leeuwin Conservation Group	
J Monaghan	Margaret River
Busselton Naturalists Club	

A summary of the issues is provided in Appendix 1 of this report, while the Water Authority's response to each of the listed issues is Appendix 2.

The principal areas of concern raised in submissions related to the following topics:

- potential conflict of the proposed dam, and particularly management restrictions in its catchment, with the acknowledged recreational potential of Bramley Forest Block;
- the adequacy of the evaluation of alternative water supply sources, especially groundwater development, by the Water Authority;
- future management of the Margaret River catchment;
- loss of scenic amenity through the relocation of Rosa Brook Road through poor quality forest; and



- loss of habitat as a consequence of clearing and inundation of Ten Mile Brook's vegetation.

Following advice from the Water Authority that the proposal had been altered to increase the dam's capacity, the Authority sought comment from the Shire of Augusta-Margaret River and the Department of Conservation and Land Management on whether this change raised additional issues or changed the nature of those already raised. Both have indicated that their earlier views, and acceptance of the project, have not altered.

## **4. Environmental impact and management**

The Water Authority has requested that the Authority consider approval of the proposal on the following basis:

- (i) approval for construction of the dam on Ten Mile Brook as proposed in the CER, and
- (ii) approval for construction of the dam on Ten Mile Brook to a level one metre higher than proposed in the CER only if the Eaglescliff development at Prevelly Park has been approved and has commenced prior to the start on detailed design of the dam.

In undertaking this assessment, the Authority has identified the main environmental factors requiring detailed consideration as follows:

- the evaluation of alternative means of supplying the water;
- impact on existing recreational and conservation values of Ten Mile Brook and Bramley Forest Block;
- relocation of existing services affected by the proposal.

### **4.1 Alternatives to the proposal**

The CER provided an outline of the alternative options that were examined to meet the identified primary objective, an improved water supply to Margaret River. A secondary objective is the supply of other communities, such as Cowaramup, Prevelly Park and Gracetown. Based on a comparison that dealt mainly with economic, social and management factors, the preferred alternative was a new source on Ten Mile Brook.

All submissions on the CER raised questions about the adequacy of the investigation by the Water Authority of alternatives to a dam on Ten Mile Brook. In particular, the cursory evaluation of the use of Perth Basin groundwater sources presented in the CER was not considered by several submissions to present a comprehensive assessment. One submission suggested that the Margaret River community would be prepared to pay a capital contribution to the construction of such a scheme. Another alternative preferred in some submissions was a reservoir on an already cleared catchment.

In its response to submission issues, the Water Authority has presented fuller economic evaluation of the Ten Mile Brook Dam and Perth Basin groundwater alternatives. It is clear that the former is significantly less expensive to construct and operate. Further, the CER indicates that the Perth Basin groundwater option would be more expensive than raising the existing Margaret River dam or constructing new dams on the River or another tributary in Bramley Forest Block. Further information has been provided on the reasons for not selecting a cleared

site (Appendix 3). These relate to engineering and management difficulties as well as additional development costs.

The Authority believes that, while the information presented in the CER was brief with regard to alternative water supply sources, this was not a reflection of the level of evaluation that had been undertaken by the Water Authority. The more detailed analysis presented in Appendix 3 provides a more comprehensive comparison basis.

This proposal is intended to develop a water source that could provide a reticulated supply to other towns in the region, such as Prevelly, Gracetown and Cowaramup. The Authority has previously reported on a proposal by the Water Authority to provide water to Gracetown from a dam on Ellen Brook (EPA, 1987). In that report, the Authority noted that the Water Authority's review at that time had concluded that the only potential sources available to supply Gracetown and which had acceptable water quality and supply reliability were Ellen Brook and Margaret River. The Authority did not recommend adoption of the proposal to construct a dam on Ellen Brook for reasons associated with the intrusion into the significant values of the Leeuwin-Naturaliste National Park as well as the presence of rare fauna and poor stream flow reliability. Two relevant comments in the Authority's report related to the need for the Water Authority to:

- examine new approaches to water supply for communities such as Gracetown where there are constraints on the traditional provision of water; and
- recognise regional aspects of water supply strategies.

The Authority notes the preference given in several submissions towards the development of a groundwater source rather than the proposed dam on Ten Mile Brook. Whether the local community would be prepared to pay additional charges for such a source is not an issue that the Authority needs to comment on. It is apparent from the information provide by the Water Authority that the additional cost of such a scheme would be relatively substantial. The Authority is of the view that groundwater schemes can also have environmental impacts but recognises that that would be an issue to be addressed should this proposal not be environmentally acceptable.

## **4.2 Bramley forest block**

Bramley Forest Block is managed by the Department of Conservation and Land Management as part of the State Forest estate (CALM, 1987). Included within the Block is a large area of softwood plantation in the north west corner and a smaller plot near the proposed dam site. According to the CER, much of the remainder of the Block has been subject to logging and the forest in the upper portion of the dam site is regrowth after having been cleared during the 1930's.

The Leeuwin-Naturaliste Region Plan - Stage Two Report provides an important planing context to the proposal (SPC, 1988). In relation to water resources planning, development and management, the plan listed "Establishing the most efficient and equitable supply of Water to Gracetown, Margaret River, Prevelly Park and Cowaramup" as one of the issues to be considered.

With regard to Planning Area No. 1 of the Study area, which includes the Bramley Forest Block and Margaret River, the Study contained the following strategies:

- "Promote the village character of Margaret River by identifying the features that are essential to the town's character and developing guidelines and controls to ensure the protection and enhancement of that character."
- "Develop the recreation potential of Bramley Forest Block as an important component of the Margaret River town character, amenity and attraction."
- "Manage the Bramley Forest Block to maintain its scenic and natural values around Margaret River townsite."
- "Identify and protect natural systems and enhance opportunities for passive recreation purposes."
- "Promote where appropriate, the scenic quality of roads through forest areas."
- "Secure the banks of the Margaret River in public ownership and establish walkway and cycleway trails where appropriate along the river with vehicle access being restricted to a few strategic locations." and
- "Provide Prevelly and Gracetown townsites with a reticulated water supply from a source or sources which are consistent with the long-term interest of water resource conservation within the study area."

The plan makes clear the importance of the Block to the quality and character of Margaret River and indicates a clear preference for the Block to be managed to reflect its important local recreational values. These values are recognised by the Water Authority and proposals to enhance them are suggested in the CER.

Several public submissions strongly emphasised the need to retain Bramley Forest Block intact if the recreational values were to be protected. The Water Authority has pointed out that the portion of the Forest Block directly affected by the proposal would be less than one per cent of its total area.

Both the Shire and the Department of Conservation and Land Management have indicated their desire to be involved in the development of recreational facilities resulting from opportunities presented by this proposal.

The Authority considers that a dam of the scale proposed by the Water Authority within an area of recreational value need not adversely affect those values and may enhance them. While some restrictions on certain activities may apply, the Water Authority has indicated a commitment to enhance and add to existing recreational opportunities. Further, the Water Authority has made commitments with regard to the preparation of necessary management plans in consultation with the Shire and the Department of Conservation and Land Management.

### **4.3 Loss of habitat**

Not only does the Bramley Forest Block represent an important local recreational asset to Margaret River, but it is also a very attractive and diverse forest area. While portions may have been cleared previously, and the Forest Block has been subject to logging as well as the establishment of softwood plots, it provides a range of habitats which would support a rich variety of fauna and flora. The Bramley Forest Block is surrounded by private rural land, much

of which has been cleared and developed. Therefore, it is important that these conservation values are not lost as a consequence of this proposal and are fostered through the management of the Block.

Several submissions raised that possibility that the Bramley Forest Block contained rare fauna, such as the Chuditch (*Dasyurus geoffroii*), the gazetted rare frogs *Geocrinia alba* and *G. vitellina* as well as flora species such as *Hydrocotyle hirta*, *Loxocarya* sp. and *Dasypogon hookeri*. In addition, a submission suggested the site almost certainly contains populations of Red-eared Firetail Finch and Emu Wren, which are becoming uncommon due to habitat loss.

With regard to the flora and the birds, the Authority is aware from consideration of biological surveys undertaken for other proposals, such as near Manjimup, that these species are more widely distributed and more common than previously thought. With regard to the amphibians, the Water Authority has made a commitment to undertake fauna studies of the site. These studies should confirm the presence or absence of the *Geocrinia* sp within the reservoir basin during the detailed design phase of the development and prior to construction.

The Authority recognises that there would be loss of stream, fringing and some forest habitat resulting from this proposal. However, significant portions of those habitats will remain within the Block and are also present in the region, on Crown land as well as private property along the Margaret River and Blackwood River, including the proposed Blackwood River Conservation Park

Further, the development of this regional source will mean that other areas which might have been developed to supply individual schemes to other communities would not be needed. This has benefits in reducing the cumulative impacts arising from a series of small sources.

Therefore the Authority accepts that the loss of the 40 hectare of habitat directly affected by this proposal would not lead to unacceptable environmental impact.

#### **4.4 Location of services**

As a portion of the Rosa Brook Road would be inundated by the dam, the Water Authority proposed that the road be constructed close to the boundary of the Ten Mile Brook catchment, partly as a management objective. Concern has been raised about the replacement of the existing scenic route with one that passes through extensive poor quality forest. This concern is supported by the Authority.

The Water Authority has indicated in Appendix 3 that it will review new alignments to minimise the loss of scenic amenity This is supported by the Authority.

Location and construction of the pumpback facility, including pipeline and powerline, should be undertaken to minimise vegetation loss as well as visual impact. In particular, consideration should be given to placing the powerline to the pumpback pump station underground. If an above ground line is necessary, the Water Authority should ensure that vegetation clearances along the powerline are limited, perhaps to individual trees. In view of the nature of the proposed pumpback arrangement, some interruption to power supply to the pumpback station may be acceptable should the powerline be damaged.

## **4.5 Future management of the catchment**

Two water supply catchments are involved with this proposal, Ten Mile Brook and Margaret River. Some concern was indicated in several submissions about the suggestion in the CER that some form of catchment management would be required in the longer term for the Margaret River. On the one hand, this was seen as possibly leading to restrictions on activities in the catchment. Another submission suggested that the Water Authority should be more pro-active in controlling some activities in the catchment, particularly those related to chemicals.

The Water Authority has clarified its intentions in regard to catchment management in Appendix 2, indicating that normal safe farming practices would be acceptable.

Whether or not the catchment has a potable water supply, it is a responsibility of all land owners and land users to ensure that their activities are safe. Further, off site impacts arising from those activities should not lead to deleterious effects on other users, including the environment.

## **4.6 Future development of the reservoir**

As mentioned at the beginning of this section, the Water Authority has requested that the Authority also consider giving approval to a dam that would be up to one metre higher than that proposed in the CER.

The Authority considers that the additional capacity of the dam would not increase the number of environmental issues resulting from the proposal, although it clearly leads to changes in the scale of several of them, especially loss of ecosystem as a consequence of the loss of an additional 4 ha of forest.

The Authority would expect the Water Authority to make the judgement on when the reservoir needed to be raised based on reasonable demand expectations. Should regional demand require the development of additional water supply capacity from this source, the Authority considers that, to the extent that that could be achieved by raising the dam wall height by up to 1 metre, there would be no unacceptable environmental impacts and that any statement giving approval for this proposal should allow for such modification.

## **4.7 Land compensation for the reservoir area**

The Water Authority has made a commitment to provide an area of land to CALM to compensate for the clearing and inundation of portion of Bramley Forest Block. The selection of the private land will be made by CALM.

The Authority is of the view that the land selected by CALM should relate to the Leeuwin-Naturaliste area, should be close to if not immediately adjacent to Margaret River, should possess natural attributes similar to those that would be affected by this proposal, and should be managed to protect those attributes. It would clearly be preferable for this land to be contiguous to a portion of Crown land managed to protect environmental values.

## **Recommendation 1**

**The Environmental Protection Authority concludes that the proposal to construct a water supply storage on Ten Mile Brooks and a pumpback from the Margaret River, as modified during the process of interaction between the proponent, the Environmental Protection Authority, the public and government agencies that were consulted, is environmentally acceptable.**

**In reaching this conclusion, the Authority identified the main environmental factors requiring detailed consideration as:**

- **the evaluation of alternative means of supplying the water;**
- **impact on existing recreational and conservation values of Ten Mile Brook and Bramley Forest Block;**
- **location of services affected by the proposal.**

**The Environmental Protection Authority notes that these environmental factors have been addressed adequately by environmental management commitments given by the proponent. Accordingly, the Environmental Protection Authority recommends that the proposal could proceed subject to the proponents commitments to environmental management (Appendix 1)**

## **Recommendation 2**

**The Environmental Protection Authority recommends that the land that is to be purchased to compensate for the area within Bramley Forest Block that would be affected by this proposal should be selected on the basis of it possessing equivalent environmental values, should relate to the Leeuwin-Naturaliste area and should be reserved and managed to protect those values, to the satisfaction of the Minister for the Environment upon the advice of the Environmental Protection Authority and the Department of Conservation and Land Management.**

## **5. Conclusion**

The Authority has evaluated a proposal by the Water Authority to construct a water supply dam on Ten Mile Brook and associated pumpback scheme, near Margaret River. This would become the source of water to the town and provide the opportunity to supply other nearby towns such as Prevelly Park, Cowaramup and Gracetown.

While there are environmental and recreational values associated with the Bramley Forest Block, within which Ten Mile Brook is located, the Authority considers that the proposal is environmental acceptable. The Water Authority has undertaken to prepare appropriate management plans in consultation with both the Shire of Augusta-Margaret River and the Department of Conservation and Land Management.

When there is a requirement due to increased water demand to raise the dam, the Authority considers that this can be undertaken without significantly altering the environmental values associated with the site.

## **6. References**

EPA (1987). Gracetown Water Supply - Report and recommendations of the Environmental Protection Authority. Bulletin 288

State Planning Commission (1988). Leeuwin-Naturaliste Region Plan - Stage 2

# **Appendix 1**

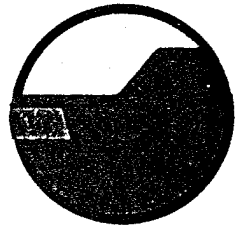
## **Commitments made by the Water Authority**



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ATTENTION: Rod Burton

**MARGARET RIVER TOWN WATER SUPPLY**

Yours of 23 July 1990 refers. The matters covered in your letter are now acceptable to the Department of Conservation and Land Management, with one minor addition.

SEC Powerline:

The need for restricting access along the line also needs to be recognised.

I have copied both your letter and my response to the Environmental Protection Authority (Attention: Colin Murray).

*Frank Batini*  
.....  
for Syd Shea  
EXECUTIVE DIRECTOR

6 August 1990

The following issues were raised in submissions received by the Authority.

### **Alternatives**

1. There is little doubt of the urgent need for a new water supply source for Margaret River and other towns.
2. CALM does not support the construction of a reservoir in Bramley Forest Block. CALM would prefer the reservoir to be situated on already cleared land and, if necessary, water treatment or catchment reforestation undertaken.
3. If land is not available, restrictions on agricultural use of the catchment may be required. Perhaps tree planting arrangements could be negotiated.
4. The proposal put forward by the WAWA is the cheapest. Today we cannot afford to confuse cheapness with low cost.
5. While the need to upgrade the present Margaret River water supply is acknowledged, this proposal is not supported due to unacceptable environmental effects. A viable long term alternative exists which will overcome the present water supply problems and have acceptable effects on the environment; groundwater from the Perth Basin.
6. A new supply for Margaret River should be drawn from groundwater resource in the Perth Basin. Although establishment costs are higher, they are comparable should water from the storage dam need treatment to maintain quality. Groundwater supplies carry a low pollution risk and future demands are more assured of being met. Environmental damage is far less and more acceptable when compared to the dam option.
7. The groundwater option should be re-evaluated and reported back to the EPA and the community. Such a proposal would be supported.
8. No details of water quality and quantities available from the borefield option were given in the CER nor whether any test holes in the area had been assessed in detail.
9. A thorough assessment of using already cleared farmland for a dam was not carried out because of apparent water quality and management problems. The potential to use cleared land and tree plantation programmes to counteract water quality problems and to add to the State's wood resource has not been carried out.
10. The omission of annual operating costs for each possible option is unfortunate, as they may have assisted in deciding which option is to be preferred.
11. Details of the reasons for not preferring the Perth Basin groundwater option are not given.
12. The groundwater option can be readily expanded in future with little or no additional environmental impacts.
13. To fund the groundwater scheme to Margaret River may require substantially increased water rates and possibly a once-only levy on each service. However, this may be preferred to the loss of this area of forest for a dam.

### **Proposed development implications**

14. The CER provides no details of the proposal's impact on upstream land uses, recreation pursuits in the vicinity of the reservoir, except downstream of the wall, and public access generally to the forest are itself.

15. The Leeuwin-Naturaliste Study points to the need to manage the Bramley Forest Block to maintain its scenic and natural values around Margaret River and develop the recreation potential of the Block as an important component of the Margaret River town character, amenity and attraction. The Ten Mile Brook proposal will impact on the availability of the area for recreation purposes considerably. A management plan for the forest area that indicates public access areas, recreation opportunities and proposal for areas other than downstream of the dam wall and areas off-limits to public access should be part of the CER.
16. The CER should contain an analysis of the existing and potential recreation use of the project area and endeavour to determine the cost to the local community over the long term, that the loss of this resource represents. The CER should discuss ways in which this loss can be offset by recreation provision in other areas in close proximity to Margaret River.
17. The proposed pipeline easement crosses future residential areas within which the developer is examining proposals to relocate the SECWA power line to a more satisfactory alignment.
18. The preferred option of damming Ten Mile Brook has been selected primarily on economic grounds. However, the cost to the community of losing 40 hectares of Bramley Forest Block appears not to have been considered. If so, the preferred option may not be the most suitable or least costly to the State. The method of costing requires examination.
19. If Bramley Forest Block is to be the site, CALM would require:
  - adequate compensation for loss of estate, including addition of appropriate land to the CALM estate; and
  - ensure the reservoir and associated facilities are constructed and managed to cause minimum impact and where possible enhance management, of Bramley Forest Block.
20. CALM would prefer all pipelines to be underground and appropriate soil conservation measures to be taken along pipeline and powerline easements.
21. All service should be confined to a single easement, to follow the new Rosa Brook Road alignment, with power to the dam via the pipeline/road alignment., to minimise clearing, improving dieback hygiene and facilitating forest management. Existing easements could be then be rehabilitated. Alignments must be chosen in consultation with CALM.
22. The construction workshop and maintenance area should be located below full supply level.
23. Recreation development downstream of the dam should be planned jointly by WAWA, CALM, and the Shire of Augusta-Margaret River, with development and management funding provided by WAWA.
24. All merchantable timber must be removed prior to clearing and this can be undertaken as part of normal logging operations. There is about 500 tonnes of Marri chipwood within the area, and these may need to be cut and stockpiled for later removal at WAWA expense.
25. As the majority of Ten Mile Brook catchment is State Forest, a joint management plan will have to be prepared by WAWA and CALM, and given legal status under the CALM Act. The plan would have to be funded by WAWA.
26. Should we not be halting the continuing trend of habitat loss and indeed reversing it rather than allowing public agencies to accelerate it?

27. The community will be deprived of one very scenic road and given instead a road which will have very little scenic value, passing through degraded forest. Loss of scenic routes receives no consideration in the CER. This road is the only scenic road leading to the east of the town.
28. Clearing of 40 hectares of forest is the cause for considerable concern.
29. The CER emphasises that the project site is not in pristine condition. However, the area is an excellent representation of an unpolluted creek and catchment system. Few of these remain in the Shire and their retention becomes imperative.
30. Although previously logged, the vegetation in the project area is of high quality encompassing Karri high forest, Jarrah open forest and sedge lands.
31. Dieback will be aggravated by this proposal.
32. The continuing loss of native vegetation on private land places greater importance on our remaining State Forest blocks and their preservation assumes greater importance.
33. The dam will form a barrier, disrupting fauna movement.
34. The statement that "No field surveys for fauna were undertaken" creates extreme concern and one must ask why no study. A complete fauna study must be completed before approvals are given. The very likely presence of the Chuditch (*Dasyurus geoffroii*) in this favourable habitat, should make a fauna survey compulsory. Suitable habitat for this gazetted rare species is disappearing at a rapid pace and thus habitat retention is a high priority. The site almost certainly contains populations of Red-eared Firetail Finch and Emu Wren, which are becoming uncommon due to habitat loss. The gazetted rare frogs *Geocrinia alba* and *G. vitellina* are likely to inhabit the sedgeland and creek systems within the project area.
35. While the loss of habitat for species is not great, it is considerable in a regional context.
36. Dieback disease spread in this forest block is of great concern. CALM's dieback management practices have met with mixed results and given no cause for optimism. Dieback control as proposed will not overcome problems caused by large scale soil disturbance and associated activities. Summit tank construction, pipeline alignment, power line construction and road alignment will exacerbate dieback spread, causing detrimental long term effects.
37. An earlier airport proposal for Bramley Forest Block was abandoned and subsequent studies concluded that this forest block was of high conservation and recreation value. These values would be diminished by the dam.
38. Future pollution of this storage dam from agricultural practices in the Margaret River catchment is a disadvantage that must be closely looked at. With increased chemical use in the catchment, treatment will become necessary, thus increasing overall project costs.
39. The forest areas in Bramley Forest Block are as yet under-utilised in a recreation sense but are of growing importance. The area is used by campers, bushwalkers, cyclists (a new cycle route passes through the dam site) and horse riders. The clearing of a 5 per cent of the forest block, exclusion of the public from further areas and the possible loss of additional forest if the dam is raised unnecessarily prejudices the future of an important asset in the district.
40. No economic cost of the loss of timber and timber products and future forest potential from the area has been made.

41. Flora species such as *Hydrocotyle hirta*, *Loxocarya* sp. and *Dasypogon hookeri* may not be gazetted as rare but it is possible that they are rare or geographically restricted. The survey only investigated a sample of the site. This proposal may have a significant impact on the State's flora.
42. As no fauna survey was undertaken, and riparian vegetation is important as a habitat, there is no evidence that this project would not constitute a serious impact on the State's fauna.
43. The rehabilitation of 6 hectares of existing cleared land would take 100 years or more to produce a forest of equivalent ecological value as that which would be cleared for the dam.
44. This proposal will provide a life of between 23 and 28 years (based on CER growth rates of 5.9% and 7.2%) before a further additional water supply will be needed. This is therefore a short-term solution.

### **Catchment management**

45. The CER states the the WAWA will prepare a catchment management plan for the Margaret River and Ten Mile Brook catchments with a view to the protection of the water quality. The plan will examine the impact on farming operations (including clearing) on turbidity, the use of chemicals for agriculture (pesticides, fertilisers etc) and the optimisation of land management practices. In view of the unknown recommendations or conclusions of this management plan, it is difficult to draw conclusions on the Ten Mile Brook proposals itself.
46. There are possible costs to the community of the proposal that the CER has not adequately defined. The most important of these is the long term use of the upper Margate River catchment.
47. The WAWA does not appear to be taking and positive steps to protect the water quality of the Margaret River, rather it is assuming that the water quality will deteriorate further, and that this is justification for their preferred option. Should not the WAWA be more active in water resource management and hygienic practices?

## **Appendix 3**

**Response by the Water Authority to issues**





5  
WATER  
AUTHORITY  
of Western Australia

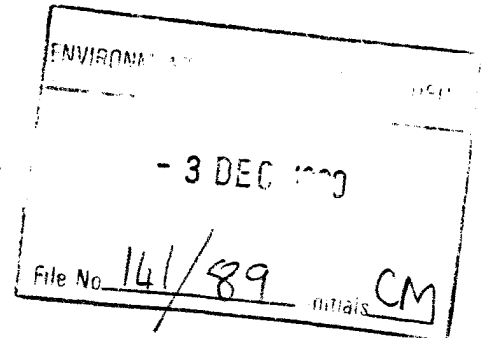
Your Ref  
Our Ref  
Enquiries  
Tele Direct

141/89  
A22571  
Mr W.F.Combs  
420 2942

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Chairman  
Environmental Protection Authority  
1 Mount Street  
PERTH WA 6000

Attention: Mr C.Murray



MARGARET RIVER WATER SUPPLY - PROPOSED WATER SUPPLY  
RESERVOIR - PUBLIC COMMENTS ON CER

I refer to your letter of May 23, concerning submissions on the Consultative Environmental Review. As requested, a response to the list of issues accompanying your letter has been prepared and is attached.

To facilitate the evaluation of this project, meetings were arranged with the Augusta-Margaret River Shire and representatives of CALM, to discuss the issues raised in their submissions on the CER. Copies of letters to the Shire and CALM confirming these discussions, together with their responses are attached. The Shire and CALM are now satisfied that the project is acceptable provided certain conditions are met. The Water Authority is prepared to fulfil these conditions, including the Shire's request to use of the existing dam for oval watering and water based recreation.

A further query that has been raised on the CER relates to the location of the pumpback pipeline in the vicinity of the Margaret River. Figure 2 (Project Detail) of the CER is not accurate where it shows the first 400 metres of the pumpback pipeline located between the existing track (Neilson Road) and the river. This pipe would in fact follow alongside the existing track, except for the short length from the pumpback pump station to Neilson Road.

Subsequent to the discussions with the Shire and CALM, the Water Authority has been approached by G.B.Hill and Partners who have sought advice on the supply of water for a residential-resort development at Prevelly. The size of the Ten Mile Brook Dam proposed in the CER is adequate to supply the urban demand generated by this development. However, it could not supply the annual demand of 250,000 cubic metres

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for irrigating a golf course included in the proposal without some effect on the capacity of the dam to meet future growth. Unfortunately this type of development could not be anticipated in previous water supply planning studies.

Water for the golf course could be obtained from a separate scheme from the Perth Basin. However it would be cheaper for the developer and the Water Authority to supply the demand from the proposed Ten Mile Brook Dam because of economy of scale and the shorter pipeline to Prevelly.

To supply the increased demands now being considered without affecting the capacity to supply future growth, the Ten Mile Brook Dam would be required to be 1 metre higher than proposed in the CER. This would increase the reservoir area at full supply level (FSL) to 31.5 hectares, compared to the 28 hectares stated in the CER. A very small increase (say nominally about 0.5 hectares) would also be required for the dam wall and spillway. This 4 hectare increase in the area of forest affected by the project is the only additional impact created by increasing the size of the scheme to cater for the proposed development at Prevelly. Although larger pipelines and pumping stations would also be required, these would not cause any additional impact on the environment.

Although investigation of the Prevelly development proposal is in the preliminary stages, and the golf course may not proceed, the Water Authority needs to be in a position to construct the larger dam on Ten Mile Brook if required. It is therefore requested that the EPA now undertake the evaluation of this project on the basis of a dam with full supply level at R.L. 88.



R.A. HARVEY  
MANAGER WATER RESOURCES PLANNING  
December 3, 1990

WATER AUTHORITY OF WESTERN AUSTRALIA

MARGARET RIVER TOWN WATER SUPPLY  
PROPOSED TEN MILE BROOK RESERVOIR

RESPONSE TO ISSUES RAISED IN SUBMISSIONS ON THE CER

ALTERNATIVES

1. Agreed.
2. As stated in the CER (page 13), an off-stream storage on land already cleared for agriculture would be prohibitively expensive, due to unfavourable topography, poor dam foundations and the need to acquire the entire catchment to protect the water quality from agricultural chemicals and turbidity. Water treatment, rather than catchment acquisition, would not improve the economics of this proposal.
3. Acquisition of the entire catchment was assumed to be required because restrictions on land use would probably prove to be socially unacceptable. While tree planting would help resolve turbidity problems in the water, it would not change the threat of pollution from agricultural chemicals.
4. Agreed. However, putting a cost on the value of the environmental and social impacts of the proposal is a subjective decision. It is the Water Authority's view that the increased financial cost of the other options far outweighs the intangible costs associated with the Ten Mile Brook scheme.
5. While they are both technically feasible and able to supply the demands at Margaret River in the long term, the economic viability of the groundwater option is seriously questioned in comparison to Ten Mile Brook.

Although it is only described briefly in the CER, the groundwater option has been investigated in some detail, to enable comparison with the various other proposals. As shown on Figure 1, the scheme would comprise a treatment plant and bores east of the Dunsborough Fault along Osmington Road. Water would be pumped from a treated water storage adjacent to the treatment plant through about 15 kilometres of 350 millimetre pipeline to a service tank in the town. Due to the lack of an elevated site for a summit tank, the

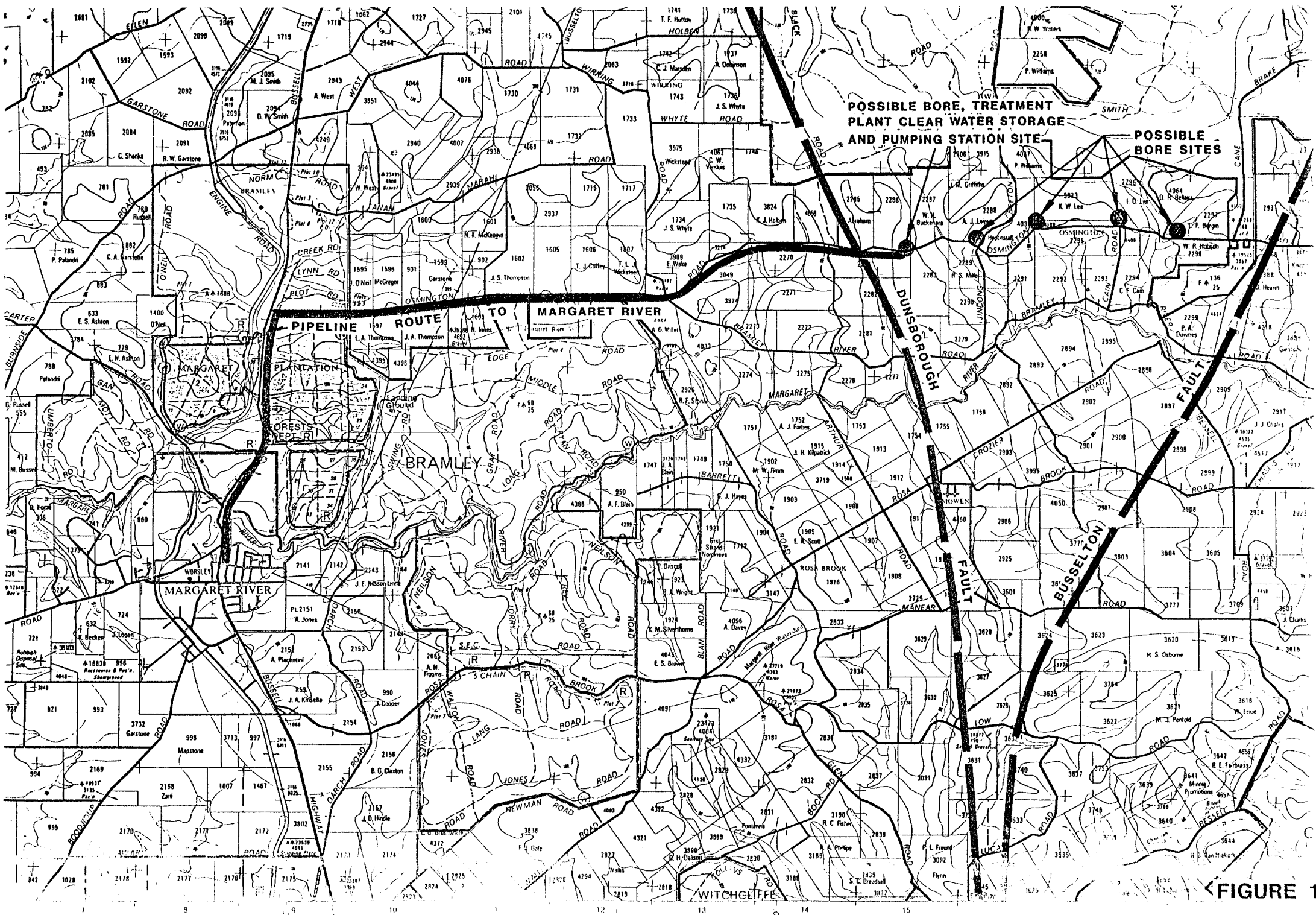


FIGURE 1

scheme would also require a high level service tank and pumping station. The total comparative cost of developing this scheme to meet the demands at Margaret River to the year 2015 is estimated to be \$9.37 million, made up as follows:

	Capital Cost (\$ million)	Present Worth
Drill 5 bores	0.39	0.26
Equip 5 bores	0.26	0.17
Power supply	0.26	0.20
Collector mains	0.91	0.55
Water treatment plant	1.40	1.02
Treated water storage	0.26	0.23
Land acquisition	0.09	0.07
Transfer pump station	0.63	0.41
Supply main	3.01	2.63
Service tank	0.40	0.35
High level tank	0.40	0.35
High level pumps	0.30	0.17
Sub-total	8.31	6.41
Add treatment plant operating costs		2.79
Add groundwater management costs		0.17

TOTAL COST OF PROPOSAL: \$9.37 million

By comparison, supply from a storage on Ten Mile Brook is estimated to cost \$4.6 million, made up as follows:

	Capital Cost (\$ million)	Present Worth
Dam on Ten Mile Brook	1.10	0.98
Notional cost of land	0.09	0.08
Rosa Brook Road realignment	0.40	0.36
Pumpback pipeline & pumps	0.52	0.46
Transfer pump station	0.40	0.34
Supply main	1.43	1.24
Summit tank	0.40	0.35
Raise SECWA power line	0.10	0.09
Relocate Telecom lines	0.30	0.27
Sub-total	4.74	4.17
Add pumpback operating costs		0.43

TOTAL COST OF PROPOSAL: \$4.60 million

These estimates show that there is a very substantial difference in the costs of the two proposals. The Water

Authority believes that significant environmental and/or social arguments would be required to justify adoption of the groundwater option.

6. The Water Authority believes that it is very unlikely that water from Ten Mile Brook will require treatment for colour and turbidity. On this basis, the Ten Mile Brook option would have a total cost of \$4,600,000 compared with \$9,370,000 for groundwater from the Perth Basin. At the worst, if treatment from the Ten Mile Brook Dam did prove to be required in say 20 years, the total comparative cost of this option would increase to \$6,600,000. This option still remains significantly cheaper (\$2,770,000) than the groundwater proposal.

It is naive to assume that groundwater resources carry any lower risk of pollution than surface water. There is no significant change in any contaminants as water percolates through the soil profile to the water table. An apparent advantage is that for many groundwater resources, there is substantial dilution of contaminants due to the the large volume of water in storage in the aquifers. While this dilution provides a time lag before a problem becomes serious, it also means that it takes a long time to reverse any contamination.

7. As explained in Item 11, cost is a significant factor in the selection of the preferred scheme. If the Ten Mile Brook proposal, and presumably the Northern Tributary scheme, are discarded for environmental and social reasons, raising the existing dam would become the least cost proposal. Adoption of the groundwater scheme would only occur if upgrading of the supply from the existing dam is shown to be environmentally or socially unacceptable.
8. There has been no test drilling in the immediate area that would be developed to supply Margaret River. From exploratory drilling elsewhere in the Perth Basin it is concluded that ample supplies are available without prejudicing other developments. The water quality would be good, except for iron and possibly manganese.
9. Topography unsuitable for dam construction, together with the need to maintain a satisfactory runoff water quality are the main factors against a dam on alienated land. To avoid the problems of runoff contaminated from agricultural activity, acquisition of the entire catchment would be necessary. While this catchment would be reforested for water quality management

reasons, its value in adding to the State's wood resource would be very small.

10. The estimates of cost in Table 2 of the CER are the net present value of costs associated with the development of the various options. These costs include differential operating costs of each of the schemes.
11. As set out on page 5 of the CER the main reason for preferring the Ten Mile Brook proposal ahead of the Perth Basin groundwater is cost. Like most country water supplies, the existing scheme at Margaret River operates at a loss, and the commissioning of a new source will increase this loss. The Water Authority is obliged to keep this loss to a minimum, to reduce the economic impact on its other customers.
12. Agreed, but this does not translate into a present day advantage sufficient to warrant selection of this scheme ahead of the Ten Mile Brook proposal.
13. Except in unusual circumstances, it has been Water Authority policy to retain a uniform scale of rates and charges in country schemes. More recently, the concept of a capital contribution (in cash or in kind) by scheme beneficiaries has been applied to schemes constructed under the Rural Water Strategy. If this approach was extended to Margaret River, and the local community was required to pay the additional cost of the groundwater scheme, a levy of about \$6,800 per service would be required. The Water Authority believes that such a levy would be unacceptable to the community at Margaret River.

#### PROPOSED DEVELOPMENT IMPLICATIONS

14. As stated in the CER (Section 5.12), the Ten Mile Brook would be a Class II catchment. Without pre-empting the development of a catchment management plan, low intensity recreation such as bush walking, nature study and cycling would be permitted upstream of the dam, except for specified exclusion zones around the shore line and close to the dam. Activities such as horse riding and the training or exercising of domestic animals would not be permitted upstream of the dam.
15. The Ten Mile Brook proposal will directly affect 40 hectares (slightly less than 1%) of the Bramley Forest Block. A further area of about 450 hectares (about 10% of the Bramley Forest Block) comprising the Ten Mile

Brook catchment area would be indirectly affected by being limited to low intensity recreation. This minor loss of recreational potential of the area would be more than offset by the development of some amenities in the area downstream of the dam and the opening up of the opportunity for recreational use of the existing town water supply reservoir.

16. As outlined in Item 15 above, the loss of recreation potential of the Bramley Forest Block is small. Determining the cost of this loss of potential to the local community is a subjective decision. In view of the small portion of the Bramley Forest Block affected, the Water Authority believes that this cost is insignificant compared with the water supply scheme development costs. It should also be recognised that traditionally, reservoirs of this type in close proximity to large centres of population have become foci of controlled public recreation. Examples are Canning Dam, Mundaring Weir, and Wellington Dam. All these have increased public use of the area, rather cause it to decline.

As set out in the CER, the loss of portion of the Bramley Forest Block would be offset by the development of some amenities in the area downstream of the dam. Further recreation potential would be provided with the opportunity to open up the existing water supply reservoir on the Margaret River for recreation, as discussed in the CER (Section 5.9)

17. The suggested pipeline route is conceptual only. The precise location of the proposed pipeline in future residential areas would be determined during the detailed investigation and design phase of the project.
18. As stated in the CER (page 5), cost is a major consideration in selection of the preferred alternative. The cost estimate for the Ten Mile Brook proposal includes a notional figure of \$86,000 in compensation to CALM for the area of State Forest required for the project. The cost to the community of losing this area is subjective. As stated above, the area of the Bramley Forest Block affected by the proposal is relatively small, therefore it is the Water Authority's view that the cost to the community would be small in comparison with the water supply scheme development costs.
19. The Water Authority agrees that some form of compensation to CALM is appropriate to reflect the loss

of forestry and conservation values caused by the project. To facilitate early resolution of this issue with CALM, the Water Authority has agreed that this compensation should be by way of a land transfer. The Water Authority has undertaken to acquire an area of land of similar value in the Margaret River region, for incorporation into the CALM estate.

The Water Authority recognises its responsibility to design, construct and operate the scheme in a way that will facilitate management of the Bramley Forest Block.

20. With the possible exception of short lengths of pipe immediately adjacent to pumping stations or tanks the proposed pipelines would be constructed below ground. The Water Authority recognises the importance of rehabilitating areas disturbed by construction activity to prevent soil erosion. (Sections 4.4, 4.6, 5.10 and 5.11 of the CER refer)
21. Since the CER was prepared, SECWA has advised that it is feasible and certainly the cheapest option to raise the existing power main where it crosses Ten Mile Brook. This proposal would maintain the status quo, so that relocation of the power line along the new Rosa Brook Road alignment is not an issue. Given the foregoing, a power main extension along the western shore of the proposed reservoir seems the logical option to get power to the dam. It is the shortest route and requires the least additional clearing. Final details of the extension would be established in consultation with CALM.
22. Agreed (Section 4.8 of the CER refers). Detailed investigation work (for borrow areas etc) will be required to confirm that this is possible.
23. The Water Authority agrees that recreational development downstream of the dam should be planned jointly with CALM and the Shire of Augusta-Margaret River (Sections 4.4 and 7.11 of the CER refer). The provision of these facilities can be funded by the Water Authority as part of the water supply development proposal. However, maintenance and on-going management of these facilities would be the responsibility of CALM and/or the Shire.
24. The Water Authority agrees that all merchantable timber must be removed prior to clearing the project area, and that it should bear any extraordinary expenses associated with this requirement.



25. Agreed.
26. Agreed. On a statewide basis, the Water Authority is making a substantial contribution to the restoration of the environment through reforestation programs on selected catchment areas. For example, some 6000 hectares of the Wellington Dam catchment area has been replanted since 1980. While this reforestation has been undertaken primarily for water quality (salinity) reasons, it will also enhance the habitat of the area.
27. It is acknowledged that the relocation of 5 kilometres of Rosa Brook Road through State Forest will be through an area of forest of lesser scenic attraction than the existing road alignment. To minimise the loss of scenic attraction, the Water Authority will liaise with CALM to evaluate alternatives to the previously selected route along Lang Road.
28. Covered by Item 26.
29. The Water Authority supports the philosophy behind this comment. However, the community must decide whether the retention of this catchment is of higher significance than uncontaminated drinking water or considerable cost increases to the community in general. The Water Authority believes that the social factors of ensuring a high quality water supply at reasonable cost are of greater concern to the community and has acted accordingly.
30. Vegetation evaluation suggests that the quality of the forest and other habitats in the area affected are perhaps not as great as is projected in the public comment. Nonetheless, this evaluation must be put into context with Item 29, above.
31. While there is always a risk of dieback spread, this will be minimised by the development of a detailed works and management plan in consultation with CALM. This will include undertaking construction of some works during summer.
32. Covered by Item 26.
33. This is true for aquatic fauna such as fish which may use the tributary for spawning. However, it should be recognised that:

\* Ten Mile Brook is only a very small proportion of the total catchment area of the Margaret River. In

particular, there are four major and several minor water courses in the Bramley Block which will not be affected by this project.

- \* There are existing dams on the Margaret River which have formed such a barrier since the 1930s. If these barriers were so great as to cause a major disruption to the biota one would assume that there are no longer species upstream of these dams which would be further affected by the new structure.
- \* If one assumes that the species have survived upstream of the existing Margaret River Dam, then presumably they could survive in the new reservoir.
- \* As the Ten Mile Brook is ephemeral, there is unlikely to be any species "trapped" in the reservoir as it will be mostly constructed during summer.

34. From the public comment it is assumed that the writer refers to vertebrate faunal surveys. The comment raises several practical and philosophical issues, including:

- \* A vertebrate survey to give a reasonable indication of what is present could be expected to take up to three years and cost a considerable sum. This would mean a lead time to dam commissioning of 3-5 years. The Water Authority considers this delay untenable considering the existing water quality and rate of development at Margaret River.
- \* Even when complete, such a survey would not unquestionably prove that some rare species was not present but remained undetected.
- \* It is accepted biological fact that certain animals require specific habitat types, especially the rarer ones. Based on this relationship it is practical, considering the constraints mentioned above, to provide a reasonable level of certainty that important species are not present by evaluating the presence or absence of those specialised habitats.

35. Loss of terrestrial habitat will be about 1% of the Bramley Forest Block and a minute amount of the

regional habitat. Conversely, open water aquatic habitat will be increased.

36. Covered by Item 31.
37. The airport proposal did not enhance the conservation and recreational potential by provision of an open water body, a wetland/forest ecotone, or provide public recreation opportunities.
38. The present quality of water in the Margaret River is well within the guideline values. While it is recognised that chemical use on the Margaret River catchment will increase in the future, the quality of the winter flows that would be diverted into the Ten Mile Brook Dam will remain satisfactory provided safe farming practices are adopted on the catchment. In the future, any polluted flow in the Margaret River is expected to be an occasional event associated with an accident or misuse of chemicals. The proposed scheme has inherent safeguards in this situation because of the low pumpback rate compared to river flows, and the effect of dilution in the relatively large storage on Ten Mile Brook. Treatment for pollution by agricultural chemicals is therefore not an issue.
39. Covered by items 14 and 15.
40. This is covered by the notional sum of \$86,000 referred to in Item 18 above.
41. Appendix A of the CER states the distributions of the significant species and clearly indicates that they are not geographically restricted. In their known populations they are abundant.
42. Covered by Item 34.
43. The existing environment comprises land that was partially developed for grazing in the 1930's, together with State Forest last logged about 1970. Despite these disturbances the forest is referred to in the public submissions as scenic (Item 27), an excellent representation (Item 29), of high quality (Item 30), of high conservation value (Item 37) etc. Presumably therefore, satisfactory regeneration can be achieved in considerably less than 100 years.
44. The growth rates of 5.9% and 7.2% quoted in the CER (Section 1.5) are simply historical rates that have occurred during the recent period of exceptionally high

growth. It is extremely unlikely that such high growth rates can be sustained indefinitely. For the purposes of comparing alternative proposals, the study considered two growth scenarios; viz a high growth scenario and a most likely growth scenario. The proposed scheme would meet the demands at Margaret River for 25 years under the high growth scenario, or 40 years under the most likely growth scenario. Irrespective of future growth, the scheme would continue to serve as an integral component of any upgraded supply beyond this planning horizon.

#### CATCHMENT MANAGEMENT

45. For both Ten Mile Brook and the Margaret River, catchment management plans are seen to be low key issues, with only minimal impact on present activities on these catchments. On Ten Mile Brook, activities would be limited to low intensity recreation (bush walking, nature study etc), with a specified exclusion zone around the reservoir and close to the dam. On the Margaret River, the catchment management plan would mainly relate to ensuring that agricultural activities are not a threat to water quality. It is believed that this can be achieved simply by ensuring the adoption of safe and sensible farming practices. In the long term, it is expected that this low level of control will be required for the protection of the environment in general, as much as for the protection of the water quality.
46. As indicated in Item 45, it is anticipated that the quality of water in the Margaret River can be adequately protected for water supply purposes by ensuring the adoption of safe and sensible farming practices. This will not impose any additional cost on the farming community on the Margaret River catchment.
47. The present quality of water in the Margaret River is well within the guideline values. While it is recognised that chemical use will increase in the future, the quality of the winter flows that would be diverted into the Ten Mile Brook Dam will remain satisfactory provided safe farming practices are adopted on the catchment.



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AUTHORITY**  
of Western Australia

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our Ref A22071  
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Executive Director  
Department of Conservation  
and Land Management  
PO Box 104  
COMO WA 6152

(Attention: Mr Frank Batini)

#### MARGARET RIVER TOWN WATER SUPPLY

Thank you for the time you, Mr Michael Waite and Mr John Skillen gave last week to discuss CALM's submission to the EPA on the Ten Mile Brook dam proposal.

My purpose now is to confirm the assurances we made in our discussions last week and to obtain from you a letter stating CALM's satisfaction with the project in its modified form.

Our discussions centred on the letter dated May 10, 1990 which CALM had sent to the EPA precipitating some of the points raised by EPA in their response to us on May 23, 1990. I will address the issues raised in CALM's letter.

#### Alternatives to the Proposal

As discussed, development options on private land would be significantly more expensive than the Ten Mile Brook proposal because of unsuitable topography, poor dam foundations and the need to acquire the whole catchment area.

#### Compensation for Loss of Forest

The Water Authority agrees that some form of compensation to CALM is appropriate to reflect the loss of forestry and conservation values. Ideally, this compensation should be by way of the Water Authority acquiring land of similar conservation value in the Margaret River region, for incorporation into the CALM estate. The Water Authority will work closely with CALM to identify and arrange the transfer of a suitable piece of land. The Water Authority agrees that land with a value in the order of \$85 000 is appropriate. It is understood that the payment of compensation in this case does not establish a precedent for future similar cases and that the land value of \$85 000 is not indicative of appropriate compensation for other cases.

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Flora and Fauna Studies

Flora: The Water Authority is satisfied, from the studies undertaken in preparing the CER, that the impact on flora will be minimised by restricting the clearing required to the area for the embankment and reservoir basin only. No gazetted rare flora or priority species have been recorded in the project area.

Fauna: The Water Authority is committed to carrying out fauna survey work, including trapping and rehabilitation of affected species. We have had some preliminary discussions with Mr Keith Morris of CALM's Woodvale Centre on the chuditch, and Mr Grant Wardell-Johnson of CALM's Manjimup office on rare frog species. It appears likely that the chuditch will be found in the project area but the rare frog species habitat is thought to be further south of this locality.

Dieback Hygiene Procedures

The Water Authority agrees with CALM's comments.

Erosion Control

The Water Authority will liaise with CALM as design proceeds, to identify the areas involved and how erosion control can be effected.

Rehabilitation

Rehabilitation by the planting of trees and understory species will be carried out by the Water Authority under the direction of CALM.

Catchment Management Plan

The Water Authority agrees with CALM's comments.

As the timing for this project is becoming critical for the dam to store water in the winter of 1991, could I have your response to the above as soon as possible please.

B S SADLER  
DIRECTOR WATER RESOURCES

July 23, 1990

(WR-M639) BC



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of Western Australia

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Shire Clerk  
Shire of Augusta-Margaret River  
Town View Terrace  
MARGARET RIVER WA 6285

#### MARGARET RIVER WATER SUPPLY - TEN MILE BROOK PROPOSAL

Thank-you for the opportunity to talk with Councillors and Council staff on July 5 about your submission to the EPA on this project. It is understood that Council is not opposed to the project per se, but rather that it is concerned about the long term impact on the Margaret River catchment area and the recreational potential of the Bramley Forest Block.

As stated in the CER, it is proposed that a catchment management plan be prepared for the Margaret River. Although the main purpose of this plan would be to protect the water quality for the town water supply, it will also be required for protection of the groundwater resources of the Perth Basin and for protection of the environment generally.

In preparation of the catchment management plan, the Water Authority would seek public participation with the Shire and farmers on the catchment area. Through this involvement of the public, it is anticipated that the water quality in the Margaret River can be adequately protected by the provision of information about the adoption of safe and sensible farming practices in relation to the use of pesticides, fertilisers and other chemicals.

As horticultural development proceeds, there will be increasing competition for the available water in the Margaret River during summer. If and when this conflict develops, the Water Authority will use the powers of the Rights in Water and Irrigation Act to license farmers to impose conditions on water use. These conditions would be developed in consultation with the local community in the same way as already happens in the Manjimup area. This situation will develop irrespective of the implementation of the Ten Mile Brook proposal, because water for the town

USE WATER WISELY

supply would only be pumped from the Margaret River in the period May to November when river flows are plentiful.

The estimated Margaret River annual town water demand in 25 years time represents less than 2% of the average yearly flow of the Margaret River.

With regard to recreation, implementation of the Ten Mile Brook proposal would result in the permanent loss of the dam and reservoir area of about 30 hectares. This is less than 1% of the total area of the Bramley Forest Block. On the catchment area of Ten Mile Brook, comprising about 10% of the Bramley Forest Block, recreation would be limited to passive activities such as bush walking, nature study etc. Horse riding and the exercising or training of domestic pets would not be permitted. Placing logs across old tracks at appropriate locations in the forest, together with signposting, will be sufficient to prevent the types of activities which are not permitted.

The loss of recreational potential outlined above is considered by the Water Authority to be very minor, and could be off-set by the provision of some recreational facilities such as a parking area, toilets and barbecues in the area downstream of the dam. Further recreational benefits may be developed in Margaret River subject to making suitable arrangements for the use of the existing town water supply dam for oval watering and for water-based recreation.

Would you please confirm that our discussions have allayed Council's concerns in these areas.



R A HARVEY  
A/MANAGER, WATER RESOURCES PLANNING

July 9, 1990





**WATER  
AUTHORITY**  
of Western Australia

Your Ref **A 22571**  
Our Ref **Mr W.F.Combs**  
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The Chairman  
Environmental Protection Authority  
BP House  
1 Mount Street  
PERTH W.A. 6000

Attention Mr Colin Murray

25 MAR 1991
File No. 141/89
Initial CMU

**Margaret River Water Supply - Ten Mile Brook Proposal**

Further to your telephone conversation with Mr Bob Wark, the notes herewith set out additional information you requested. The comments on Item 4 were prepared by Dames and Moore.

R.A. Harvey  
Manager Water Resources Planning  
March 20, 1991

45124 INFO

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## **1. RESERVOIR ON ALREADY CLEARED CATCHMENT**

The construction of a storage reservoir on land already cleared for agriculture was given consideration in the early planning stages of the project.

The use of private land immediately to the west of the Bramley Forest Block would restrict future development of Margaret River townsite.

Sites to the east of Rosa Brook are not suitable as they lie within the sedimentary basin and are not suitable for dam construction.

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the dam. Conversely, if the Eaglescliff project does not proceed, construction of the smaller storage would be undertaken.

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- (i) approval for construction of the dam on Ten Mile Brook as originally proposed in the CER, and
- (ii) approval for construction of the dam on Ten Mile Brook to a level one metre higher than proposed in the CER only if the Eaglescliff development has been approved and has commenced prior to the start on detailed design of the dam.

#### **4. UNIQUENESS OF 10-MILE BROOK VEGETATION**

During the preparation of the CER document (Dames & Moore, 1990) a regional and local evaluation was made of vegetation uniqueness. It was found that the 10-Mile Brook valley had been largely cleared (probably in the 1930's) and had then regrown (CER Section 3.7). Consequently the vegetation is not pristine.

Section 3.7 of the CER goes on to note that the regional vegetation is typical of the Chapman System and the plates in Appendix A of the CER illustrate typical Chapman System vegetation by using 10-Mile Brook locations. This clearly indicates that on a regional basis there is nothing unique about the 10\_Mile Brook vegetation.

There are, however, some minor vegetation types/flora which could be considered "unique" in the broad sense, depending on one's definition of uniqueness.

These are:

1. The *Agonis flexuosa* (peppermint) grove below the dam wall site and Margaret River; this should not be affected by construction of the reservoir (CER Sections 4.11 and 5.9).

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Our Ref: TP170.02 DB:MOC  
M4647  
Your Ref: A22571  
Enquiries: Acting Shire Planner

WA WATER AUTHORITY  
PO BOX 100  
LEEDERVILLE WA 6007



ATTENTION : W F COMBES

Dear Sir

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Council considered the matters raised in this letter, at its Ordinary Meeting dated 2 August 1990, and resolved to advise you that Council is satisfied with the Authority's proposal, however Council still wishes to be involved in and directly influence the detailed implementation of this proposal.

To this end, Council requires assurances from the WA Water Authority that the use of the existing town water supply dam for oval watering and for water based recreation, will be secured by the vesting of the Reserve in Council for Recreation purposes.

Council believes that the use of the existing town water supply dam for oval watering and water based recreation, will be essential in "off setting" the loss of recreational potential within the Bramley Forest block, as a result of the catchment area proposal.

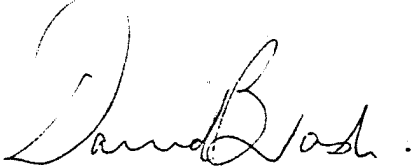
With regard to the proposed implementation of water catchment management measures, Council wishes to be involved in the implementation of the management plan. Council also accepts your contention that the authority should seek the public participation of farmers likely to be affected by management measures.

In respect of the provision of recreational facilities, within the Bramley Forest block, Council supports the provision of some recreational facilities such as a parking area, toilets and bar-b-ques in the area down stream of the dam.

.... 2/ ....

Council thanks you for the opportunity of meeting with your representatives and looks forward to further co-operation with your Authority, in respect of the above matters.

Yours faithfully

A handwritten signature in cursive script, appearing to read "David Brash".

David Brash  
ACTING SHIRE PLANNER

7 August 1990

2. The unusually dense regrowth forest on the western slope of the valley. This is of interest, but it is regrowth and does not warrant preservation just on the grounds of density.
3. The valley slopes are a little steeper than any nearby valley. Again, this is of no great significance.
4. There are Eastern States tree ferns in 10-Mile Brook. These were not recorded elsewhere but are not significant.
5. Some of the vegetation in the creek bed east of the pines appears on aerial photographs to be unique in terms of colour and pattern, but this is probably because the overstorey has been removed.
6. All of the three significant plant species identified during the Dames & Moore field survey appear to be reasonably widespread and common in WA's south-west corner, and are probably also reasonably common and widespread in the Margaret River catchment. Suitable habitats appear to be common but ground-checking would be necessary for verification.

We therefore conclude that on conservation grounds the 10-Mile Brook creekline is not unique.





**Section 4.2:** The Water Authority will comply with the requirements of CALM and the Augusta-Margaret River Shire in relation to the use of any local quarries for dam construction materials.

**Section 4.4:** The Water Authority will consult with CALM on details of the type of construction and landscaping requirements for the pumping station and the proposed dam.

**Section 4.4 and 5.1:** The Water Authority will liaise with CALM to fix the route of the proposed access road and pipeline.

**Section 4.10 and 5.9:** The Water Authority will liaise with CALM and the Augusta-Margaret River Shire in preparing a site management plan for the rehabilitation and recreational development proposals in disturbed areas downstream of the dam.

**Section 5.1:** Arrangements will be made with CALM to log suitable timber prior to the commencement of construction activities.

**Section 5.3:** The Water Authority will carry out fauna studies as the project proceeds, with a view to formulating a plan of action if any species is seriously affected.

**Section 5.4:** In conjunction with CALM develop a jarrah dieback disease management plan for the construction and rehabilitation phases of the project.

**Section 5.11:** In conjunction with CALM develop a rehabilitation and revegetation plan for any areas affected by the project.

**Section 5.12:** The Water Authority will prepare a catchment management plan for the Margaret River and Ten Mile Brook catchments.

**Issues Response:** The Water Authority will liaise with CALM to evaluate alternatives to the previously selected Rosa Brook Road route along Lang Road to minimise the loss of scenic attraction.



## **Appendix 2**

**Issues raised during the Public Review period**





WATER  
AUTHORITY  
of Western Australia

our Ref PO 4a:023  
our Ref A22871  
Enquiries Rod Burton  
Tele Direct 420 2943

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

Executive Director  
Department of Conservation  
and Land Management  
PO Box 104  
[COMO WA 6152

(Attention: Mr Frank Batini)

#### MARGARET RIVER TOWN WATER SUPPLY

Thank you for the time you, Mr Michael Waite and Mr John Skillen gave last week to discuss CALM's submission to the EPA on the Ten Mile Brook dam proposal.

My purpose now is to confirm the assurances we made in our discussions last week and to obtain from you a letter stating CALM's satisfaction with the project in its modified form.

Our discussions centred on the letter dated May 10, 1990 which CALM had sent to the EPA precipitating some of the points raised by EPA in their response to us on May 23, 1990. I will address the issues raised in CALM's letter.

#### Alternatives to the Proposal

As discussed, development options on private land would be significantly more expensive than the Ten Mile Brook proposal because of unsuitable topography, poor dam foundations and the need to acquire the whole catchment area.

#### Compensation for Loss of Forest

The Water Authority agrees that some form of compensation to CALM is appropriate to reflect the loss of forestry and conservation values. Ideally, this compensation should be by way of the Water Authority acquiring land of similar conservation value in the Margaret River region, for incorporation into the CALM estate. The Water Authority will work closely with CALM to identify and arrange the transfer of a suitable piece of land. The Water Authority agrees that land with a value in the order of \$85 000 is appropriate. It is understood that the payment of compensation in this case does not establish a precedent for future similar cases and that the land value of \$85 000 is not indicative of appropriate compensation for other cases.

USE WATER WISELY

### Minimise Impact

The Water Authority agrees that in planning and development of the project, it is very important to liaise closely with CALM to ensure that any adverse impacts are minimised.

### Pipeline Construction

The Water Authority agrees that pipelines should be constructed below ground and this will be done throughout, except for some short lengths near the pumping stations.

### SEC Powerline

Since the CER was prepared, SECWA has advised that the powerline across the reservoir can be raised at a much lower cost than relocating the line to the proposed new Rosa Brook Road alignment. Because environmentally it merely maintains the status quo, the raising option is preferred on economic grounds.

### Workshop and Maintenance Area

The workshop and maintenance area will be located within the reservoir basin area if this is possible. This will also be affected by the location of borrow pits for embankment construction within the reservoir basin.

### Road Realignments

The Water Authority agrees that road realignments must be chosen in consultation with CALM. As discussed, we would be interested to consider an alternative route for the Rosa Brook Road realignment north of the indicated route along Lang Road.

### Downstream Facilities

Further discussions are required with CALM and the Local Authority to reach agreement on the specific details of what facilities would be appropriate in the area downstream of the dam. The Water Authority will fund the installation of these facilities but it would be more appropriate for CALM or the Local Authority to take responsibility for maintenance. The suggestion that CALM's landscape staff could undertake, or assist with, the planning of these facilities will be further explored.

### Merchantable Timber

The Water Authority agrees with CALM's comments.

Flora and Fauna Studies

Flora: The Water Authority is satisfied, from the studies undertaken in preparing the CER, that the impact on flora will be minimised by restricting the clearing required to the area for the embankment and reservoir basin only. No gazetted rare flora or priority species have been recorded in the project area.

Fauna: The Water Authority is committed to carrying out fauna survey work, including trapping and rehabilitation of affected species. We have had some preliminary discussions with Mr Keith Morris of CALM's Woodvale Centre on the chuditch, and Mr Grant Wardell-Johnson of CALM's Manjimup office on rare frog species. It appears likely that the chuditch will be found in the project area but the rare frog species habitat is thought to be further south of this locality.

Dieback Hygiene Procedures

The Water Authority agrees with CALM's comments.

Erosion Control

The Water Authority will liaise with CALM as design proceeds, to identify the areas involved and how erosion control can be effected.

Rehabilitation

Rehabilitation by the planting of trees and understory species will be carried out by the Water Authority under the direction of CALM.

Catchment Management Plan

The Water Authority agrees with CALM's comments.

As the timing for this project is becoming critical for the dam to store water in the winter of 1991, could I have your response to the above as soon as possible please.

B S SADLER  
DIRECTOR WATER RESOURCES

July 23, 1990

(WR-M639) BC

supply would only be pumped from the Margaret River in the period May to November when river flows are plentiful.

The estimated Margaret River annual town water demand in 25 years time represents less than 2% of the average yearly flow of the Margaret River.

With regard to recreation, implementation of the Ten Mile Brook proposal would result in the permanent loss of the dam and reservoir area of about 30 hectares. This is less than 1% of the total area of the Bramley Forest Block. On the catchment area of Ten Mile Brook, comprising about 10% of the Bramley Forest Block, recreation would be limited to passive activities such as bush walking, nature study etc. Horse riding and the exercising or training of domestic pets would not be permitted. Placing logs across old tracks at appropriate locations in the forest, together with signposting, will be sufficient to prevent the types of activities which are not permitted.

The loss of recreational potential outlined above is considered by the Water Authority to be very minor, and could be off-set by the provision of some recreational facilities such as a parking area, toilets and barbecues in the area downstream of the dam. Further recreational benefits may be developed in Margaret River subject to making suitable arrangements for the use of the existing town water supply dam for oval watering and for water-based recreation.

Would you please confirm that our discussions have allayed Council's concerns in these areas.



R A HARVEY  
A/MANAGER, WATER RESOURCES PLANNING

July 9, 1990



SHIRE OF AUGUSTA-MARGARET RIVER

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## 1. RESERVOIR ON ALREADY CLEARED CATCHMENT

The construction of a storage reservoir on land already cleared for agriculture was given consideration in the early planning stages of the project.

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