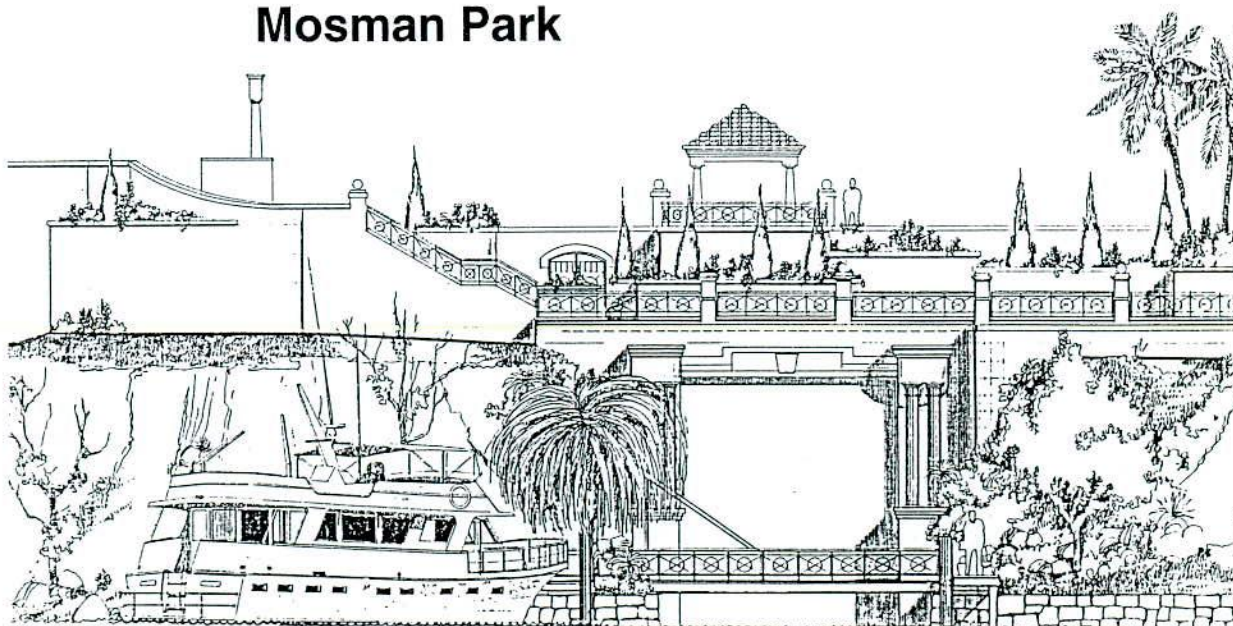


Consultative Environmental Review to -

Dredge a Portion of the Swan River and Foreshore to Provide Access to Private Boathousing

Mosman Park



for -

Mrs A.M.M.W. Bennett

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September 1994

Invitation

The Environmental Protection Authority (EPA) invites people to make a submission on this proposal.

This Consultative Environmental Review (CER) covers a proposal to dredge a portion of the Swan River and the adjacent foreshore at Mosman to provide access to a private boathousing.

In accordance with the Environmental Protection Act a CER has been prepared which describes this proposal and its likely effects on the environment. The CER is available for a public review period of 4 weeks from Monday, 26 September 1994 and closing on Friday, 21 October 1994.

Following receipt of comments from government agencies and the public, the EPA will prepare an assessment report with recommendations to the government, taking into account issues raised in the submissions.

Why Write a Submission?

A submission is a way to provide information, express your opinion and put forward your suggested course of action, including any alternative approach. It is useful if you indicate any suggestions you have to improve the proposal.

All submissions received by the EPA will be acknowledged. Submissions will be treated as public documents unless specifically marked confidential, and may be quoted in full or in part in each report.

Why Not Join a Group?

If you prefer not to write your own comments, it may be worthwhile joining a group interested in making a submission on similar issues. Joint submissions may help to reduce the workload for an individual or group, as well as increase the pool of ideas and information. If you form a small group (up to 10 people) please indicate all the names of the participants. If your group is larger, please indicate how many people your submission represents.

Develop a Submission

You may agree or disagree with, or comment on, the general issues discussed in the CER or the specific proposals. It helps if you give reasons for your conclusions, supported by relevant data. You may make an important contribution by suggesting ways to make the proposal environmentally more acceptable.

When making comments on specific proposals in the CER:

- clearly state your point of view;
- indicate the source of your information or argument if this is applicable; and
- suggest recommendations, safeguards or alternatives.

By keeping the following points in mind, you will make it easier for your submission to be analysed:

- attempt to list points so that the issues raised are clear. A summary of your submission is helpful;
- refer each point to the appropriate sections, chapter or recommendation in the CER;

-
- if you discuss sections of the CER, keep them distinct and separate, so there is no confusion as to which section you are considering; and
 - attach any factual information you wish to provide and give details of the source. Make sure your information is correct.

Remember to include:

- your name;
- your address; and
- date.

The closing date for submission is Friday, 21 October 1994.

Submissions should be addressed to:

Chairman
Environmental Protection Authority
Westralia Square
141 St George's Terrace
PERTH WA 6000

Attention: Ms Eve Bunbury

If you have any questions on how to make a submission please phone the Project Officer, Ms Eve Bunbury on (09) 222 7036.

Consultative Environmental Review to Dredge a Portion of the Swan River and Foreshore to Provide Access to Private Boathousing, Mosman Park

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1.0 Executive Summary

A private residence is currently under construction on Lot 55 Saunders Street, Mosman Park. A component of the development will be the construction of a private underground boathousing. To provide access to the boathousing for a vessel it is proposed to construct a channel which extends through the foreshore area and into the Swan River until a minimum of 3.5 m water depth is attained. This will result in a total channel length of approximately 30 m. The channel will be 10 m wide through the foreshore, increasing to 15 m as it traverses the Swan River to facilitate vessel access. Channel construction will result in the excavation of approximately 400 m³ of limestone from the Swan River and 800 m³ of limestone from the adjacent foreshore. Public access across the channel will be maintained through the installation of a swing bridge.

It is proposed to excavate the channel using an excavator which will be barged to and from the site. A geotextile curtain, weighted at the bottom, will surround the excavation and prevent the dispersal of any sediment which is suspended as a result of construction activities. Excavated material will be removed from the site by either barging it out for disposal at an approved offshore marine dumping ground or by loading it onto barge mounted skips for later removal by truck for use as clean fill. No spoil will be deposited in the Swan River.

Lot 55 is one of only three lots along this section of the Swan River where private ownership extends to the high water mark. This lot was purchased specifically to allow the proponent to maintain a lifestyle which is centred on nautical pursuits. The initiation of the proposed development is the realisation of this objective.

Although the land on which development is proposed is privately owned by the proponent to the high water mark a portion adjacent to the Swan River is reserved under the Metropolitan Region Town Planning Scheme Act 1959 as Parks and Recreation. The Swan River is managed by the Swan River Trust through administration of the Swan River Trust Act 1988.

The potential environmental and social impacts of the development and their management are discussed in this report under the following headings:

Impact on the Swan River

- nutrient release from dredged sediments will be minimal since the sediments consist mainly of limestone bedrock and are essentially free of mud, silt and clay materials;
- any sediment plume generated as a consequence of excavation will be restricted to the area of disturbance through installation of a geotextile curtain;
- the development is not expected to have any impacts on the hydrology of the Swan River; and
- there will be minimal disturbance to aquatic flora and fauna.

Terrestrial Impacts

- impacts will be restricted to an area that is already extensively modified through reclamation;

- there will be no loss of the original native vegetation of the area; and
- the integrity of the limestone cliff is not expected to be compromised through channel construction.

Management Considerations

In order to be considered acceptable the development must demonstrate that it is not inconsistent with management objectives and policy relating to both the Swan River and adjacent foreshore area. In this regard the development demonstrates that:

- public access along the foreshore and river is maintained;
- there will be minimal impact on indigenous flora and fauna or compromise to existing conservation values; and
- it is consistent with the Swan River Trust dredging policy by not impacting on environmentally sensitive areas or the river channel, by its assessment by the EPA and Swan River Trust, and by ensuring that all dredged material is removed from the river system.

Social Considerations

- public access along the foreshore will be maintained through construction of a swing bridge;
- there will be no impacts on existing river users;
- there will be minimal impact on nearby residents during the construction phase of the development; and
- there will be minimal aesthetic impact either from adjacent residences or from the river.

A number of commitments are made by the proponent to overcome potential environmental and social impacts during the preconstruction, construction and post construction phases of the development.

It is concluded that the development will generate minimal environmental and social impacts and that it is not inconsistent with management objectives and policy relating to the Swan River and adjacent foreshore areas.

2.0 Introduction

2.1 Project Overview

A private residence is currently under construction on Lot 55 Saunders Street, Mosman Park (Figure 2.1). A component of the development will be the construction of a private underground boathousing with internal pedestrian access from the property. To provide access to the boathousing for a vessel it is proposed to construct a channel which extends through the foreshore area and into the Swan River until a minimum of 3.5 m water depth is attained. This will result in a total channel length of approximately 30 m. The channel will be 10 m wide through the foreshore, increasing to 15 m as it traverses the Swan River to facilitate vessel access. Piles will be driven to delineate the edge of the channel and a jetty will be constructed adjacent to the western run of piles. Construction of the channel will occur once all necessary environmental approvals are in place.

In summary, the components of the development which are covered by this Consultative Environmental Review (CER) are:

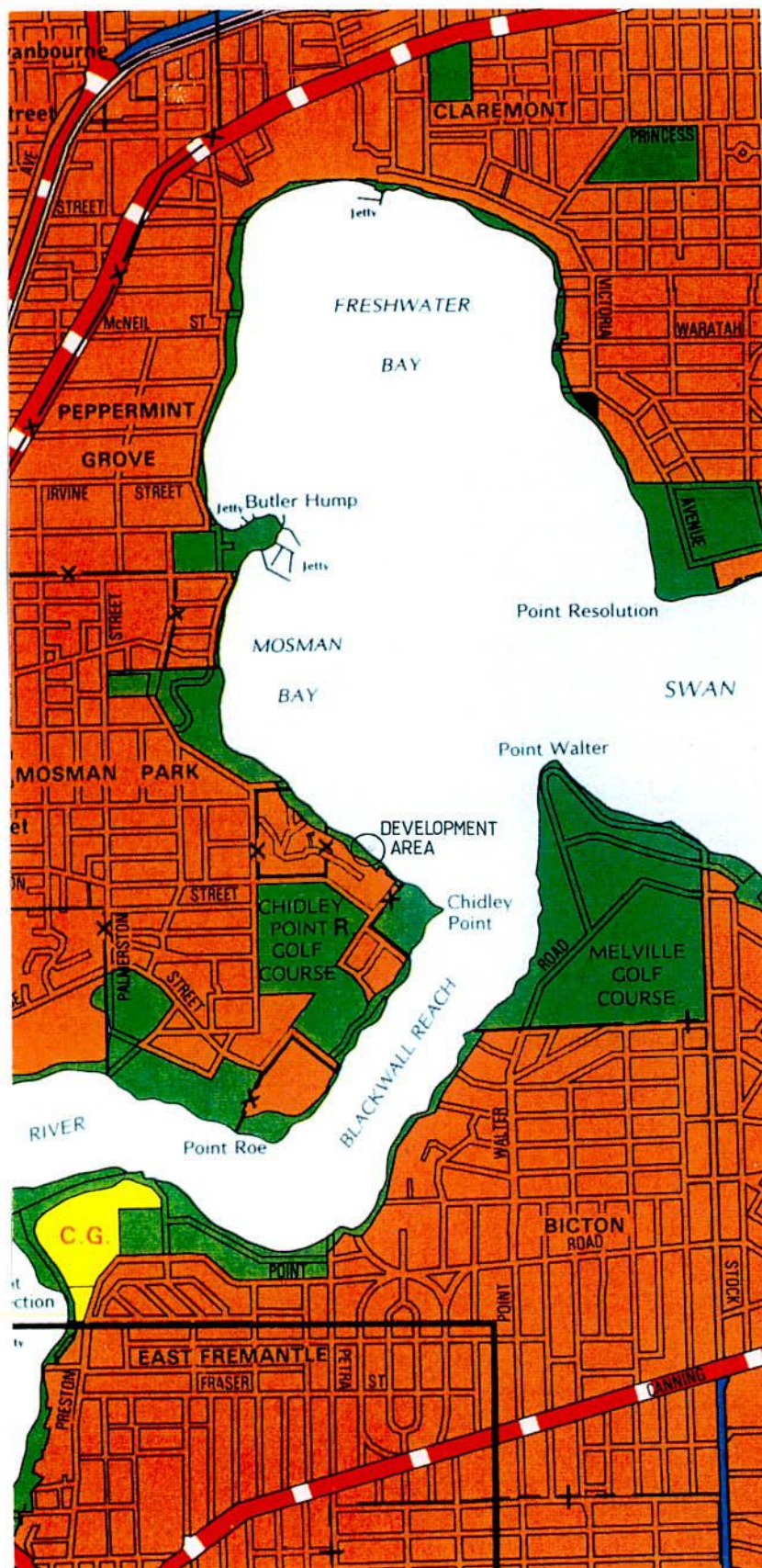
- the dredging of approximately 400 m³ of limestone from the Swan River to construct a channel 15 m long to a depth of -3.5 m AHD and the installation of several piles and a jetty adjacent to the channel;
- the excavation of approximately 800 m³ of limestone from the foreshore area of Lot 55 to construct a channel 15 m long to a depth of -3.0 m AHD; and
- the construction of a swing bridge across the channel to maintain public access along the foreshore.

2.2 Proponent

The proponent for this development is:

Mrs A.M.M.W. Bennett
10 Yaltara Road
CITY BEACH WA 6015

Lot 55 was purchased by the proponent in 1992 for the specific reason that it offered the opportunity to maintain a lifestyle which is centred on nautical pursuits. The initiation of the proposed development is the realisation of this objective.



RESERVED LANDS

PARKS & RECREATION	
RESTRICTED PUBLIC ACCESS	
RAILWAYS	
PORT INSTALLATIONS	
STATE FORESTS	
WATER CATCHMENTS	
CIVIC & CULTURAL	
WATERWAYS	
ROADS	
CONTROLLED ACCESS HIGHWAYS	
OTHER MAJOR HIGHWAYS	
IMPORTANT REGIONAL ROADS	
PUBLIC PURPOSES	

ZONES

URBAN	
URBAN DEFERRED	
CENTRAL CITY AREA	
INDUSTRIAL	
SPECIAL INDUSTRIAL	
RURAL	
PRIVATE RECREATION	



Figure 2.1: Location Plan and land use as defined under the Metropolitan Region Scheme

2.3 Project Justification

2.3.1 Constraints on Development Options

Site contours and the layout of the proposed residence dictate that above ground storage of a vessel on the property is not a viable alternative. The site is steep and all available land has been earmarked for construction of the residence and grounds. Vessel storage above ground on the property would either require a boatlift facility to raise the vessel to a height of over 9 m or excavation to lower a portion of the site to river level.

The first alternative is not considered practicable and would still require vessel access to be provided across the foreshore area of Lot 55 and through the Swan River. The second alternative would also require vessel access across this area and would result in 250 m² of valuable land being lost to the residential development.

The proponent's primary consideration in the development of the boathousing is that the vessel is accessible from the property. Consequently the option of mooring the vessel at a local yacht club or utilising a nearby swing mooring has not been considered.

2.3.2 Options Considered

There are essentially three options available that will allow the proponent to access the vessel directly from the property:

Option 1: Construction of a private jetty. To allow a vessel to berth in a minimum of 3 m of water, without the need to dredge a channel, would require the construction of a jetty approximately 40 m in length.

A modification of this option would be to construct a shorter jetty of some 25 m length. This would require the dredging of approximately 400 m³ of limestone to provide a berthing pocket adjacent to Lot 55.

Option 2: Construction of an underground boathousing with vessel access via a winch and slipway. To overcome the need for dredging, this option would require construction of a slipway across the foreshore area of Lot 55 which would then extend for approximately 15 m into the Swan River.

A modification of this option would be to construct a shorter slipway in the Swan River at the expense of undertaking some dredging.

Option 3: Construction of an underground boathousing with vessel access via an excavated channel. This option would involve the dredging of a 15 m long channel in the Swan River and the excavation of a 15 m long channel through the adjacent foreshore area of Lot 55.

2.3.3 Selection of the Preferred Option

Of the options considered, Option 3 is preferred for the following reasons:

- it provides secure boat storage;
- the boathousing can be accessed internally from the property; and
- vessel access to the boathousing is easily afforded.

Option 1 would overcome the need to dredge a channel in the Swan River and would significantly reduce the impact on the adjacent foreshore area, although private access across the foreshore area would still need to be formalised. However this option does not satisfy the proponent's preference for a secure storage facility with internal access from the property.

Option 2 does not allow a vessel to easily access the boathousing and would require construction of a slipway and the installation of a winch, cable and boat cradle. Depending on the length of the slipway constructed, some dredging in the Swan River may still be required.

2.4 Purpose and Structure of the CER

The purpose of this CER is to describe the proposed development and the existing environment in sufficient detail to allow the potential impacts of the development to be identified and assessed and to allow formulation of proposals for the mitigation and management of such impacts.

Section 3 of the CER describes the proposed development. The components of the biological, physical and social environments that are likely to be impacted by the development, the potential impacts of the development on these environments, and the proposed management of any impacts are detailed in Section 4. Section 5 provides a list of proponent's commitments relating to the development.

Department of Environmental Protection (DEP) guidelines for the preparation of this CER are provided in Appendix A.

2.5 Approvals Process

Any development applications within or abutting the Swan River must receive statutory approval. Development applications on, or abutting, land which is reserved under the Metropolitan Region Town Planning Scheme is referred to the Department of Planning and Urban Development (DPUD) which has the responsibility of administering the Act. In addition, development applications within the Swan River or on land abutting the Swan River are referred to the Swan River Trust. The approvals process may also incorporate advice from other government departments.

The Environmental Protection Authority (EPA) has determined that the proponent must provide additional information to demonstrate the environmental acceptability of the proposal through the preparation of a CER.

As part of the assessment process, this CER will be made available for public review. Written submissions from interested individuals, groups and relevant government agencies will be sought during a 4-week public review period. At the conclusion of the public review period the DEP will prepare a summary of submissions and provide the proponent with an opportunity to respond to the issues raised. Both the summary of issues raised in public submissions and the proponent's responses will be incorporated into the EPA's assessment of the proposal. The EPA's assessment report will provide advice to the Minister for the Environment on the environmental acceptability of the proposal. Following a 2-week appeal period on the EPA's report, and subsequent determination of any appeals received against the EPA's report, the Minister will then set environmental conditions for the proposal.

In addition to obtaining approval from the Minister, under the Environmental Protection Act (amended 1994) the development will have to comply with various other legislation including:

- . Department of Marine and Harbours Act 1981;
- . Metropolitan Region Town Planning Scheme Act 1959; and
- . Swan River Trust Act 1988,
- . Commonwealth Environmental Protection Sea Dumping Act 1981.

2.6 Community Consultation

During the preparation of this CER discussions were held with officers from several government departments, including:

- . Department of Environmental Protection;
- . Swan River Trust; and
- . Department of Planning and Urban Development.

On 20 September 1994, an article was placed in The Mosman-Cottesloe Post to provide background information on the development. The public were also informed that the development would be assessed at the level of a CER and that there would be a public review period for the document.

3.0 Proposal

3.1 Ownership and Vesting of the Development Site

Lot 55 (Figure 3.1) on which development is proposed, is privately owned by the proponent to the high water mark but a portion adjacent to the Swan River is reserved under Clause 12 of the Metropolitan Region Town Planning Scheme as Parks and Recreation (Figure 2.1). Clause 18 of the scheme dictates that "no person shall commence or carry out any development on reserved land without the written approval of the Authority to do so". The Authority, as defined under the Act, is the Metropolitan Region Planning Authority, now the Department of Planning and Urban Development (DPUD).

The Swan River is managed by the Swan River Trust through administration of the Swan River Trust Act 1988. The area to which the Act applies includes the waters of the Swan River upstream of the Fremantle Port Authority boundary and adjoining lands that are reserved as parks and recreation areas under Clause 12 of the Metropolitan Region Town Planning Scheme. The Swan River Trust has responsibilities for planning, protection and management of the above area, including the reserved area subject to this proposal.

3.2 Design Details

The position of the proposed boathousing and channel in relation to other site developments is shown in Figure 3.1 whilst plan and section detail are provided in Figures 3.2 and 3.3. The boathousing will be outside of the area controlled by the Metropolitan Region Town Planning Scheme and is not subject to this current assessment.

The channel has been designed to accommodate a motor yacht with a length of 25 m and a beam of 6 m.

A 15 m long channel will be dug to a depth of -3.0 m AHD through the foreshore area of Lot 55 and slope into the river until the natural riverbed contour of -3.5 m AHD is met. The channel width through Lot 55 will be 10.0 m, widening as it traverses a 15 m section through the riverbed to a maximum width of approximately 15 m in order to facilitate vessel access.

The sides of the channel will be cut vertically through the limestone under the 0.5 m deep topsoil of Lot 55 and the channel edge will be retained using a limestone block wall. A batter of approximately 1:2 will be formed on the channel sides over the length across the riverbed. It is estimated that a total volume of approximately 1,200 m³ of limestone and overlying material will need to be excavated to create the channel, comprising approximately 400 m³ from the Swan River and 800 m³ from Lot 55.

To maintain public access along the foreshore area a horizontally pivoting swing bridge, approximately 1.5 m wide, will be constructed across the channel (Figure 3.2).

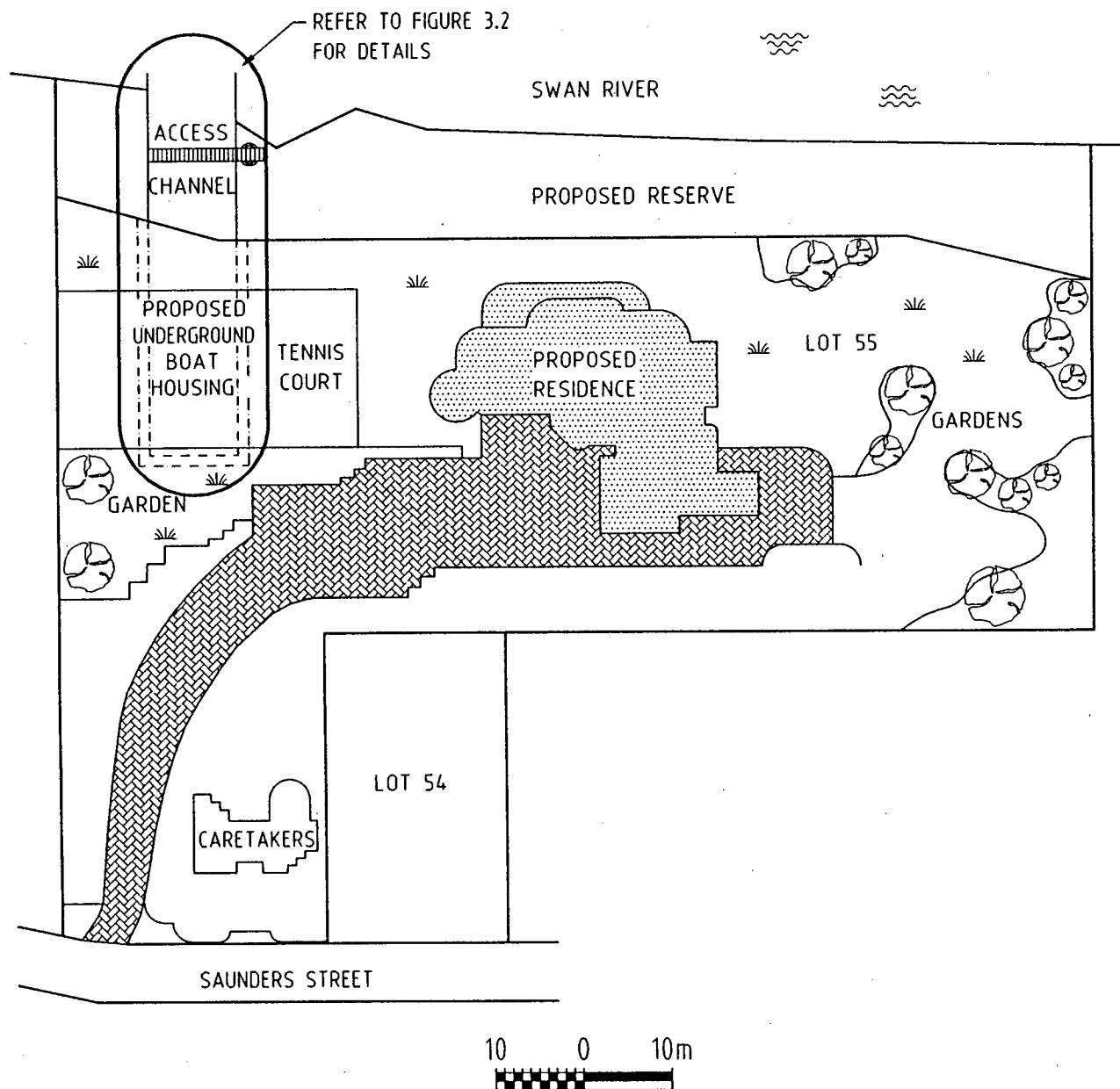


FIGURE 3.1
OVERALL LAYOUT PLAN
OF LOT 55

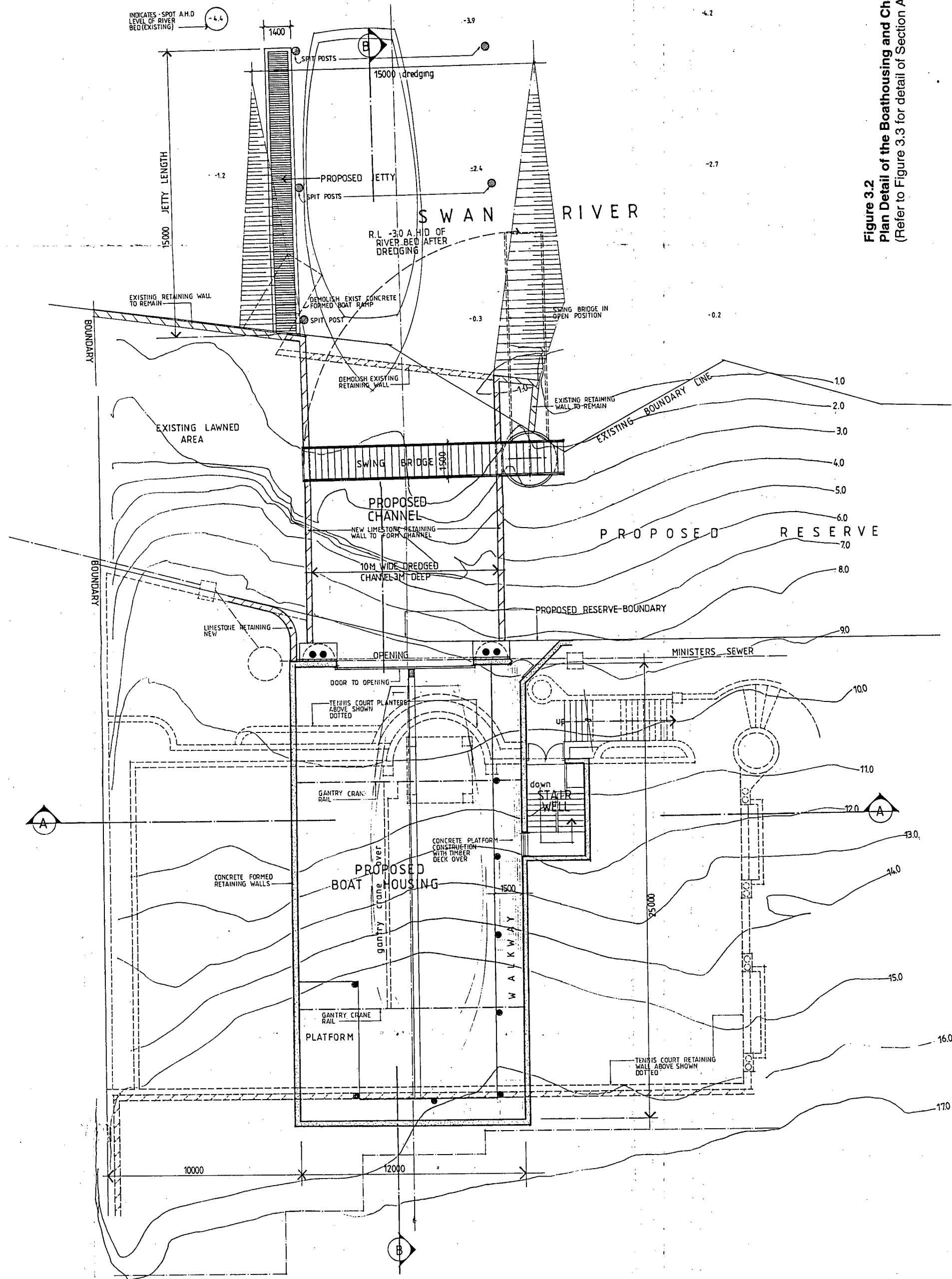
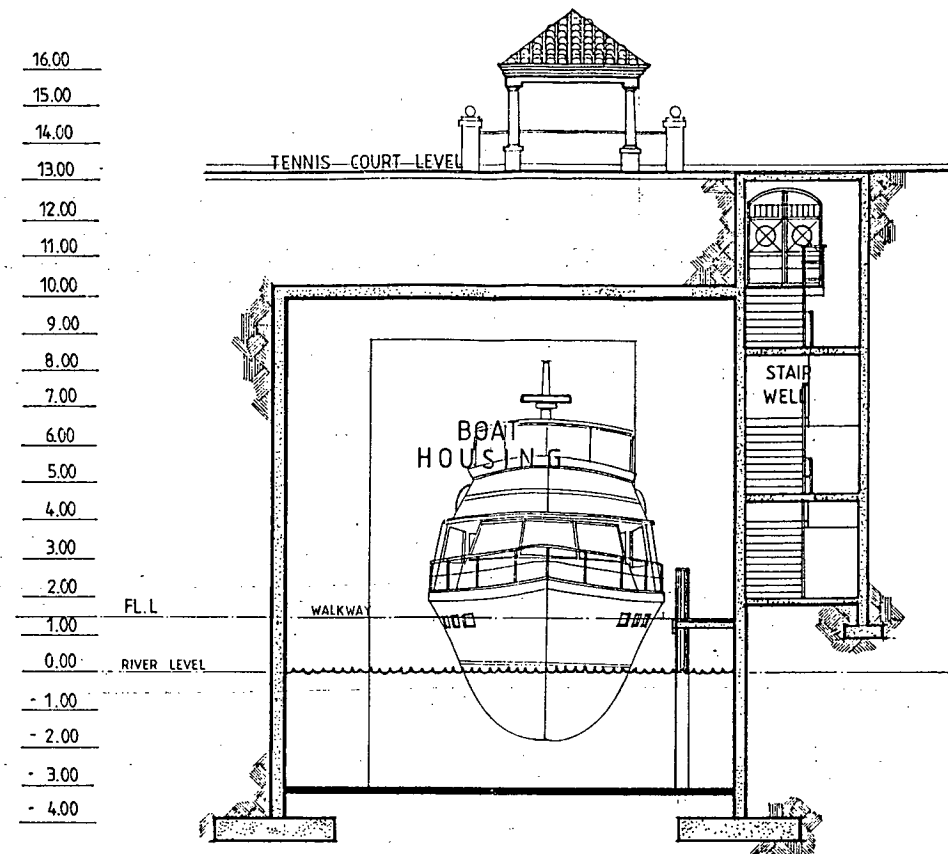
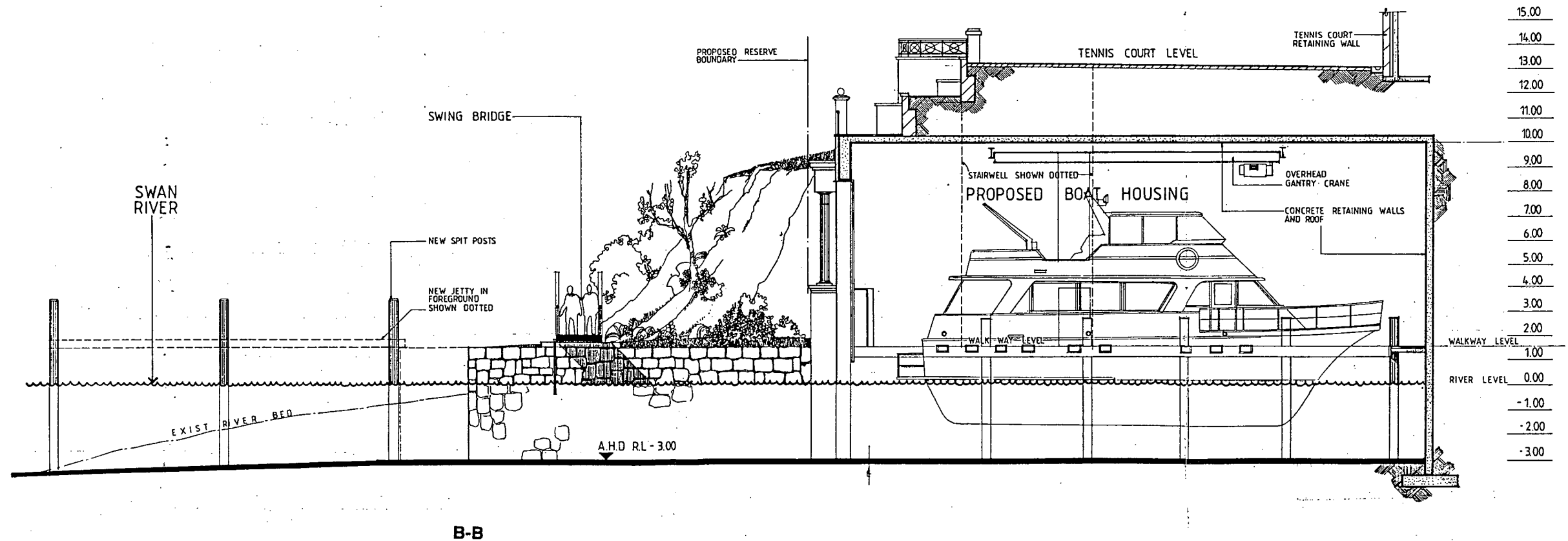


Figure 3.2
Plan Detail of the Boathousing and Channel
(Refer to Figure 3.3 for detail of Section A-A and B-B)



A-A



B-B

Figure 3.3
Section Detail of the Boathousing and Channel

Scale 1:200

To facilitate safe vessel movement steel piles with timber fender strakes will be driven into the limestone bedrock adjacent to the channel (Figure 3.2). Two piles will be driven on the eastern side of the channel and three piles on the western side. A timber jetty, approximately 1.4 m wide, will be constructed along the western run of piles to allow the vessel to be "walked", if required, into and out of the boathousing.

3.3 Construction Methods

It is proposed to excavate the channel using an excavator that will be transported to and from the site by barge.

The excavator will initially remove the topsoil overlying the limestone to be excavated from Lot 55. The limestone will then be cut and deposited on the riverbed along the alignment of the channel to create an access causeway into the river. Working back from the outer end of the formed causeway, the excavator will then dig the channel in the riverbed by progressively removing the causeway and underlying limestone material. This material will be stockpiled adjacent to the excavation for later removal. It is not expected that blasting will be required to facilitate excavation.

A geotextile curtain, which is weighted at the bottom and will hang vertically in the water, will surround the excavation and prevent the dispersal of any sediment which is suspended as a result of construction activities. This is an accepted method of plume control that has been utilised in the eastern states of Australia for some time. For example, floating curtains were used successfully on dredging activities associated with the Sydney Harbour Tunnel project, Homebush Bay Development, Georges and Parramatta Rivers and Kogarah Bay.

Excavated material will be removed from Lot 55 either by barging it out for disposal at an approved offshore marine dumping ground or by loading it onto barge mounted skips for later removal by truck for use as clean fill. Offshore dumping will require approval from the Commonwealth Environment Protection Agency. No spoil will be deposited in the Swan River. The material will be mostly clean limestone with a very small quantity of shell and sand, and thus will be quite suitable as a fill material.

The steel piles will be driven from a barge mounted pile driver.

3.4 Ongoing Maintenance

Due to the absence from the site of materials that will be mobilised by longshore transport (Section 4.2.1), it is not considered that siltation within the channel will be a problem. The floor of the channel will slope towards the river which will also reduce the likelihood of siltation and, in addition, the use of the confined channel by a large motor yacht will help keep the channel clear.

3.5 Construction Timetable

Construction of the channel will commence once all necessary environmental and planning approvals are in place. Excavation of the channel is expected to take two weeks.

4.0 Potential Environmental Impacts and their Management

4.1 Introduction

This section discusses the key environmental and social issues relating to the proposed development. The existing environment relating to each issue is described, the potential impacts identified and the proposed management of the impacts discussed.

4.2 Impacts on the Swan River

4.2.1 Existing Environment

The sediments that will be dredged in the development area consist of a thin layer of coarse shell and sand overlying limestone bedrock. Larger limestone rocks are also scattered over the surface. The sediments are free of mud, silt and clay particles.

The main river channel (>10 m deep) lies over 40 m from the river bank.

The variety of aquatic macrophyte that occurs in the area that will be impacted by development is the green algae *Ulva* sp. This grows on the larger limestone rocks and in the development area its distribution is very patchy (1-2% cover).

A variety of common macroinvertebrate and infauna species would be expected to occur in the area.

4.2.2 Impacts on Water Quality (Commitments 5.2.1 and 5.3.2)

During construction there will be a slight discolouration of the surrounding waters due to the excavation of the limestone bedrock. This will be purely aesthetic since the geotextile curtain will not permit the passage of particles with diameters greater than 200 microns (0.2 mm). This curtain will remain in place following the cessation of dredging until water clarity within the confines of the curtain approximates water clarity outside the curtain.

There is not expected to be any significant nutrient release from the sediments during dredging since mud, silt and clay materials are absent from the site.

Water quality within the dredged channel will be maintained predominantly from tidal movement and river flow, and through vessel movements within the channel. Should water quality deteriorate within the channel, for example within the confines of the boathousing, a pump could be installed within the boathousing to effect water exchange.

4.2.3 Impacts on Hydrology

It is not anticipated that construction of the channel will have any impacts on the hydrology of the Swan River since the main river channel will not be modified by the development.

4.2.4 Impacts on Aquatic Flora and Fauna

The total area of Swan River that will be disturbed is approximately 200 m². The small area that will be disturbed means that the significance of the impact to aquatic flora and fauna is negligible.

Following cessation of dredging activity infauna would be expected to recolonise the area disturbed.

4.2.5 Ongoing Maintenance of the Channel

The channel will be excavated through natural limestone bedrock and therefore it is unlikely that there will be a requirement for any maintenance works apart from the clearing of sediments from the channel floor. As noted in Section 3.4, the slope on the channel floor and use of the channel by a large motor yacht will tend to prevent the ingress of sediments from the river.

4.3 Terrestrial Impacts

4.3.1 Existing Environment

The area of the foreshore on which the proposed development will occur has already been extensively modified through reclamation (Plate 1A & B), to provide a level grassed area, and through excavation of the limestone cliff to modify its previous profile to that of a steeper face (Plate 1D c.f. E). The modified cliff face does not show any signs of instability.

None of the original native vegetation remains in the area that will be disturbed by the proposed development with the vegetation at the development area consisting of a few peppermint trees, exotic species and grasses. Immediately to the west of the development area reclamation has occurred (Plate 1A). To the east, the natural limestone bank remains (Plate 1C). This bank is vegetated with a mixture of native and exotic species including *Acacia* sp, *Eucalyptus* sp, *Melaleuca huegelii*, *Scaevola crassifolia* and *Templetonia retusa*. None of this area will be disturbed by the development.

4.3.2 Implications of Removal of Foreshore Vegetation

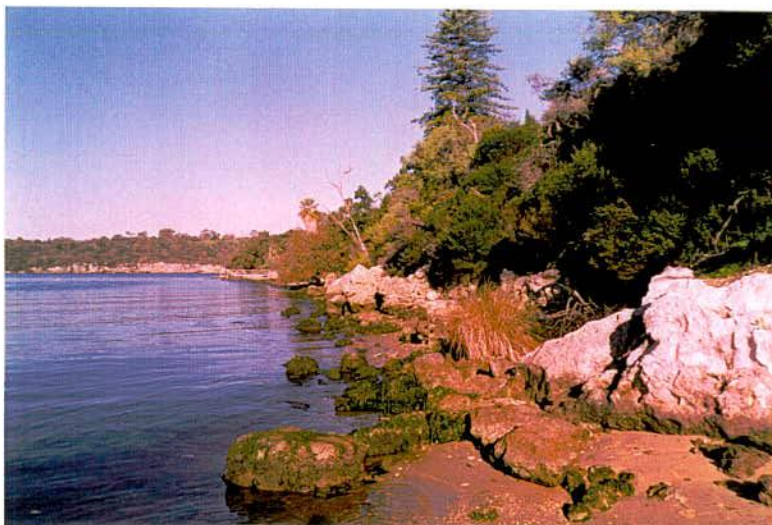
The area through which the channel will be constructed has been extensively modified and none of the original native vegetation remains. Construction of the channel will involve the removal of mainly grasses, two peppermint trees and a few exotic species.



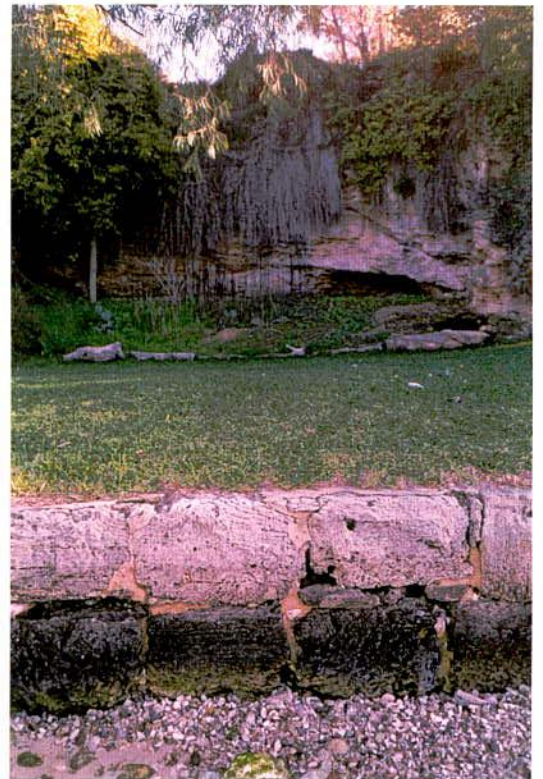
A. Reclaimed foreshore reserve looking west at low tide.



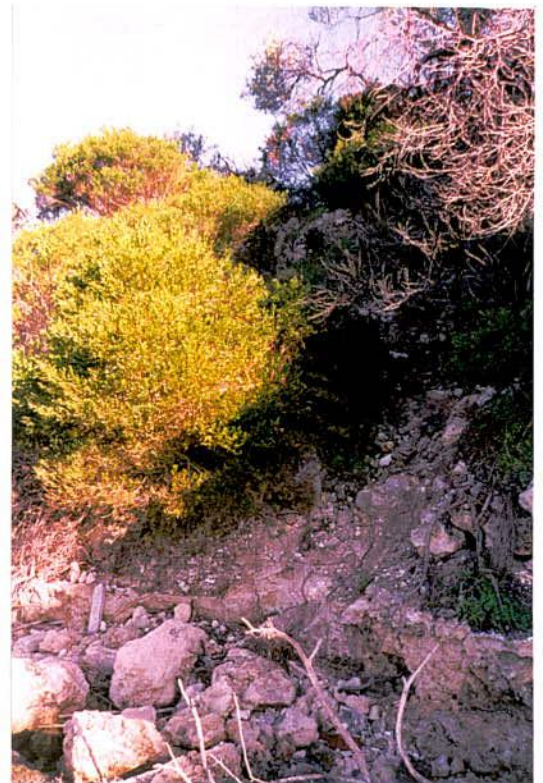
B. Reclaimed foreshore reserve.
The channel will be constructed through this area.



C. Natural foreshore reserve looking east at low tide.



D. Reclaimed foreshore reserve
showing modified cliff face (c.f. E).



E. Natural foreshore reserve east of
development area showing
natural cliff face (c.f. D).

The vegetation has little value to native fauna and consequently its loss will not impact on the conservation value of the reserve.

4.3.3 Integrity of the Limestone Cliff (Commitment 5.1.1)

The cliff face demonstrates stability in its current modified form. Prior to construction commencing, a detailed engineering assessment will be undertaken of the cliff face and any recommendations, for example slope batters, will be incorporated into the final design of the channel.

4.4 Management Considerations

4.4.1 Existing Situation

4.4.1.1 Management of the Swan River

Information contained within this section has been drawn from a number of sources, including Thurlow, B.H. et al. (1986), Swan River Trust (1988), Metropolitan Region Town Planning Scheme Act 1959, and Swan River Trust Act 1988.

4.4.1.2 Roles and Objectives

Proclamation of the Swan River Trust Act 1988 repealed the Waterways Conservation Act as it applied to the Swan River management area (Section 3.1) and dissolved the Swan River Management Authority. The Trust is responsible to the Minister for Waterways whose role includes the determination of development applications in the management area.

In order to balance competing demands for use and development with the need to conserve a healthy river environment, a number of primary and specific objectives have been developed. A full list of objectives is included in Swan River Trust (1988), Chapter 4. The objectives relating specifically to the proposed development are:

- **Primary Objective 1**

Ensure that land use and development on and adjacent to the river maintains or enhances the quality and amenity of the river environment.

Specific objectives:

- Design of development on, adjacent to, or otherwise affecting the river to be compatible with the river environment.
- Preserve and enhance the public right of access to, and use of, the river environment.

- Establish a framework for a comprehensive and integrated system of Parks and Recreation reservation along the foreshore of the river systems, and maximise public ownership of foreshore land.

- **Primary Objective 2**

Protect and maintain a functional healthy river environment controlling the level of its modification.

Specific objectives:

- Cater for a range of community uses, interests and opportunities while conserving the indigenous flora and fauna.
- Retain and enhance the existing fringing vegetation along the river foreshore.
- Require that use and development proposals undergo appropriate environmental impact assessment before proceeding and that conditions of approval are complied with.

- **Primary Objective 4**

Regulate, control and promote measures to ensure the safety of life in connection with all boating activities and to construct, maintain and manage facilities and equipment necessary for that purpose.

Specific objectives:

- Ensure that all navigable waters are kept safe for navigation.

4.4.1.3 Specific Recommendations relating to the Foreshore

The Swan River Management Strategy recognises the foreshore as a recreation and/or conservation resource of major regional significance. Reservation under the Metropolitan Region Town Planning Scheme and eventual acquisition is regarded as the most effective way of providing public access and achieving conservation objectives. The principal objectives of achieving reservation over the river's foreshore are consequently to enable all members of the public to enjoy the right of access to, and along, the foreshore and to protect the integrity of the river environment from incompatible development.

To be compatible with these recommendations the proposed development should demonstrate that:

- existing public access along the foreshore is retained; and
- the existing conservation values of the foreshore are maintained or enhanced.

4.4.1.4 Specific Recommendations relating to Dredging

Guidelines for dredging in the Swan River Trust management area and for disposal of dredge material were prepared for the Trust and the EPA by a consultative committee in 1986. These guidelines have been adopted as policy by the Trust. The guidelines make it clear that all applications for dredging and disposal of dredge material will be assessed solely on their merits and in accordance with the guidelines. All dredging is defined as development under the Swan River Trust Act and requires the approval of the Minister for the Environment.

Elements of the policy of direct relevance to the proposed development are:

- DE1.1 Dredging proposals must be designed to minimise impacts on environmentally sensitive areas. The form of the river channel and the extent of fringing and aquatic vegetation are among physical parameters to consider.
- DE1.5 Developmental dredging and any dredging which involves the disposal of dredge material within the river system shall be subject to environmental assessment, at a level determined by the EPA and the Swan River Trust, and covering:
- . river hydrology
 - . the short and long term impacts of the proposal on plant and animal life of the river system,
 - . the extent to which ongoing dredging will be necessary,
 - . the need for the proposal in the context of other competing uses.
- DE1.6 The cost of disposing of dredge material must be included in the proposal and is to be borne by the proponents.
- DE1.7 All contaminated dredge material is to be removed from the river system unless exceptional circumstances apply.

To be deemed acceptable the proposed development will need to demonstrate compliance with the aforementioned elements of the policy.

4.4.2 Consistency of Proposed Development with Current Management Considerations (Commitments 5.1.1, 5.1.2 and 5.2.4)

The foregoing objectives and recommendations as they specifically relate to the proposed development can be broadly grouped as follows:

- Preservation and enhancement of public access along the foreshore or river and maintenance of safe navigable waters.

Although public use of the area is currently very low (Section 4.5.1), access along the foreshore, or adjacent to the foreshore, will be maintained through the provision of a swing bridge (Section 3.2). The only occasion when access will be restricted is when the vessel is utilising the channel. This will only occur for a few minutes per day and, given the low public usage of the area, is expected to create minimal inconvenience. Should public access along the foreshore be formalised through construction of a boardwalk or reclamation (Section 4.5.1) then the proposed bridge will integrate with this amenity.

The dredged channel and associated piles will not result in any decline in boat safety on adjacent navigable waters.

- Conservation of indigenous flora and fauna, retention of fringing vegetation, and maintenance or enhancement of conservation values.

The area of foreshore and adjacent portion of the Swan River where the channel will be constructed has few resident species of indigenous flora (Plate 1B & D) and fauna, excepting benthic invertebrates and green algae in the Swan River (Sections 4.2.4 and 4.3.2). Native fringing vegetation is absent and the dominant flora that will be impacted is exotic grasses. In total only 200 m² of Swan River bed will be disturbed by the development and some recolonisation by invertebrates will occur once construction activity ceases. Consequently the development will have no impact on the conservation value of the area.

- Consistency with policy on dredging.

When assessing the consistency of the proposed development with the Swan River Trust dredging policy it is important to remember that, as stated in the guidelines, all applications will be assessed solely on their merits and in accordance with the guidelines.

With reference to the elements of the policy of direct relevance to the proposed development:

- the development will not impact on environmentally sensitive areas, fringing and aquatic vegetation (Sections 4.2.4 and 4.3.2) or on the form of the river channel (Section 4.2.3) consistent with policy recommendation DE1.1;
- the development is being assessed by the EPA and the Swan River Trust consistent with policy recommendation DE1.5 and the issues raised under this recommendation are addressed in this document;
- the cost of disposing of dredge material will be borne by the proponent (Section 3.3) consistent with policy recommendation DE1.6; and
- all dredge material will be removed from the river system (Section 3.3) consistent with policy Recommendation DE1.7.

It is, consequently, concluded that the development is consistent with the Swan River Trust policy on dredging.

4.4.3 Comparison of Proposed Development with Other Dredging Proposals

Dredging in the Swan River is carried out as required to maintain access to yacht clubs (for example Royal Perth Yacht Club) and has been undertaken in the past to allow developments such as Rous Head to proceed. The fact that these developments are allowed to proceed is an indication that dredging can be conducted in a manner that does not result in significant or lasting environmental impact.

In February 1991 a Public Environmental Review (PER) was produced that involved the dredging of a portion of the Swan River at Bayswater (Brien, 1991). This proposal, which was to dredge 90,000 m³ of fill material from an area of 100,000 m² was subsequently assessed by the EPA (EPA 1991) with the dredging component being deemed unacceptable for a number of reasons. In its assessment the EPA stated their position with respect to the environmental values of the river and further commented that "maintenance of these values is a yardstick against which the Authority has and intends to assess proposals, develop policies and set standards". The environmental values include:

- aesthetic and landscape amenity;
- conservation and maintenance of the ecological health of the river system and its foreshore;
- maintenance of water quality;
- private use will not be favoured against community use; and
- resilience of the system to cope with change.

The principal reasons for rejection of the Bayswater proposal were:

- uncertainty over the potential environmental impacts of the proposal;
- adherence to the principle that the river should not be used as a quarry for development; and
- the EPA's position that "proposals must not only satisfy the Authority that they will not cause adverse impacts to the river system, but must go further and show that the dredging will be either environmentally beneficial to the river, or necessary for the maintenance of existing river activities".

The current proposal differs significantly from the Bayswater proposal in that:

- only 400 m³ will be dredged c.f. 90,000 m³ for the Bayswater proposal;
- 200 m² of riverbed will be affected c.f. 100,000 m² for the Bayswater proposal;
- unlike the PER, the CER demonstrates that the proposal is environmentally benign; and
- the Swan River is not being used as a quarry since the principal objective of dredging is to provide an access channel rather than a source of fill.

With regard to the potential conflict between private and community use, the proponent has demonstrated that exiting community use of the area will be maintained through the installation of a swing bridge.

In addition, although this proposal does not demonstrate that the dredging will be environmentally beneficial to the river, the information contained in this CER demonstrates that the proposal will have minimal environmental impact. This is partially due to the scale of the proposed development but is also due to the stable and clean nature of the substrate that will be dredged.

4.5 Social Considerations

4.5.1 Existing Situation

Lot 55 is one of three titles along this section of the river where private ownership of land is still in effect to the high water mark. The balance of foreshore land as identified in the Metropolitan Region Town Planning Scheme is in public ownership.

This section of foreshore is characterised by a number of private jetties and boat ramps (Plate 1A) that provide boat mooring and access to private boat storage facilities.

Green Place Reserve is located immediately to the east of Lot 55 whilst Coombe Reserve is 250 m west of the lot. Both reserves are utilised for passive recreation. Private residences abut the western and eastern boundaries of Lot 55.

Public access along the foreshore west of Green Place Reserve is severely restricted due to the narrowness of the foreshore, a steep limestone cliff and the close proximity of some private residences to the foreshore. This is particularly evident in front of Lot 55 where approximately 85 m of the 115 m long foreshore area is taken up by a steep limestone cliff (Plate 1E). Currently, public access along this section of the river can only occur at low water (Plate 1C).

Recommendation A19 for the area between Mosman Bay and Green Place Reserve (Swan River Trust (1988) Page 50) identifies the need to provide public access along the river foreshore by means of either construction of a boardwalk or reclamation along the foreshore. Progressive implementation of this recommendation is occurring through the initiative of the Town of Mosman Park.

The principal form of river recreation immediately adjacent to Lot 55 is water skiing. A designated water ski area is located approximately 60 m offshore beyond the 5 m depth contour.

Recreational line fishing from the shore is limited due to the lack of public access. Prawning would be impossible due to the rocky nature of the riverbed. The section of the Swan River adjacent to Lot 55 is closed to net fishing.

4.5.2 Impacts on Foreshore Users (Commitments 5.1.1 and 5.3.3)

Currently, the only method by which the public can access this section of the foreshore is via the river shallows (Plate 1A and C). The steep limestone cliff and associated vegetation precludes public access along the foreshore.

However, an awareness of the need to provide continuity of pedestrian access along this section of the river and the recognition that a 3 m deep channel would interrupt access has resulted in a swing bridge being incorporated in the development (Section 3.2). The swing bridge will allow continued access except on occasions when the vessel is using the channel. The frequency of vessel movement will be low and, together with the low public usage of the area, will result in minimal public impact.

The incorporation of a swing bridge in the development does not prevent the implementation of Recommendation A19 (Swan River Trust (1988), Page 50). Should a boardwalk or reclamation be constructed, the swing bridge can be incorporated into the development.

4.5.3 Impacts on Existing River Users

No existing river users will be impacted by the proposed development.

4.5.4 Impacts on Private Residents (Commitments 5.2.2 and 5.2.3)

It is not expected that the proposed development will have any significant impact on private residents.

Some noise will occur from machinery operated during excavation. However, excavation is expected to only occupy a 2-week period and machinery will only be operated during daylight hours.

The proponent recognises their obligations under the Noise Abatement (Neighbourhood Nuisance) Regulations 1979 to take corrective action should unacceptable noise levels occur.

Although vibration damage is unlikely to occur the proponent, or the approved construction contractor, will be liable for any vibration damage to adjacent private property as a result of construction activity.

4.5.5 Aesthetic Impacts (Commitments 5.1.1 and 5.3.1)

The sides of the channel will be landscaped with limestone in keeping with the limestone facing surrounding land which has been reclaimed in the area. Any areas disturbed during construction activities will be rehabilitated with native vegetation where possible.

One private residence will have a partial view of the channel and the owner has indicated that there is no objection to the proposed development.

The development will not create an unacceptable aesthetic impact from the river (a river view is provided on the cover of this document). Prior to construction occurring the proponent will submit final design detail to the Swan River Trust to ensure that the development is sympathetic with Trust policy on landscape protection.

5.0 Proponent's Commitments

The following commitments are made by the proponent to address the potential environmental impacts of the proposed channel construction.

The commitments describe the issue to be addressed, the phase of the project during which it will be addressed and how it will be resolved.

The project has been split into three phases; a preconstruction phase, a construction phase and a post construction phase.

5.1 Preconstruction

5.1.1 Design of the channel and surrounds will be finalised. This will include the addressing of appropriate batter slopes and edge treatments, the design of the swing bridge, and landscaping. The design will be to the satisfaction of the Swan River Trust.

5.1.2 The site for the disposal of dredge spoil will be finalised and all necessary approvals obtained to the satisfaction of the Department of Environmental Protection.

5.2 During Construction

5.2.1 A geotextile curtain will be installed around the excavation to minimise the transmission of particulates. The curtain will remain in place until water clarity within the curtain approximates water clarity outside the curtain. This will be to the satisfaction of the Swan River Trust.

5.2.2 The proponent will abide by the Noise Abatement (Neighbourhood Nuisance) Regulations 1979. These regulations will be implemented to the satisfaction of the Department of Environmental Protection.

5.2.3 The proponent, or the approved subcontractor, will be liable for any vibration damage to adjacent private property as a result of construction activity.

5.2.4 All dredge spoil will be removed from the site to the satisfaction of the Department of Environmental Protection and the Swan River Trust.

5.3 Post Construction

- 5.3.1** Landscaping of the development site, consistent with 5.1.1 above, will be implemented to the satisfaction of the Swan River Trust.
- 5.3.2** Visual inspection of water quality within the channel will be undertaken regularly and remedial action will be taken if quality decreases. This will be to the satisfaction of the Swan River Trust.
- 5.3.3** The swing bridge walkway will be maintained in working order to the satisfaction of the Swan River Trust.

6.0 References

- Brien, B.J., and Associates Pty Ltd (1991). Proposed Riverside Gardens (West) Dredging and Landfill King William Street, Bayswater. Public Environmental Review. City of Bayswater.
- EPA (1991). Riverside Gardens (West) Dredging and Landfill, King William Street, Bayswater. Report and Recommendations of the Environmental Protection Authority. Bulletin 575.
- Swan River Trust (1988). Swan River Management Strategy. Prepared for the Government of Western Australia by the Management Strategy Task Force.
- Thurlow B.H., Chambers, J. and Klenn, V.V. (1986). Swan-Canning Estuarine System. Environment, Use and the Future. Waterways Commission Report No. 9.

GUIDELINES FOR THE CONSULTATIVE ENVIRONMENTAL REVIEW FOR THE PROPOSED DREDGING OF THE SWAN RIVER, MOSMAN PARK

Overview

In Western Australia, all environmental reviews are about protecting the environment, which for this proposal means that the environmental values associated with the Swan River are protected.

These Guidelines have been prepared in response to a proposal forwarded to the Environmental Protection Authority (EPA) by Ms A Bennet to dredge a portion of the Swan River and excavation of a portion of the River foreshore to provide access to a private underground boat shed at Lot 55 Saunders Street Mosman Park.

The primary purpose of the Consultative Environmental Review (CER) is to provide information on the proposal to the EPA within a local framework. The Authority will assess this information and then provide advice to the Government on the environmental acceptability of the proposal. An additional function of the CER is to communicate clearly with the public so that the EPA can obtain informed public comment. As such, environmental impact assessment is quite deliberately a public process. It also seeks to inform decision makers, to identify risks and minimise adverse environmental impacts, to achieve environmentally sound proposals through research, management and monitoring, and to manage potential conflict through the provision of the means for effective public participation.

It is the responsibility of the proponent to design and implement a proposal which protects the environment and to present this proposal for review by all interested members of the public. The proponent should describe what is proposed, discuss the potential environmental impacts of the proposal, and then describe how these environmental impacts are going to be managed so that the environment is protected.

These Guidelines have been prepared to assist the proponent in identifying issues which should be addressed within the CER. They are not intended to be exhaustive, and the proponent may consider that other issues should also be considered within the document.

The discussion in the CER should be concise, accurate, and easily understood. Specialist information should be included where it assists in the understanding of technical aspects of the proposal. Where possible, all information should be referenced. A copy of these Guidelines should be included in the CER.

Objectives of the CER

The CER should have the following objectives :

- to place this proposal in the context of the local environment;
- to explain the issues and decisions which led to the choice of this proposal at this place at this time;
- discuss the need for the proposal, including potential benefits of proposed dredging;
- to set out the environmental impacts that the proposal may have; and

- for each impact, to describe any environmental management steps the proponent believes would avoid, mitigate or ameliorate that impact.

The CER should focus on the major issues for the area and anticipate the questions that members of the public may raise. Data describing the environment should be directly related to the discussion of the potential impacts of the proposal. Both should then relate directly to the actions proposed to manage those impacts.

1. Justification

- justification and objectives for the proposed dredging activity;
- an evaluation of alternative location(s) including discussion of alternative boat access and storage options, and constraints associated with these; and
- justification of the preferred site. Discussion should make reference to the scale of the proposed dredging activity.

2. Proposal

This should include a discussion of the following points:

- precise design details and design criteria (length, width and depth of entrance channel);
- precise location of area proposed to be dredged, and access channel across foreshore to proposed underground boat shed;
- details of any proposed on-going maintenance dredging;
- details of dredge spoil disposal (transport of spoil, disposal site);
- details of any associated infrastructure, including jetties, boat house;
- anticipated construction timetable;
- identification of decision making authorities. Discussion should include reference to the Swan River Trust and Department of Planning and Urban Development in relation to potential impact on existing Crown Land reserved under the Metropolitan Region Planning Scheme for 'Parks and Recreation'; and
- any plans for future expansion of dredged area.

3. Existing Environment

- geology, including detailed description of sediment to be dredged and any special needs for managing fine sediments;
- benthic flora and fauna which may be affected by proposed dredging;
- estuarine flora and / or fauna which may be affected by the dredging and excavation into the foreshore and limestone cliff;
- existing water quality within the Swan River;
- existing boat launching facilities in the vicinity;
- existing pedestrian use of the area;
- existing public and private recreational use of the area (including fishing, swimming, boat launching, picnicking);
- description of existing communities in the vicinity of the proposed development; and
- documentation of historical, archaeological and ethnographic sites.

4. Key Environmental Impacts and Management

The potential impacts for both the proposed dredging operation during the construction period, and long term impacts should be addressed, including the following specific issues:

- impact on existing boat traffic movement and associated safety issues;
- impact on existing public recreational users, particularly those using the foreshore for pedestrian access between The Chine and Chidley Point;
- impact on private residents in the area;
- impact on water quality within the Swan River as a result of the dredging and the dredged channel;
- effect of dredging activity on hydrology of the Swan River immediately adjacent to the dredged site;
- impact of disposal of dredge spoil;
- impact on estuarine flora and fauna through construction and as a result of increased use as a result of proposed and associated facilities ;
- impact on existing foreshore vegetation as a result of construction of the access channel to the underground boat shed and associated facilities;
- short term nutrient impact as a result of disturbance to sediments by dredging ;
- proposed on-going maintenance of dredged Channel;
- impact on limestone cliff as a result of proposed access channel (integrity, aesthetic impact);
- impact on the aesthetic appreciation of the area; and
- consistency with existing management plans for the area, including the 'Swan River Management Strategy' prepared by the Swan River Trust.

5. Public Participation and consultation

A description should be provided of the public participation and consultation activities undertaken by the proponent in preparing the CER. It should describe the activities previously undertaken or proposed to be undertaken to promote public awareness and support for the proposal, the dates, groups and individuals involved, and the objectives of the activities.

Cross reference should be made with the description of the environmental management for the proposal which should clearly indicate how community concerns have been addressed. Where these concerns are dealt with via other departments or procedures, outside the Environmental Protection Authority process, these can be noted and referenced here.

6. Detailed list of environmental commitments

The commitments made by the proponent to protect the environment should be clearly defined and separately listed. Where an environmental problem has the potential to occur, there should be a commitment to rectify it. They should be numbered and take the form of:

- (a). who will do the work;
- (b). what the work is;
- (c). when the work will be undertaken; and
- (d). to whose satisfaction the work will be carried out.

All actionable and auditable commitments made in the body of the document should be numbered and summarised in this list.

DE 1 Dredging

Intent: Dredging can only take place where it is clearly demonstrated that no adverse environmental impact will occur.

Preamble

Guidelines for dredging in the Waterways Commission Management Area and for disposal of dredge material have been adopted for the Commission from a set developed for the Swan River Trust and EPA by a consultative committee. This policy is a summary of the Commission and EPA guidelines. While it provides an indication of their intent and requirements, proponents should read the full guidelines before lodging an application which entails dredging and disposal of dredge materials.

No attempt has been made to designate areas of river systems where dredging might not be permitted. The guidelines make it clear that all applications for dredging and disposal of dredge material, whether from government agencies or developers, will be assessed solely on their merits and in accordance with the guidelines.

The Commission considers that in certain circumstances there may be opportunities to dispose of dredge spoil in a manner beneficial to the river system. For example, spoil may be used for beach renourishment or habitat creation.

All dredging requires approval and licensing under the Act.

Proponents are also referred to the Commission's policy on conservation, environmental and landscape protection, contained in this document (EA 1).

Policy

DE 1.1 Dredging proposals must be designed to minimise impacts on environmentally sensitive areas. The form of the river channel and the extent of fringing and aquatic vegetation are among physical parameters to consider.

DE 1.2 The Commission identifies two types of dredging:

- maintenance dredging to maintain existing navigation channels and boat harbours or resurrect former water conditions. This type of dredging may also include the removal of nutrient rich sediments;
- developmental dredging for construction of new facilities or extension of existing areas.

DE 1.3 The Commission will consider all applications for maintenance dredging on their merits, taking particular account of the environmental impact of the proposal and the frequency with which dredging is required.

DE 1.4 The Commission may attach conditions to a licence covering:

- disposal of dredge material in a manner acceptable to the Commission,
- the time of year when dredging can take place,
- completion of the operation within a specified time,
- control of smell, dust, insects and any other matter.

DE 1.5 Developmental dredging and any dredging which involves the disposal of dredge material within a waterway shall be subject to environmental assessment, at a level determined by the EPA and WWC and covering:

- river hydrology.

- the short and long term impacts of the proposal on plant and animal life of the river system,
 - the extent to which ongoing dredging will be necessary,
 - the need for the proposal in the context of other competing uses.
- DE 1.6 The cost of disposing of dredge material must be included in the proposal and is to be borne by the proponent.
- DE 1.7 All contaminated dredge material is to be removed from the river system unless exceptional circumstances apply.
- DE 1.8 The Commission is unlikely to recommend approval for disposal of dredge material:
- into deep holes in the river
 - on wetlands
 - on flood prone land.
- The commission may recommend approval for the disposal of clean dredge material in areas to:
- renourish beaches
 - correct erosion
 - create habitat for native flora and fauna
- DE 1.9 The Commission may recommend approval for dredging designed to evaluate the cost and effectiveness of its use in removing nutrient rich or unwanted sediments.

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