

Environmental Assessment Report
Extension to Marina & Parking Facilities
St. George Motor Boat Club
2 Wellington Street, Sans Souci



Client: St George Motor Boat Club
2 Wellington Street
SANS SOUCI NSW 2219

Project Ref: 0107/09

Date: April 28, 2010 (*Incorporates revised WMP and EMP dated April 2010*)

CONTENTS

1	EXECUTIVE SUMMARY	1
2	INTRODUCTION.....	2
2.1	Overview	2
2.2	Project Team.....	2
2.3	The Proponent	2
2.4	Land Owners Consent	3
2.5	Director General's Requirements	3
3	LOCALITY & SITE CONTEXT	5
3.1	Site Description	5
3.2	Existing & Approved Operations	7
3.2.1	Compliance with current conditions of consent	8
3.3	Existing Environmental Management.....	8
3.4	Site Access & Parking.....	9
3.5	Surrounding Development	12
4	PROJECT DESCRIPTION.....	13
4.1	The Proposal.....	13
4.1.1	Water Based Works	13
4.1.2	Land Based Works	14
4.2	Need for the Project	14
4.3	Alternatives Considered	14
4.3.1	Remove Unauthorised Berths	14
4.3.2	Seek Approval for Unauthorised Berths Only	15
4.3.3	Do Nothing	15
4.4	Staging of Project.....	15
4.5	Proposed Environmental Management.....	15
5	ENVIRONMENTAL ASSESSMENT	16
5.1	Statutory Planning & Compliance.....	16
5.1.1	Environmental Planning & Assessment Act 1979	16
5.1.2	State Environmental Planning Policies.....	16
5.1.3	Regional Planning Policies [Deemed SEPPs]	17
5.1.4	Local Planning Policies	20
5.1.5	Australian Standard AS 3962-2001 – Guidelines for Design of Marinas	23
6	CONSULTATION	24
6.1	Department of Planning	24
6.2	Department Land & Property Management Authority.....	24
6.3	NSW Maritime Authority.....	24
6.4	Department of Water & Energy	25

6.5	Department of Environment, Climate Change & Water	25
6.6	Roads & Traffic Authority	26
6.7	NSW Department of Primary Industries	26
6.8	Kogarah City Council	26
6.9	The Local Community	27
7	RISK ASSESSMENT OF ENVIRONMENTAL IMPACTS	30
7.1	Risk Assessment – EMP	30
7.2	Section 111 Checklist – Environmental Impacts	30
7.3	Clause 228 Checklist	31
8	ENVIRONMENTAL ASSESSMENT OF KEY ISSUES	33
8.1	Visual Impact	33
8.1.1	Introduction	33
8.1.2	Methodology	33
8.1.3	Considerations	34
8.1.4	Conclusions and Recommendations	38
8.2	Soil & Water	39
8.2.1	Introduction	39
8.2.2	Methodology	39
8.2.3	Considerations	40
8.2.4	Conclusions and Recommendations	40
8.3	Aquatic Flora & Fauna	41
8.3.1	Introduction	41
8.3.2	Methodology	41
8.3.3	Considerations	42
8.3.4	Conclusions and Recommendations	43
8.4	Traffic & Access	43
8.4.1	Introduction	44
8.4.2	Methodology	44
8.4.3	Considerations	44
8.4.4	Conclusions and Recommendations	45
8.5	Noise	46
8.5.1	Introduction	46
8.5.2	Methodology	46
8.5.3	Considerations	47
8.5.4	Conclusions and Recommendations	48
8.6	Air Quality	49
8.6.1	Introduction	49
8.6.2	Methodology	49
8.6.3	Considerations	49
8.6.4	Conclusions and Recommendations	49
8.7	Waste	49
8.7.1	Introduction	50
8.7.2	Methodology	50
8.7.3	Considerations	50
8.7.4	Conclusions and Recommendations	51
9	DRAFT STATEMENT OF COMMITMENTS	52
10	CONCLUSION	54

FIGURES

Figure 1: Aerial Photograph of Club and Marina	5
Figure 2: The Club building viewed from lower level car park	6
Figure 3: Upper level car park accessed from Plimsoll Street	10
Figure 4: Retaining wall between upper and lower car parking levels	10
Figure 5: Lower level car park (south)	11
Figure 6: Lower level car park (north)	11
Figure 7: Kogarah LEP 1998 – Zoning Map Extract	21
Figure 8: Berthing Arm E	33
Figure 9: Visual Analysis Locations	37

APPENDICES

Appendix A: Land Owner's Consent Advice	
Appendix B: Director General's Requirements	
Appendix C: Marina layout as approved	
Appendix D: Section 96 modification (reconfiguration of the outer end of Arm E)	
Appendix E: Environmental Management Plan (existing)	
Appendix F: Survey, Marina and Parking Plans	
Appendix G: Revised Environmental Management Plan (proposed)	
Appendix H: Correspondence - NSW Department of Water and Energy	
Appendix I: Correspondence - Department of Environment, Climate Change and Water	
Appendix J: Correspondence - RTA	
Appendix K: Correspondence - NSW Department of Primary Industries	
Appendix L: Correspondence - Kogarah City Council	
Appendix M: Correspondence - NSW Maritime	
Appendix N: Photomontages and Photographs	
Appendix O: Coastal Processes Report	
Appendix P: Geotechnical Investigation	
Appendix Q: Aquatic Ecology Impact Assessment	
Appendix R: Traffic & Parking Study	
Appendix S: Noise Impact Assessment	
Appendix T: Waste Management Plan	

©This document and the research reported in it remains the property of Planning Ingenuity Pty Ltd and are protected by copyright. Apart from fair dealings for the purposes of private study, research or review, as permitted under the *Copyright Act 1968*, no part of the document may be reproduced, by any process, without the written permission of the author. All inquiries in this regard are to be directed to the Director, Planning Ingenuity Pty Ltd.

CERTIFICATION

This Environmental Assessment has been prepared and submitted under Part 3A of the Environmental Planning & Assessment Act 1979.

Environmental Assessment

Name	Lindsay Fletcher
Qualifications	M.Env.Plan (FPIA)
Company	Planning Ingenuity Pty Ltd
Address	1/16-22 Willock Avenue, Miranda NSW

Project Application

Applicant	St George Motor Boat Club Ltd
Address	2 Wellington Street Sans Souci NSW
Proposed Development	Extension of Existing Marina and Associated Facilities
Certificate	<p>I certify that I have prepared this Report in accordance with Section 75F of the Environmental Planning & Assessment Act 1979 and to the best of my knowledge:</p> <ul style="list-style-type: none">• It is in accordance with the Environmental Planning and Assessment Act 1979 and Regulation 2000.• The information contained within this Report is neither false nor misleading.

PREPARED BY

.....	Lindsay Fletcher
Signature	Date
	Managing Director, Planning Ingenuity Pty Ltd 1/16-22 Willock Avenue, Miranda NSW

1 EXECUTIVE SUMMARY

The following Environmental Assessment (EA) provides an assessment of the proposed marina expansion and associated parking facilities and seeks to gain approval by the Minister under Section 75E of the Environmental Planning and Assessment (EP&A) Act 1979 to carry out the proposed works.

The proposal involves the regularization and continued use of 23 existing unauthorized berths and to expand the Club's existing marina through the construction of an additional berthing arm. As a result of the proposed development, the marina expansion will provide 78 new berths (ranging from 8-18m) which, in addition to the 128 approved berths and 23 regularized berths, will provide a total of 229 berths.

To accommodate the additional parking demand, the existing lower level parking layout will be modified in addition to the construction of a new parking level with 34 additional spaces. The amended parking layout will accommodate a total of 238 spaces.

The Director General's requirements were issued by the Department of Planning on 8 May 2009. Land Owner's Consent is currently being sought from the Land and Property Management Authority.

Consultation has been undertaken with Kogarah City Council, Roads and Traffic Authority, NSW Department of Primary Industries, Department of Water and Conservation, NSW Maritime Authority and the Department of Environment, Climate Change and Water.

Community consultation has been carried out providing information and advice about the proposal to the local community.

The complete EA package provides a detailed analysis of the identified key considerations which include issues relating to visual amenity; soil and water; aquatic flora and fauna; traffic and access; noise; air quality and waste. Each of these issues have been considered and investigated by the project team in the design and development of the proposal. The conclusions and recommendations provided by the project team and accompanying studies are detailed throughout this report.

It is concluded that the proposed works are consistent with the relevant development standards, controls and zoning objectives; are appropriate with respect to the surrounding built and natural environment, and will not result in any significant environmental impacts subject to appropriate mitigation measures relating to construction methods as well as management and operation of the expanded facility, as detailed in this report.

2 INTRODUCTION

2.1 Overview

Planning Ingenuity Pty Ltd has been engaged by the St George Motor Boat Club (the Proponent) to prepare an Environmental Assessment Report for the expansion of the St George Motor Boat Club Marina and associated parking facilities.

This report is divided into ten sections, as follows:

Section 1 – Executive Summary
Section 2 – Introduction
Section 3 – Locality & Site Context
Section 4 – Project Description
Section 5 – Environmental Assessment
Section 6 – Consultation
Section 7 – Risk Assessment of Environmental Impacts
Section 8 – Environmental Assessment of Key Issues
Section 9 – Draft Statement of Commitments
Section 10 - Conclusion

2.2 Project Team

The following project team has been involved in the preparation of this Environmental Assessment:

Marina Layout Plans	David Blyth
Parking Plans	David Blyth
Traffic Impacts	Transport & Urban Planning
Noise Impact	RSA Acoustics
Ecological Impacts	Marine Pollution Research Pty Ltd
Sedimentation	Marine Pollution Research Pty Ltd
Geotechnical	Jeffrey & Katauskas Pty Ltd
Coastal Processes	Cardno Lawson Treloar Pty Ltd
Water Quality	Cardno Lawson Treloar Pty Ltd
Environmental Management	Golder Associates
Statutory & Urban Planning	Planning Ingenuity Pty Ltd

2.3 The Proponent

The proponent is St George Motor Boat Club. The St George Motor Boat Club is registered under the Registered Clubs Act 1976. The Club was established on 28 May 1920 and the property at No.2 Wellington Street was purchased on 23 November 1920. On 28 February 1921, the St George Motor Boat Club Ltd was registered. The official opening of the Clubhouse took place on 24 April 1921. On 9 January 1929, a Certificate of Incorporation was issued. The Club has operated on the site continuously from that time.

2.4 Land Owners Consent

Land Owner's Consent is being sought from the Land and Property Management Authority (formerly the Department of Lands). See correspondence from the Department attached as **Appendix A**.

2.5 Director General's Requirements

The Director General's Requirements were issued by the Department of Planning on 8 May 2009, a copy of which is included at **Appendix B**. The table below details the general requirements and where these requirements are addressed within this Report.

General Requirements	Location within report
Executive Summary	Page 1
Detailed description of:	
- the existing and approved operations and facilities, including any statutory approvals that apply to the operations and facilities; and	Page 8
- the existing management regime on site	Page 8
Detailed description of the project, including:	
- the need for the project	Page 14
- the alternatives considered, including justification for the preferred alternative	Page 14
- the likely staging of the project	Page 15
- plans of any proposed building works	Appendix F
- demonstration that the design of the marina is consistent with relevant standards and guidelines including AS 39 62 – Guidelines for Design of Marinas, NSW Maritime's Engineering Standards and Guidelines for Boatsheds and Slipways; and	Page 23
- an environmental management plan for the ongoing operation of the marina	Appendix G
A review of the compliance of operations of the marina against the current conditions of consent.	Page 8
A risk assessment of the potential environmental impacts of the project, identifying the following key issues:	
- a description of the existing environment	Page 5
- an assessment of the potential impacts of all stages of the project, including any cumulative impacts taking into consideration any relevant laws, policies, plans or guidelines.	Part 7 (Pages 30-32)
- a description of measures that would be implemented to avoid, minimise, and if necessary, offset potential impacts of the	Part 8 (Pages 33-51)

project.	
A statement of commitments, outlining all the proposed environmental management and monitoring measures.	Page 52
A conclusion justifying the project on economic, social and environmental grounds taking into consideration whether the project is consistent with the objects of the Environmental Planning & Assessment Act 1979.	Page 54
A signed statement from the author of the Environmental Assessment, certifying that the information contained within the document is neither false nor misleading.	Page iii
Key Issues:	
- Visual Amenity	Page 33 and Appendix N
- Soils and Water	Page 39 and Appendix O
- Aquatic Flora and Fauna	Page 41 and Appendix Q
- Traffic and Access	Page 43 and Appendix R
- Noise	Page 46 and Appendix S
- Air Quality	Page 49
- Waste	Page 49 and Appendix T
Consultation:	
- Kogarah City Council	Page 26 and Appendix L
- NSW Maritime Authority	Page 24 and Appendix M
- Department of Water and Energy	Page 25 and Appendix H
- Department of Environment, Climate Change & Water	Page 25 and Appendix I
- Roads & Traffic Authority	Page 26 and Appendix J
- NSW Department of Primary Industries	Page 26 and Appendix K

3 LOCALITY & SITE CONTEXT

3.1 Site Description

The St George Motor Boat Club is located on St Kilda Point, Sans Souci the eastern entry point to Kogarah Bay. The Club is situated at the corner of Wellington and Plimsoll Streets. It occupies a fan-shaped parcel of land with the northern boundary defined by Wellington Street and Anderson Park to the waterfront, the eastern boundary defined by Plimsoll Street and a small public park at the southern end of Plimsoll Street and the remaining boundary to the west and south defined by the waters of Kogarah Bay/ Georges River.



Figure 1: Aerial Photograph of Club and Marina

The Club has a lease with the Property Management Authority (formerly the Department of Lands) for the Club's Crown Land portion of the site. The lease relates to the water-based part of the land occupied by the Club and part of the foreshore.

The existing Club development comprises land and water based facilities including:

Land Based Facilities

- A two storey Club building containing bars, bistro, function rooms, meeting rooms and ancillary facilities. The main Club facilities are located at the ground floor level accessed from the upper level car park off Plimsoll Street;
- Two parking areas referred to as the lower and upper car parks are situated on the accessed from Plimsoll Street; and

- A boat mechanics workshop.

Water based Facilities

- Five floating pontoon arms (A to E) containing 142 permanent marina berths and 9 visitor berths (151 berths in total);
- Refuelling facilities comprising two 9000L underground storage tanks;
- A dual slipway located at the southern end of the Club building, used for cleaning and painting boat hulls;
- A boat ramp to the immediate north of the slipway;
- A race viewing tower located at the western tip of Berthing Arm A;
- A wastewater pump-out located at the western tip of Berthing Arm A connected to the sewer mains;
- A weigh station; and
- A marina management office located on the gangway to Berthing Arms B and C.

The existing marina is contained within the Club's (water) lease area which has an area of 2.43ha. The Club building is setback approximately 25m from the seawall which marks the waterfront. The foreshore has been reclaimed in the past and the frontage of the site is now hardstand which adjoins a concrete seawall and rock rubble embankment extending the perimeter of the site.



Figure 2: The Club building viewed from lower level car park

3.2 Existing & Approved Operations

The Club has been operating since 1929, however most of the existing facilities were approved in the early 1970s.

In 2001, the then Minister for Urban Affairs and Planning granted development consent (DA-222-08-01) for the replacement of the existing fixed timber jetties at the St George Motor Boat Club with a new floating marina. More specifically, the proposal involved the following:

- Replacing the existing fixed timber jetties with five floating pontoons;
- Upgrading the existing fuel dispensing facilities;
- Installing a sewerage pump-out facility; and
- Dredging 5,470m² of material from Kogarah Bay.

The approved marina provided a total capacity of 128 berths and a fuel berth, as detailed in the table below:

APPROVED NUMBER OF BERTHS UNDER DA 222-08-01			
Vessel Length	Permanent Berth	Visitor Berth	Total
10m	42	-	42
12m	62	-	62
15m	22	-	22
18m	2	-	2
Total	128	-	128

The marina layout as approved is shown in the plan in **Appendix C**.

A subsequent Section 96 modification approved on 30 August 2002 provided for the reconfiguration of the outer end of Arm E as shown in **Appendix D**.

As built, the marina is not in accordance with the above approval. As such, the marina currently accommodates a total 151 vessels, which represents an increase of 23 vessels over the approved 128 berth marina, as detailed in the following table:

EXISTING NUMBER OF BERTHS			
Vessel Length	Permanent Berths	Visitor Berths	Total
8m	12	6	18
10m	42	-	42
12m	60	-	60
15m	24	-	24
18m	4	3	7
Total	142	9	151

The changes which have been made to the approved number and location of marina berths are outlined below:

New berths added to marina layout

- 12 x 8m berths on Arm D
- 1 x 10m berth on Arm D

- 1 x 10m berth at the eastern end of Arm E
- 2 x 12m berths on Arm A
- 1 x 15m berth at western end of Arm D
- 1 x 18m berth in the location of the approved fuel berth
- 1 x 18m berth at the western end of Arm E
- 6 x 8m visitor berths on the pontoon between Arm B and the shoreline
- 3 x 18m visitor berths on the outer edge of Arms B, C and D

Approved berths removed

- reduction of 4 x 12m berths on Arm D
- reduction of 1 x 10m berth on eastern end of Arm B (northern side)

Reconfiguration of approved berths

- approved 1 x 12m berth on Arm E converted to 1 x 15m berth
- approved 1 x 10m berth on Arm A converted to 1 x 12m berth
- relocation of fuel berth to outer edge of Arm A

Several minor approvals that are of little if any relevance to the current proposal have been issued by Council in recent years including the following:

- Erection of sail structures to terrace areas and fire sprinkler to storage tank (DA282/2007) approved by Council on 12 November 2007;
- An all weather smoking area (DA112/2008) approved by Council on 21 April 2008;
- Installation of poker machines in the outdoor smoking area (Section 96 Modification 112/2008/2) approved by Council on 6 June 2008;
- Place of Public Entertainment (DA356/2008) approved by Council on 9 December 2008; and
- Relocation of approved fire sprinkler storage tanks (Section 96 Modification 282/2007/2) approved by Council on 24 November 2008.

However, it is relevant to note that a building certificate was issued by Kogarah City Council on 1 April 2009 for the structures at the marina as they currently exist.

3.2.1 Compliance with current conditions of consent

St George Motor Boat Club has been consulting with the Department of Planning in relation to regularising the continued use of the additional existing 23 berths for several months. Correspondence from the Department dated 1 July 2009, states that '*the Department acknowledges the Club's intention to seek regularization of the non-compliant berths through a proposal to further expand the marina.*' This Environmental Assessment Report seeks to resolve the existing breach in conjunction with expansion to the marina by way of Major Project Application M09_0035.

3.3 Existing Environmental Management

The Club has a number of existing policies and procedures in place for management of the water based facilities on the site. These are set out in its Marina Manual, entitled *Marina*

Policies, By Laws, Amendments and Conditions. Currently the on-going operation of the floating marina facility at St George Motor Boat Club is governed by an Environmental Management Plan prepared by Golder Associates dated 2 July 2009 contained in **Appendix E**.

The EMP was prepared in accordance with conditions of consent issued by the Department of Planning under Development Application 222-08-01 dated 23 November 2001 which required the preparation and ongoing use of an EMP for the on-going operations of the Marina. The EMP provides the following:

- a) A description of the marina operations;
- b) Identification of all relevant statutory requirements applicable to the marina operations;
- c) Setting of standards and/or performance measures for each relevant environmental issue;
- d) A description of the actions and measures implemented to mitigate the potential impacts of the marina's operations, ensuring the operations meet the relevant standards and/or performance measures;
- e) A description of measures and procedures implemented to register, report and respond to complaints during operations;
- f) A description of the role, responsibility, authority and accountability of all key personnel involved in the marina's operations;
- g) A Berthing Management Plan;
- h) A Slipway Management Plan;
- i) A Water Quality Management Plan, including procedures for dealing with wastewater generated by the marina's operations;
- j) A Waste Management Plan;
- k) A Fuel Management Plan, including procedures for dealing with any spills; and
- l) An Emergency Management Plan.

In correspondence from the Department of Planning dated 1 July 2009, it was advised that the Department is satisfied that the EMP meets the requirements of the conditions of development approval, subject to minor additional information regarding boat owners responsibilities with respect to compliance with the Berthing Management Plan, Water Quality Management Plan, Emergency Spills Management Plan and the Fuel Management Plan. The updated EMP was provided to the Department on 31 July 2009.

3.4 Site Access & Parking

The Club facilities include an upper parking area and a lower parking area. Vehicular access to each of the parking areas is from separate openings along the western side of Plimsoll Street. The upper level car park currently comprises 84 parking spaces (including 4 accessible spaces) and egress is from the southern side of Wellington Street, to the east of the Club building. The main pedestrian entrance to the Club is provided directly from the upper level car park.



Figure 3: Upper level car park accessed from Plimsoll Street

There is a significant change in levels between the upper and lower level car park, approximately 4.67m. Currently a chain mesh fence is located at the southern edge of the upper level car park above a retaining wall. Pedestrian access only is provided between these levels.



Figure 4: Retaining wall between upper and lower car parking levels

The lower level car park is accessed from a ramp off the southern end of Plimsoll Street and extends along the waterfront boundary of the site. The lower car park currently provides 118 parking spaces (including 2 accessible spaces) with egress via either Plimsoll or Vista Street, the latter accessed along the western side of the Club building. A secondary pedestrian entrance to the Club building is provided from the lower level car park via stairs on the western side of the building.



Figure 5: Lower level car park (south)



Figure 6: Lower level car park (north)

Pedestrian access to the Club building will not change as a result of the proposed development. The proposal includes providing a new parking level above part of the lower level car park with vehicular access and egress to this new level via ramps from the southern edge of the existing upper level car park. The total existing and proposed parking spaces on the site are detailed in the table below:

Existing and Proposed Parking Spaces			
Parking Level	Existing Spaces	Proposed Additional Spaces	Total
Upper parking level	84	0	84
Lower parking level	118	2	120
New parking level (upper)	-	34	34
TOTAL	202	36	238

Access to the existing marina berthing arms will remain unchanged. Access to the proposed new marina arm (Arm F) will be from a short walkway off the existing southern arm (Arm E) beyond the existing pedestrian access gate.

3.5 Surrounding Development

The area surrounding the subject site is predominantly characterised by residential development. There exist detached dwellings opposite the site along Plimsoll Street to the east, Wellington Street and Vista Street to the north.

There are also a number of other waterfront land uses within close proximity to the Club including:

- The Water Police facility to the east on Georges River;
- The Sydney South Fisheries Office to the south-east on the Georges River;
- Sans Souci Park and ferry wharf to the south-east on the Georges River;
- Anderson Park to the north adjoining the Club's lower car park on Kogarah Bay;
- Botany Bay Yacht Club to the north on Kogarah Bay;
- Dover Park and Kogarah Bay Sailing Club to the west on Kogarah Bay; and
- Carss Bush Park to the north-west on Kogarah Bay.

4 **PROJECT DESCRIPTION**

4.1 **The Proposal**

There is a large demand for berthing accommodation within southern Sydney and this demand is continuing to rise. Since 2003, the St George Motor Boat Club Marina has been fully occupied and there is a waiting list with more than 50 interested parties waiting for berths to become available.

The primary objectives of the proposed development are detailed as follows:

- To regularise the use of the existing marina;
- To respond to the increasing need for additional berthing facilities on the Georges River by providing additional berths;
- To expand the existing facility in a manner which will minimise the potential for environmental impacts both within the waterway and on the adjacent land ; and
- To allow the Club to respond to the changing statutory requirements relating to its operation and ensure its on-going viability.

The proposal includes both land and water based works as detailed below.

4.1.1 **Water Based Works**

It is proposed to regularize the continued use of the 23 existing unauthorized berths. Furthermore, it is proposed to expand the Club's existing marina through the construction of an additional Arm F on the southern side of the existing southern-most Arm E. Access to the proposed new marina arm will be from a short walkway off the existing southern arm beyond the pedestrian access gate. The additional arm will have no direct land connection. Refer to Marina Layout Plan **Appendix F**.

As a result of the proposed development it will be necessary to increase the existing Property Management Authority (formerly the Department of Lands) lease area. The marina expansion will provide 101 new berths (ranging from 8-18m) which in addition to the 128 approved berths will provide a total of 229 berths as detailed in the following table:

PROPOSED NUMBER OF BERTHS								
BERTH SIZE	ARM						VISITORS	TOTAL
	A	B	C	D	E	F		
18m	Nil	1	1	1	1	Nil	Nil	4
15m	Nil	Nil	Nil	3	1	1	Nil	5
12m	Nil	Nil	Nil	Nil	2	Nil	Nil	2
10m	Nil	Nil	Nil	3	Nil	36	Nil	39
8m	3	Nil	Nil	12	35	Nil	6	56
Deleted berths	Nil	1	Nil	4	Nil	Nil	Nil	5
Total increase in berths	3	Nil	1	15	39	37	6	101
As approved	17	28	27	33	23	Nil	Nil	128
Total proposed berthing	20	28	28	48	62	37	6	229

4.1.2 Land Based Works

To accommodate the additional parking demand, the existing lower level parking layout will be modified in addition to the provision of a new parking level with 34 spaces above the lower southern car park. The existing car park currently accommodates 202 parking spaces. The amended parking layout will accommodate 36 new spaces providing a total of 238 spaces (including 1 new space to the existing lower level car park and 1 new space to the existing upper level car park). The new parking level is set below the level of the existing upper car park and will be setback 23m from the seawall. Refer to the Parking Layout Plan (CP00 2 E) and New Park Detail (CP00 3 C) **Appendix F**.

4.2 Need for the Project

As previously discussed, the marina currently comprises 23 unauthorised berths and as advised by the Department of Planning, any continuing use of these berths is likely to place the Club in continuing breach of the Environmental Planning and Assessment Act 1979.

Furthermore, boat ownership and boat driver licenses are increasing as identified by general vessel registrations within NSW published by NSW Maritime and the Boating Industry Association of NSW. As previously stated there is a large demand for berthing accommodation within southern Sydney and this demand is continuing to rise at a significant rate. In fact, the NSW Maritime is currently preparing a comprehensive Boat Ownership and Storage Study in conjunction with Hill PDA to determine the number of vessels currently stored in NSW and forecast future trends in storage demands and types. Whilst data from these studies is not yet public information it provides a clear indication that there is a genuine demand and an identified need to quantify the supply and demand of boating facilities across the state.

Since 2003, the St George Motor Boat Club Marina has been fully occupied and there is a waiting list with more than 50 interested parties seeking berthing accommodation listed on the Marina Enquiries List. The proposed marina extension seeks to address this demand by authorising the total existing 151 berths and providing an additional 78 berths, thereby providing a total berthing capacity of 229 berths.

4.3 Alternatives Considered

A number of alternatives have been considered by the Club. These include removing the 23 existing unauthorised berths, seeking approval only for the unauthorised berths or doing nothing. These alternatives are discussed below.

4.3.1 Remove Unauthorised Berths

The existing 151 berth marina is currently at full capacity. The option of removing the 23 unauthorised berths would be highly detrimental to the operation and function of the marina and provide no significant environmental benefit. Removal of 23 berths would add to the current large waiting list and further reduce the capacity of the marina to address the growing demand for berthing accommodation.

Removal of the unauthorised berths is a highly undesirable alternative for boat owners in the St George and Sutherland area and for the Club.

4.3.2 Seek Approval for Unauthorised Berths Only

For the Club to seek approval for the existing 23 unauthorised berths only would benefit through bringing the Club into conformity with the *Environmental Planning & Assessment Act 1979*, and avoiding any enforcement action. This alternative however would not assist in addressing the identified demand for berthing accommodation. It would not take advantage of the opportunity that exists for the existing facility to be expanded with minimal environmental and visual impacts, as detailed later in this Report.

4.3.3 Do Nothing

For the Club to do nothing in relation to the marina would result in a number of issues. Namely, as advised by the Department of Planning, continued use of the 23 unauthorised berths would place the Club in continuing breach of the *Environmental Planning & Assessment Act 1979* and would likely result in enforcement action being taken.

Furthermore, for the Club to do nothing would mean an existing and growing community demand for additional marina berths is left unaddressed in circumstances where the opportunity exists for the existing facility to be expanded with minimal environmental and visual impacts as detailed later in this Report.

To do nothing is a highly undesirable alternative for boat owners in the St George and Sutherland area and for the Club.

In conclusion it is considered that the proposal to both regularize the continued use of 23 berths and increase the berthing capacity through the provision of an additional marina arm achieves both conformity with the statutory requirements of the Act and contributes to meeting a growing demand for marina berths.

4.4 Staging of Project

It is anticipated that total works for construction of the parking facility, berthing Arm F and the additional berths on Arm E will take between 5-6 months. In relation to the marina facilities this would involve 2-3 months off-site pre-fabrication of marina structures and 3 months of on-site installation and construction.

4.5 Proposed Environmental Management

The Club has a number of existing policies and procedures in place for the management of the water based activities at the site. These are set out in its Marina Manual, entitled *Marina Policies, By Laws, Amendments and Conditions*, which will be updated to accommodate the proposed water and land based works. As previously discussed, the on-going operation of the marina facility at St George Motor Boat Club is currently governed by an Environmental Management Plan prepared by Golder Associates dated 2 July 2009. A revised Environmental Management Plan has been prepared by Golder Associates in relation to the proposed expanded marina (**Appendix G**).

5 ENVIRONMENTAL ASSESSMENT

5.1 Statutory Planning & Compliance

5.1.1 Environmental Planning & Assessment Act 1979

Part 3A of the EP& A Act 1979 relates to Major Infrastructure and other projects. Section 75B of the Act states:

- " (1) **General**
This Part applies to the carrying out of development that is declared under this section to be a project to which this Part applies:
(a) by a State environmental planning policy, or
(b) by order of the Minister published in the Gazette (including by an order that amends such a policy)."

Schedule 1 of *State Environmental Planning Policy (Major Development) 2005*, defines the classes of 'Major Projects' and the proposal falls within Group 6, Tourism and Recreational Facilities (Marina Facilities) of the SEPP.

On 8 May 2009, the Director General of the Department of Planning, as delegate of the Minister for Planning, formed the opinion that the proposal is a Major Project to which Part 3A of the EP&A Act applies.

5.1.2 State Environmental Planning Policies

State Environmental Planning Policy (Major Development) 2005

State Environmental Planning Policy (Major Development) 2005 commenced on 25 May 2005.

The policy applies to the whole of the state and the aims of the policy are as follows:

- " (a) to identify development to which the development assessment and approval process under Part 3A of the Act applies,
(b) to identify any such development that is a critical infrastructure project for the purposes of Part 3A of the Act,
(c) to facilitate the development, redevelopment or protection of important urban, coastal and regional sites of economic, environmental or social significance to the State so as to facilitate the orderly use, development or conservation of those State significant sites for the benefit of the State,
(d) to facilitate service delivery outcomes for a range of public services and to provide for the development of major sites for a public purpose or redevelopment of major sites no longer appropriate or suitable for public purposes,
(e) to rationalise and clarify the provisions making the Minister the approval authority for development and sites of State significance, and to keep those provisions under review so that the approval process is devolved to councils when State planning objectives have been achieved,
(f) to identify development for which regional panels are to exercise specified consent authority functions."

Schedule 1 of the State Environmental Planning Policy (SEPP) lists the classes of development that are projects to which Part 3A applies and states the following:

“ **Group 6 Tourism and recreational facilities**

14 Marina facilities

- (1) Development for the purpose of marinas or other related land or water shoreline facilities that moor, berth or store vessels (excluding dinghies and other small craft) at fixed or floating berths, at freestanding moorings, alongside jetties or pontoons, within dry storage stacks or on cradles in hardstand areas and that:
 - (a) moor, berth or store more than 30 vessels in Sydney Harbour, Middle Harbour, North Harbour, Botany Bay, Port Hacking, Broken Bay or associated tidal waters, or
 - (b) moor, berth or store more than 80 vessels in other waters, or
 - (c) are located in environmentally sensitive areas of State significance, but excluding any development that, in the opinion of the Minister, is only of local environmental planning significance.
- (2) A reference in this clause to the number of vessels moored, berthed or stored includes a reference (in the case of an existing facility) to the additional number of vessels moored, berthed or stored at the facility.”

The proposed development falls within the above class of development in that St George Motor Boat Club is located in tidal waters associated with Botany Bay (ie. Georges River) and it is proposed to seek approval for the continued use of 23 existing berths at the marina and to further increase the number of berths by 78 to provide a total of 229 berths.

5.1.3 Regional Planning Policies [Deemed SEPPs]

As of 1 July 2009, Regional Environmental Plans (REPs) are no longer part of the hierarchy of environmental planning instruments in NSW. All existing REPs are now deemed SEPPs. The Department is reviewing all these remaining REPs as part of the NSW planning system reforms.

Greater Metropolitan Regional Environmental Plan No. 2 – Georges River Catchment [Deemed SEPP]

The Greater Metropolitan REP No. 2 – Georges River Catchment was gazetted on 5 February 1999. This Plan applies to the Greater Metropolitan Region which consists of parts of Bankstown City, Blacktown City, Campbelltown City, Camden, Canterbury City, Fairfield City, Holroyd City, Hurstville City, **Kogarah City**, Liverpool City, Rockdale City, Sutherland, Wollondilly and Wollongong City local government areas that are within the Georges River Catchment. The subject site falls within the Kogarah City local government area and therefore the provisions of the REP apply.

The Plan aims to protect the water quality of the Georges River and its tributaries and the environmental quality of the whole catchment. The objectives of the plan are to be achieved through coordinated land use planning and development control. The plan establishes the framework within which local, State and Federal agencies will consult so that there is a consistent approach to planning and development within the catchment.

Clause 5 of the REP provides both general and specific aims and objectives, which are detailed as follows:

- “ (1) The general aims and objectives of this plan are as follows:

- (a) to maintain and improve the water quality and river flows of the Georges River and its tributaries and ensure that development is managed in a manner that is in keeping with the national, State, regional and local significance of the Catchment,
- (b) to protect and enhance the environmental quality of the Catchment for the benefit of all users through the management and use of the resources in the Catchment in an ecologically sustainable manner,
- (c) to ensure consistency with local environmental plans and also in the delivery of the principles of ecologically sustainable development in the assessment of development within the Catchment where there is potential to impact adversely on groundwater and on the water quality and river flows within the Georges River or its tributaries,
- (d) to establish a consistent and coordinated approach to environmental planning and assessment for land along the Georges River and its tributaries and to promote integrated catchment management policies and programs in the planning and management of the Catchment,
- (e) (Repealed)
- (f) to provide a mechanism that assists in achieving the water quality objectives and river flow objectives agreed under the Water Reform Package.

(2) The specific aims and objectives of this plan are as follows:

Environmental protection and water quality and river flows

- (a) to preserve and protect and to encourage the restoration or rehabilitation of regionally significant sensitive natural environments such as wetlands (including mangroves, saltmarsh and seagrass areas), bushland and open space corridors within the Catchment, by identifying environmentally sensitive areas and providing for appropriate land use planning and development controls,
- (b) to preserve, enhance and protect the freshwater and estuarine ecosystems within the Catchment by providing appropriate development,
- (c) to ensure that development achieves the environmental objectives for the Catchment.

Regional role and land use

- (a) to identify land uses in the Catchment which have the potential to impact adversely on the water quality and river flows in the Georges River and its tributaries and to provide appropriate planning controls aimed at reducing adverse impacts on the water quality and river flows,
- (b) to conserve, manage and improve the aquatic environment within the Catchment which is a significant resource base for the aquaculture industry, by providing controls aimed at reducing pollution entering the Catchment's watercourses,
- (c) to protect the safety and well being of the local and regional community in accordance with standards and processes aimed at improving the water quality and river flows in the Catchment to enable recreation,
- (d) to aid in the improvement of the environmental quality of Botany Bay in conjunction with other regional planning instruments."

The proposal is considered to be consistent with the aims and objectives of the REP in that it will facilitate the regularization and improved operation of an existing facility and enable expansion of the marina to meet a community need with minimal environmental impact as detailed below and later in this Report. Coastal process investigations have been carried out by Cardno Lawson Treloar Pty Ltd (see accompanying reports **Appendix O**) including wave climate investigations, hydrodynamic investigations and water quality. These investigations conclude that the proposed expansion of the marina will have no significant adverse effect on the existing coastal processes with no changes to the hydrodynamic, morphological and water quality evident from the investigations.

With respect to the local aquatic environment, investigation of the existing aquatic ecological attributes of the subject area was undertaken and is detailed in an Aquatic Ecology Impact Assessment prepared by Marine Pollution Research Pty Ltd (**Appendix Q**). From these investigations it was concluded that there were no threatened or protected aquatic birds or marine mammal, or fish species found in the area of the development, nor does the development site constitute a significant part of the habitat of any such species. As such, it is considered that the proposed marina upgrade and continued use of existing berths does not

pose any significant impact to any threatened species, populations or ecological communities, or their habitats.

Furthermore, management plans have been prepared by Golder Associates (**Appendix G and T**) to guide the construction and on-going operation of the facility and ensure that water quality and environmental protection measures are observed in accordance with the REP and other relevant legislative requirements.

Part 3 Clause 11 of the REP provides planning controls for specific development. Sub clause 15 relates to Marinas and Slipways, which is defined as:

" Development for the purpose of a pontoon, jetty, pier or other structure or apparatus providing berths for boats, and use of adjoining land for any support facilities. "

Under the REP, Marinas and Slipways are identified as advertised development for the purposes of the definition of *advertised development* in section 4 (1) of the Act.

Clause 15 of the REP provides specific matter for consideration for marinas and slipways, as follows:

Specific matters for consideration

- The need for a condition of consent requiring centralised pumping stations.

Comment: The existing marina provides a centralized fueling facility and wastewater pup-out system which is connected to the sewer. The proposed works do not seek to alter these existing facilities.

- Whether adverse impacts will occur on any natural wetlands, seagrass beds, mangroves and any other flora and fauna habitats.

Comment: The Aquatic Ecology Impact Assessment prepared by Marine Pollution Research Pty Ltd confirms that the proposed marina upgrade and continued use of existing berths does not pose any significant impact to any threatened species, populations or ecological communities, or their habitats.

- Whether arrangements for the collection, storage, treatment and subsequent disposal of sewage and other wastes are satisfactory and meet the requirements of the Environment Protection Authority.
- Whether measures to prevent the escape of fuels, oils, grease and other chemicals into the waterway are adequate.
- Whether the proposal satisfies the document entitled *Environmental Guidelines: Best Management Practice for Marinas and Slipways* (1997) prepared by and available from the Environment Protection Authority.

*Comment: A Waste Management Plan has been prepared by Golder Associates (**Appendix T**) to ensure that construction and operation practices are in accordance with the Protection of the Environment Act (1997) in order to prevent any potential pollution events to the waterway. The Club have an existing Environmental Protection Licence (No. 11166) for marina activities and are aware of the need to liaise with the*

Department of Environment, Climate Change and Water in terms of requiring any variation to the existing licence as a result of the proposed works.

- Whether adequate depth of water exists for the marina and other related land and water shoreline facilities and, if not, whether the means proposed for maintaining adequate water depth are appropriate and will not lead to adverse impacts on the Georges River or its tributaries.

Comment: A bathymetry survey was prepared by Hydrographic Surveys Pty Ltd to measure the depth of the water and determine the shape of the seabed. The location of the extended marina component is a result of the depths identified by the survey to ensure that adequate water depths are achieved for moored vessels in accordance with the requirements of the Australian Standard 3962-2001 – Guidelines for Design of Marinas (see Section 5.1.5 of Report).

With respect to aquatic communities, the Aquatic Ecology Impact Assessment prepared by Marine Pollution Research Pty Ltd (**Appendix Q**) provides that with regard to the use of the new facilities, the possibility of seabed disturbance from propeller wash during vessel manoeuvres would be restricted to the innermost berths. This risk has been avoided from the onset by relocating the walkway plus Arm F offshore and restricting use of those berths to vessels with appropriate shallow drafts.

With regard to the continued use of the currently unauthorised berths located outside the present marina Permissive Occupancy, these berths are all located in deep water areas with unvegetated sediment aquatic habitats and thus there are no anticipated disturbance impacts arising from the continued use of these berths.

- The stability of banks and foreshores and whether acid sulfate soils are likely to be disturbed.

*Comment: The proposal does not involve any dredging of the seabed or excavation that may disturb acid sulfate soils. As confirmed by the Coastal Processes Report prepared by Cardno Lawson Treloar Pty Ltd (**Appendix O**), sediment contamination is considered low and there would be minimal risk to overall water quality should the seabed in the vicinity of the marina be disturbed.*

5.1.4 Local Planning Policies

Kogarah Local Environmental Plan 1998

The *Kogarah Local Environmental Plan (LEP) 1998* came into force upon its gazettal on 2 October 1998 and has been amended on a number of occasions since that time. Under the LEP, the land based component of the subject property (above mean high water mark) is within the Residential 2(a) – Low Density zone and the water based component (below mean high water mark) is within the Environmental Protection 7(a) – Waterways zone.



Figure 7: Kogarah LEP 1998 – Zoning Map Extract

Clause 7 of the LEP contains zoning controls and sets out the permissible uses in a development control table as well as the objectives of the zone and development standards.

The proposed parking facilities are located above mean high water mark within Residential 2(a) – Low Density zoned land. The proposed development is not permissible within this zone, however the St George Motor Boat Club has 'existing use rights' under Section 106 of the EP&A Act 1979. Therefore, the proposed parking facilities are permissible with consent in this zone as identified by the Department of Planning assessment report (DA 222-08-01) for the 2001 Marina upgrade.

The marina is located below mean high water mark within the 7(a) Environmental Protection (Waterways) zone within which "marina" development is permissible with consent.

Under Kogarah Local Environmental Plan, 'marinas' are defined as follows:

- " **marina** means a pontoon, jetty, pier or the like used or intended to be used to provide moorings for boats used for pleasure or recreation, and includes:
- (a) slipways, and
 - (b) facilities for the repair, maintenance and fuelling of, or the provision of accessories and parts for, boats or boating enthusiasts, and
 - (c) facilities for the storage or provision of food."

The proposed development involves the extension of an existing marina used for the mooring of boats in association with St George Motor Boat Club and is therefore permissible with consent in accordance with Kogarah LEP 1998.

The objective of the 7(a) Environmental Protection (Waterways) zone is stated as follows:

- " The objective of this zone is to ensure any development of land below mean high water mark is carried out in an environmentally sensitive manner, having particular regard to the nature and function of the waterways."

The proposed marina extension is considered to be consistent with the stated zoning objective in that the proposal has been designed in an environmentally sensitive manner with consideration of potential impacts on visual impact, water quality, the aquatic ecology impacts, wave climate and natural processes, and the construction and operations of the overall facility is supported by a detailed Environmental Management Plan. The proposed works below mean high water mark will maintain a similar use and therefore will not alter the nature or function of the waterways within the St George Motor Boat Club Marina lease area.

Clause 18 - Foreshore Building Line

The LEP zoning map identifies that the site is subject to a 23m foreshore building line (FBL) from the western side of Plimsoll Street to the southern side of Anderson Park (western end of Wellington Street). In accordance with Clause 18, the foreshore building line is measured from the mean high water mark of the nearest bay or river.

Clause 18(4) states that:

- " (4) A person may, with the consent of the Council, erect:
- (a) boat sheds, or
 - (b) wharves, jetties or pontoons, or
 - (c) slipways, or
 - (d) structures below the surface of the ground, or
 - (e) fences, or
 - (f) works to enable pedestrian access,
- despite any foreshore building line.

Accordingly, the proposed water based works are permitted below the FBL as they constitute 'wharves, jetties or pontoons'. Furthermore, the proposed new upper level car park is setback 24m-25m from the seawall which represents mean high water mark as shown on the submitted survey plan prepared by KF Williams and Associates Pty Ltd dated 2 November 2009 (**Appendix F**). Accordingly, the proposed land based works comply with Clause 18 of Kogarah LEP 1998 as they are located behind the FBL.

Georges River Catchment Management

Planning for the Georges River catchment includes a range of government initiatives to:

- embrace the natural, social and economic diversity of the catchment;
- identify, protect and provide for the improvement of significant natural and cultural heritage values;
- improve natural resource management;
- promote interest in catchment resources - improving management of and access to areas of natural and cultural significance;
- forge stronger communities - bringing community and government together through more effective partnerships and catchment improvement projects;

Shaping the Georges River Catchment (1999) incorporates a strategic action plan and the framework for the operation of the REP (deemed SEPP). These provide a strategic planning framework for environmental management associated with all new development within the catchment. The strategic action plan was superseded by the Southern Sydney Catchment Blueprint in 2002.

The Southern Sydney Catchment Blueprint covers the entire Georges River, Cooks River, Botany Bay and Eastern Beaches catchment area and sets out an action plan to improve the catchments of southern Sydney. The Blueprint will be incorporated into the Catchment Action Plan, currently being developed by the Sydney Metropolitan Catchment Management Authority. The Southern Sydney Catchment Management Board oversees development and implementation of this blueprint.

There is at this time only limited public information available in relation to the abovementioned Blueprint that can be directly related to the proposed works. However, it is reasonable to conclude that the proposal will not contravene the government initiatives for the catchment as substantiated by research carried out in relation to the proposal.

5.1.5 Australian Standard AS 3962-2001 – Guidelines for Design of Marinas

The *Australian Standard AS 3962-2001 – Guidelines for Design of Marinas* sets out guidelines for the design of marinas for recreational boating, and covers both onshore and offshore facilities.

Section 3 contains dimensional criteria relating to, among other things, channel widths, berth sizes, and walkways, fingers and mooring points. We understand that the proposed alterations and refurbishment have been designed to comply with the requirements of this Standard. Furthermore, it is reasonable that a condition of consent be imposed to ensure that the proposed new works to the marina should generally comply with the provisions of AS3692-2001- *Guidelines for Design of Marinas*.

Section 8 relates to traffic and parking, and states that in the absence of traffic and parking studies, the following parking rates have been found acceptable:

"	(i)	Spaces to be provided per wet berth designed for boats:.....	0.3 to 0.6
	(ii)	Spaces to be provided per dry berth.....	0.2-0.4
	(iii)	Spaces to be provided per swing mooring.....	0.3-0.6
	(iv)	Spaces to be provided per employee	0.5

However, parking surveys have been undertaken for the existing marina as part of the assessment for the proposed works in accordance with Part 8.2.2 of AS3692-2001 and these findings are contained within the Traffic and Parking Study prepared by Transport and Urban Planning (**Appendix R**).

Essentially, the studies carried out indicate that the existing 151 berths generate a maximum parking demand of 0.35 cars / berth. Adopting this maximum figure for the proposed expansion indicates that the additional parking requirement will be a total of 36 parking spaces, which will be provided as part of the proposed works. Traffic and parking provisions are discussed in detail in Part 4.1 and 8.4 of this report.

6 CONSULTATION

A range of consultation has taken place in the design and preparation of the proposal. These include consultation with various State Government agencies, Kogarah City Council and the local community.

6.1 Department of Planning

In March 2009, the Director General of the Department of Planning was consulted to obtain the Director General's requirements.

These requirements were issued by the Department in correspondence dated 8 May 2009, a copy of which is attached at **Appendix B**. As addressed throughout this report, the key issues identified by the Department include visual amenity, soils and water, aquatic flora and fauna, traffic and access, noise, air quality and waste.

6.2 Department Land & Property Management Authority

Consultation seeking landowner's consent has been carried out between the Club and Department of Land and Management Property (former Department of Lands) regarding the proposed marina expansion and required increase in lease area below MHWL.

It has been advised in correspondence dated 8 September 2009 (**Appendix A**) by the Sydney Region Office of the Land and Property Management Authority that granting of land owner's consent is contingent upon approval of a Land Assessment Waiver by an authorised delegate of the Minister for Lands, pursuant to the Crown Lands Act 1989. However, preparation of a Land Assessment Waiver requires access to a complete Environmental Assessment.

As such, it has been advised that the preparation of a Land Assessment Waiver and related Land Owner's Consent cannot be actioned until such time as a complete EA has been submitted to the Department. Accordingly, a complete EA package has been submitted to the Department of Land and Property Management Authority in pursuance of Land Owner's Consent.

6.3 NSW Maritime Authority

Correspondence dated 3 November 2009 advising of the Club's intention to lodge a Major Project Application to the Department of Planning, pursuant to Part 3A of the EP&A Act 1979, was sent to the Manager of Property Planning of NSW Maritime, Mr Allan Young (**Appendix M**).

Correspondence included a description of the proposed works and a plan indicating the proposed marina expansion layout. To date, no reply has been received in relation to the proposed works.

6.4 Department of Water & Energy

Correspondence dated 3 November 2009 advising of the Club's intention to lodge a Major Project Application to the Department of Planning, pursuant to Part 3A of the EP&A Act 1979, was sent to the Senior Project Planner of NSW Department of Water and Energy, Ms Janne Grose (**Appendix H**).

Correspondence included a description of the proposed works and a plan indicating the proposed marina expansion layout. To date, no reply has been received in relation to the proposed works.

6.5 Department of Environment, Climate Change & Water

Correspondence dated 3 November 2009, advising of the Club's intention to lodge a Major Project Application to the Department of Planning pursuant to Part 3A of the EP&A Act 1979, was sent to the Unit Head, Metropolitan Infrastructure of the Department of Environment, Climate Change and Water, Ms Gillian Reffell (**Appendix I**).

The correspondence included a description of the proposed works and a plan indicating the proposed marina expansion layout. Correspondence was received dated 30 November 2009 (**Appendix I**) advising that the Department's key requirements are:

- Sufficient information to allow DECCW to assess the requirements of section 45 of the Protection of the Environment Operations Act 1997;
- A detailed description of the project, including maps and drawings detailing the site location and proposed layout;
- A detailed assessment of water, air and waste management issues;
- The proposal should identify appropriate pollution controls to protect surface and ground water resources including sediment and erosion controls during construction and operation;
- A detailed assessment of any impact of construction and operation on aquatic vegetation;
- A detailed description of the piling techniques and the impact on the sea floor;
- A detailed assessment of noise sources from the development, including both construction and operation;
- Details of community consultation;
- The preparation and implementation of detailed Environmental Management Plans for the project; and
- Emergency response plans to be initiated in the event of an environmental incident during the construction and operation of the facilities.

The above requirements have been addressed through this report and in the accompanying reports prepared by the project team.

In addition, the proponent will require a variation to its existing environment protection licence to authorise scheduled development work and will need to make a separate application to the DECCW to obtain this variation. This can be addressed by appropriate conditions of consent.

6.6 Roads & Traffic Authority

Correspondence dated 6 November 2009 advising of the Club's intention to lodge a Major Project Application to the Department of Planning, pursuant to Part 3A of the EP&A Act 1979, was sent to Land Use Planning and Assessment Manager of the RTA Sydney Region Development Advisory Committee, Mr Ken Moon (**Appendix J**).

The correspondence included a description of the proposed works and a plan indicating the proposed marina expansion layout and parking layout. Correspondence was received dated 27 November 2009 (**Appendix J**), advising that the following matters should be addressed in the Traffic and Parking Report in addition to the Director General's Requirements dated 8 May 2009 and the requirements outlined in the previous letter to the Department of Planning dated 6 February 2009:

- Photographs of the site including the proposed access;
- The applicant should identify the infrastructure required to ameliorate any traffic and safety impacts associated with the proposed development; and
- Pedestrian, cyclists and public transport infrastructure should be identified.

The above requirements have been addressed through this report and in the accompanying Traffic and Parking Report prepared by Transport and Urban Planning dated January 2010 (**Appendix R**).

6.7 NSW Department of Primary Industries

Correspondence dated 19 January 2010 advising of the Club's intention to lodge a Major Project Application to the Department of Planning, pursuant to Part 3A of the EP&A Act 1979, was sent to the Conservation Manager of the Aquatic Habitat Protection Unit of NSW Department of Primary Industries, Ms Carla Ganassin (**Appendix K**).

The correspondence included a description of the proposed works and a plan indicating the proposed marina expansion layout. To date, no reply has been received.

6.8 Kogarah City Council

Correspondence dated 3 November 2009 advising of the Club's intention to lodge a Major Project Application to the Department of Planning, pursuant to Part 3A of the EP&A Act 1979, was sent to Kogarah City Council's Director of Planning, Mr Rod Logan (**Appendix L**).

The correspondence included a description of the proposed works, a plan indicating the proposed marina expansion layout and a draft plan indicating the proposed additional parking layout. A letter in reply was received from Council dated 13 November 2009 (**Appendix L**) advising the following matters should be considered:

- Visual impact to neighbouring properties;
- Marine flora and fauna habitats;
- Noise and air quality;
- Water resources;

- Liquid and solid waste management;
- Parking and traffic; and
- Construction management.

The above listed matters have been addressed in detail in Section 8 of this Report and the accompanying consultant reports which are annexed to this Report.

Furthermore, it was requested that reference be made to the following plans and policies:

- Kogarah Council's Estuary Management Plan;
- Kogarah Council's Foreshore Management Plan;
- Marine Assets Management Plan; and
- Lower Georges River Sustainability Initiative.

The Kogarah Bay Estuarine Management Plan has been addressed within the Aquatic Ecology Impact Assessment prepared by Marine Pollution Research Pty Ltd (**Appendix Q**)

Very limited public information is available regarding the Foreshore Management Plan or Marine Assets Management Plan and Council was not able to provide a copy of these documents.

Council's website provides the following reference to the Asset Management Plan:

Along the foreshore of Kogarah LGA there is a huge number of marine structures, and council is responsible for their maintenance. Many of the structures have been in place for many years and as their age increases so does their maintenance requirements.

To ensure a coordinated approach to regular maintenance and repairs Council has employed a specialist-engineering firm, with extensive experience in marine structures to carry out condition assessments of public jetties, pontoons and wharves. From the results a management plan will be prepared to guide future care of public marine facilities. The plan will have a 5-year implementation period.

Accordingly, it would appear that the plan refers to public foreshore structures rather than private marinas such as the subject proposal.

Furthermore, Marine Pollution Research Pty Ltd have reviewed the Lower Georges River Sustainability Initiative and concluded that there was no information that could be directly related to the proposal.

6.9 The Local Community

Community consultation was carried out by the Club providing information to nearby and surrounding neighbours in an information evening held at the Club premises on 28 September 2009. A total of ten (10) residents attended this information session.

A presentation of the proposal was provided to the residents at the Motor Club by the Chief Executive Officer of the Club. Questions were taken and answered throughout the presentation.

Individual neighbour's spoke to the CEO and Board members on various issues with printed depictions and plans of the proposed new marina and proposed car parking.

Neighbours received;

- Copy of aerial view of existing marina and club;
- Copy of aerial view with new marina area marked;
- Copy of plan of proposed marina;
- Copy of the top floor plan including upstairs parking and downstairs area;
- Copy of the proposed new parking area;
- Copy of a photo of the view from the ground in Plimsoll Street before building the marina;
- Copy of an photomontage of the view from the ground in Plimsoll Street after building the marina;
- Copy of a photo of the view from the 2nd storey in Plimsoll St before building the marina; and
- Copy of a photomontage of the view from the 2nd storey in main car park after building the marina.

Individual Concerns

The concerns listed below were raised to the CEO both during the formal presentation and after the presentation. These included:

- The new marina would encroach on views;
- Loss of privacy;
- Considerable rates are paid for the water frontage properties;
- That some vessels start their motors early in the morning to go fishing and let them idle for some time before departing;
- Compared to the Club at Cronulla the Club was quiet and orderly and closed at a reasonable hour;
- Could the Club afford the proposed works;
- The Club should consider removing the oyster bed on the foreshore as part of the application process;
- "What is in it for me";
- That the Club should obtain permission from the Council to remove the trees on the western side of Plimsoll St to enable more parking and improve the residents' view of the water;
- The proposed marina would restrict balcony views;
- There would be more masts from sailing vessels to impair views;
- Car parking would be unsightly; and
- The proposed works may reduce property values.

Where relevant, issues raised as a result of the community consultation have been addressed within this Report and/or supporting consultant reports. Specifically, view and noise impacts are addressed within Section 8 of this Report and a Noise Impact Assessment Report has been prepared by RSA Acoustics which deals with both construction and operational noise impacts that may result from the proposed development (**Appendix S**).

The Aquatic Ecology Impact Assessment prepared by Marine Pollution Research Pty Ltd (**Appendix Q**) provides a detailed analysis of ecological communities within the general area of

the marina and accordingly, the Club would be guided by the recommendations of these investigations with regards to any required seabed restoration.

Whilst it is considered unnecessary as the required provision of additional parking can be accommodated on site, the Club is willing to remove the trees along the western side of Plimsoll Street to improve resident views of the water, should Kogarah City Council and the Department consider it an appropriate and reasonable request.

7 RISK ASSESSMENT OF ENVIRONMENTAL IMPACTS

7.1 Risk Assessment – EMP

A risk assessment has been carried out by Golder Associates and is detailed in the submitted Environmental Management Plan dated 25 November 2009 (**Appendix G**). The risk assessment details specific incidents that may occur from a particular activity, the likelihood of such an incident occurring, the consequence of such an incident occurring, and the level of risk involved should a particular incident occur.

From 33 potential environmental incidents only 5 were identified as resulting in a high risk scenario. These included:

ACTIVITY	HAZARD/INCIDENT	LIKELIHOOD	CONSEQUENCE	RISK
Berthing	Oil/fuel spill	Medium	High	High
	Chemical spill	Medium	High	High
Refueling Facilities	Fuel spill into Kogarah Bay	Medium	High	High
	Leaking UST, pipe work or bowsers	Medium	High	High
Dual slipway	Oil spill	Medium	High	High

Essentially, the detailed risk analysis enables the Club to predict potential hazards and their risk ranking and put in place appropriate management options and plans to mitigate risks and/or set in place emergency procedures should such an incidence occur.

It is considered appropriate that the Club revise their existing Emergency Procedures Manual to incorporate responses to the above identified high risk incidents. This could be addressed as a condition of consent.

7.2 Section 111 Checklist – Environmental Impacts

Section 111 of the EP&A Act provides for consideration of environmental impacts and is outlined in the table below, along with identifying the potential for impact of the project.

Matter for consideration	Effect of Activity
<p><i>Sub-section 2</i></p> <p>(a) any conservation agreement entered into under the National Parks and Wildlife Act 1974 and applying to the whole or part of the land to which the activity relates, and</p> <p>(b) any plan of management adopted under that Act for the conservation area to which the agreement relates, and</p> <p>(c) any joint management agreement entered into under the Threatened Species Conservation Act 1995, and</p> <p>(d) any biobanking agreement entered into under Part 7A of the Threatened Species Conservation Act 1995 that applies to the whole or part of the land to which the activity relates.</p>	<p>No effect as there is no conservation agreement under the National Parks and Wildlife Act 1974 applying to the land.</p> <p>No effect as there is no plan of management adopted under that Act applying to the land.</p> <p>No effect as there is no joint management agreement entered into under the Threatened Species Conservation Act 1995 applying to the land.</p> <p>No effect as there is no biobanking agreement applying to the land.</p>

Matter for consideration	Effect of Activity
<p><i>Sub-section 3</i> Without limiting subsection (1), a determining authority shall consider the effect of an activity on any wilderness area (within the meaning of the Wilderness Act 1987) in the locality in which the activity is intended to be carried on.</p>	No effect as there is no wilderness area within proximity to the subject site.
<p>Sub-section 4 Without limiting subsection (1), a determining authority must consider the effect of an activity on:</p> <p>(a) critical habitat, and</p> <p>(b) in the case of threatened species, populations and ecological communities, and their habitats, whether there is likely to be a significant effect on those species, populations or ecological communities, or those habitats, and</p> <p>(c) any other protected fauna or protected native plants within the meaning of the National Parks and Wildlife Act 1974.</p> <p>Note. If a biobanking statement has been issued in respect of a development under Part 7A of the Threatened Species Conservation Act 1995, the determining authority is not required to consider the impact of the activity on biodiversity values.</p>	<p>No effect as no critical habitat in the vicinity of the site.</p> <p>No effect as there are no known threatened species, populations or ecological communities, or habitats in the vicinity of the site.</p> <p>No effect as there is no known protected fauna or protected native plants in the locality.</p>

7.3 Clause 228 Checklist

The EP&A Regulation 2000 (EP&A Regs) provides for specific environmental and planning controls enacted under the EP&A Act. Clause 228 of the EP&A Regulation outlines factors which must be considered in an assessment under the provisions of Part 5 of the EP&A Act and is outlined below, along with identification of potential impacts, their nature and significance. It also identifies by cross-reference where each relevant issue is addressed within this report:

Factors to be taken into account concerning the impact of an activity on the environment.	Nil /NA	Temporary	Minor	Significant	Cross-Ref Mitigation
Is the activity of a kind for which specific guidelines are in force? If so the factors to be taken into account when considering the likely impact of the activity on the environment are those referred to in the guidelines.	X				
If no guidelines are in force, will the activity cause:					
(a) any environmental impact on the community			X		Section 8.2 and Appendix Q
(b) any transformation of a locality;	X				
(c) any environmental impact on the ecosystems of the locality;	X				Section 8.2 and Appendix Q
(d) any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality;			X		Section 8.1
(e) any effect on a locality, place or building having aesthetic, anthropological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations;	X				Section 8.1, 8.2 and Appendix Q,
(f) any impact on the habitat of protected or endangered fauna (within the meaning of the National Parks and	X				Section 8.2 and Appendix Q

Wildlife Act 1974);					
(g) any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air;	X				Section 8.2 and Appendix Q
(h) any long-term effects on the environment;		X			
(i) any degradation of the quality of the environment;		X			Section 8.2 and Appendix O and Q
(j) any risk to the safety of the environment;			X		Section 7.1 and Appendix G
(k) any reduction in the range of beneficial uses of the environment;	X				
(l) any pollution of the environment;			X		Section 7.1 and Appendix G
(m) any environmental problems associated with the disposal of waste;			X		Section 7.1 and Appendix G
(n) any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply;	X				
(o) any cumulative environmental effect with other existing or likely future activities.			X		8.4 and Appendix R

Based on the above summary analysis and the consultations with Department of Planning and other relevant government agencies, the following have been identified as the key issues in the assessment of this project:

- Visual Impact;
- Soils and Water Quality Impacts;
- Aquatic Flora and Fauna Impacts;
- Traffic, Parking and Access Impacts;
- Noise Impacts;
- Air Quality Impacts; and
- Waste Management.

Each of these is addressed in detail, and the conclusions and recommendations provided by the project team in their respective accompanying reports, are detailed in the following section of this Report.

8 ENVIRONMENTAL ASSESSMENT OF KEY ISSUES

8.1 Visual Impact

The Director General's requirements seek an assessment of the following:

- The design and visual appearance of the proposed works including any lighting and signage;
- Visual impacts on any adjoining land owners and land owners along the foreshore;
- Visual impacts of the project on the public domain, and in particular the waterways.

8.1.1 Introduction

The Director General's requirements seek an assessment of the following:

- The design and visual appearance of the proposed works including any lighting and signage;
- Visual impacts on any adjoining land owners and land owners along the foreshore;
- Visual impacts of the project on the public domain, and in particular the waterways.

8.1.2 Methodology

The design and visual appearance of the proposed works are described in architectural drawings that form part of the application (**Appendix F**). The new Marina arm (Arm F) is designed to match existing Arm E. Like the current Arm E, it will be a breakwater arm to provide shelter for the remainder of the Marina. Accordingly, its appearance is readily apparent by comparison with the existing arm. The appearance of Arm E is shown in Figure 8 below.



Figure 8: Berthing Arm E

In regard to the proposed marina facility, the only lighting proposed is low-level bollard style lighting, essentially the same as on the existing Marina arms. In terms of the car parking facility, lighting will be provided to the underside of the new deck for safety lighting to the lower parking level. The existing upper level car park is lit by a small number of floodlights on the perimeter of the car park. It is not anticipated that the provision of the additional parking level would require the installation of any additional lighting, other than perhaps low-level bollard style lighting adjacent to the pedestrian paths.

In order to assess the likely visual impacts of the proposal, a series of photomontages from various vantage points have been prepared by Wegman Imaging illustrating the likely appearance of the site as a result of the proposed works (**Appendix N**). With the assistance of these photomontages, site inspections were undertaken from both the frontage of adjoining landowners' properties and the identified public domain areas around the waterway in order to make an assessment of the likely visual impacts of the proposal.

8.1.3 Considerations

In assessing visual impacts it is important to understand the character and nature of the area to be affected by the proposed development. In this regard, the subject site is heavily modified and no longer provides any real evidence of the natural topography or original vegetation on the land.

Car Parking Facilities

The location of the proposed additional parking facility is in a section of the site that has been previously excavated. That excavation has exposed the underlying sandstone that has been modified in form and appearance as a consequence of the excavation works. On top of the sandstone is a rough retaining wall of varying height and supporting some weed growth. This exposed sandstone and retaining wall is currently visible from the waterway, though in most instances it is through the line of watercraft on the existing Marina. The proposed additional parking level and will cover much of the current exposed sandstone cut and retaining wall when viewed from the waterway and replace it with a concrete parking structure including lightweight balustrading as detailed in the architectural plans.

Architecturally, the design is intended to have a strong horizontal emphasis in order to reflect and relate to the existing strong horizontal lines of both the Club building and the marina structures. Planters are proposed adjacent to the edge with the existing upper level car park in order to provide opportunities for planting to soften and break up the mass of the car parking areas. The lightweight balustrading is designed to minimize the visual bulk of the structure and avoid view loss to the marina and waterway.

The proposed structure is setback a minimum of 23m from the MHW. It will be partially visible from the waterway, though visibility will be limited because of both the vessels on the existing Marina arms and the additional vessels to be accommodated by the proposal on the additional arm.

Given the level of the structure is below the level of the existing upper level car parking facility, it is considered that the car parking structure will have little or no visual impact when viewed from residential properties to the east in Plimsoll Street or to the north in Wellington Street. Any views from those properties, or from the adjacent roadways and footpaths, to this location

are currently through the existing car park, and vehicles within that car park. It thereby further limits the visibility of any structure and potential view impacts.

Marina Facilities

Obviously the marina will be visible from the water and from adjoining properties. However, watercraft facilities are common on waterfront properties and therefore, although visible are not necessarily visually intrusive. Indeed, waterfront scenes including marinas, wharves and various types of moored vessels are often the subject of paintings and photographs and represent a popular form of artistic expression.

Generally, people are not offended by the presence of watercraft facilities on or adjacent to the waterway if they are in an appropriate context and indeed it is an expected part of a suburban waterfront environment. Whatever changes to the appearance of the site the new development brings about, they will happen in the context of a site that is already used for the purposes of a marina and has been so used for a very considerable period.

Whilst admittedly probably one of the largest, the marina is certainly not the first or the only visual intrusion on the waterfront in this locality. Most properties on the eastern side of Kogarah Bay have some form of watercraft facilities in the form of swimming pools, reclamations, boat sheds, boat ramps and private jetties or the like. A similar pattern exists on the foreshores of the southern side of the Georges River at Sylvania, Sylvania Waters and Taren Point. There is also a large number of boat moorings located within deeper waters of Kogarah Bay, to the west of the foreshores of the Sans Souci peninsula and along the southern side of the Georges River at Sylvania and Taren Point.

Additionally, the foreshore area, and the backdrop to the foreshore area in this section of Sans Souci, is one that has been significantly modified by residential development on the adjacent land. Accordingly, the foreshore could not be described as being in a natural or unchanged state. Rather, it is a typical suburban foreshore scene with significant modification to the natural land water interface.

In terms of the site itself, the original landform and land water interface have been dramatically modified both by excavation above high water mark and reclamation below the original high water mark. As a consequence, the land water interface on the site is now a man-made retaining wall from which the existing Marina arms extend. As such, it is a landscape dominated by built form and man-made structures with very little, if any, evidence of original or native vegetation remaining.

The proposed additions and alterations to the marina do not involve any works that will change the topography of the locality. Similarly, apart from the new parking structure, no significant changes are proposed to any other buildings or structures on the land based component of the site.

Because of its closer proximity, the marina has greater visual prominence when viewed from adjoining properties and the immediate public domain of adjacent streets and footpaths, than when viewed from the waterway. However, again, the visual impact of the proposed modified marina must be compared with the visual impact of the existing facility.

The proposed works involve a new marina arm comprising additional floating wave attenuator pontoons secured in place by additional piles. The new arm is located to the south of the

existing marina and therefore, the berths on the additional arm will be further away from any residential properties than any of the current marina arms. In terms of the physical appearance of the new arm, it will be virtually the same as the existing marina Arm E.

As the new marina arm extends further to the south of the existing Marina arms, visually it will take up a section of currently open waterway of the Georges River when viewed from residential properties to the east in Plimsoll Street or to the north in Wellington Street. Due to the gently sloping natural topography, these residential properties progressively increase in elevation above the water level as one moves northward along Plimsoll Street, with the properties at the corner, and on the opposite side of Wellington Street, having the highest relative elevation. With increasing relative elevation, properties enjoy views over the top of the car park, the marina and moored watercraft and the impact on views of the extension is thereby lessened.

Generally views from those properties or from the adjacent roadways and footpaths, to the Georges River are currently through the existing car park, vehicles parked within that car park and across the floating pontoons and associated vessels of the existing marina. Also, particularly in the case of properties in Plimsoll Street, the view is through the line of street trees on both sides of that street, thereby further limiting the visibility and potential view impacts. As a consequence, many of the views of the current open waterway adjacent to the existing marina that will be affected by the proposal are filtered views.

The impact of the proposed marina alterations and additions on those views will be to increase the footprint and area occupied by marina berths and associated vessels, and correspondingly reduce the area of open waterway in the foreground of the view. Notwithstanding this increase, a very extensive area of open waterway beyond the proposed marina extension will remain within the middle and long-distance views of the surrounding properties. Quantitatively, the 48m southern extension represents approximately 5.5% of the width of the waterway from the present marina Arm E to the opposite foreshore at Sylvania. Similarly, the 24m western extension of the line of the marina into Kogarah Bay represents approximately 4.5% of the width of the waterway from the present marina to the opposite foreshore of Kogarah Bay at Blakehurst

In regard to the visual impact from the waterway, the subject site faces a wide expanse of the Georges River, and accordingly, the extent of visual impact when viewed from the water must have regard to the fact that most of those views are from a very considerable distance, and cover an extremely wide panorama, of which the subject site would be but a very small fraction.

Figure 9 below illustrates the locations within the waterway and around the wide visual catchment of the site that have been analysed to assess the likely visual impacts. Photo panoramas from view analysis are located within **Appendix N**.

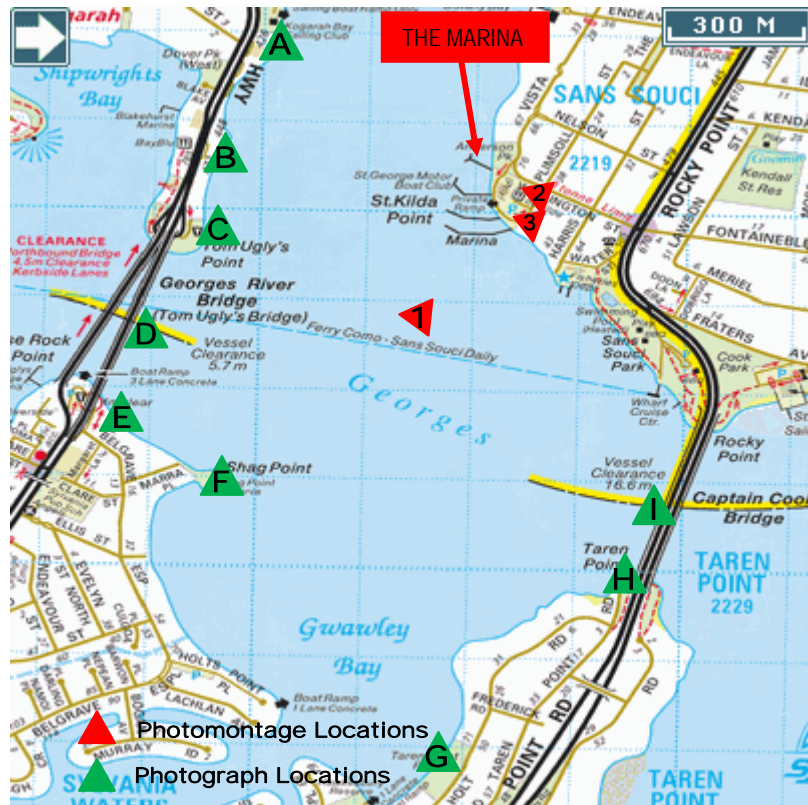


Figure 9: Visual Analysis Locations

From Location A, the northern most section of Dover Park off Princes Highway, there is possibly the most enclosed view but nevertheless it is still a wide panorama extending from the western shore of Kogarah Bay to the north through 180° to the suburb of Sylvania to the south of the Georges River. The view encompasses the whole of the eastern shoreline of Kogarah Bay as well as the Georges River between Captain Cook and Georges River Bridges and the suburbs on the southern side of the Georges River at Taren Point, Sylvania Waters and Sylvania. The existing marina represents only a small proportion of this view and, in terms of the proposal, only a corner of the new southern arm of the Marina would be visible beyond the existing Marina. When viewed from this location it would have the effect of extending the marina slightly further across the opening under Captain Cook Bridge, a view that is already substantially taken up by the existing Marina.

From Location B, the small section of Dover Park off the eastern side of the Princes Highway opposite Blake Avenue, the Marina is only visible from a standing position between the low trees and shrubs along the foreshore. From this location, and from Location C, the marina is a relatively small part of a very wide panorama that extends through 180° and encompasses the whole of the eastern shoreline of Kogarah Bay as well as the Georges River between Captain Cook and Georges River Bridges and the suburbs on the southern side of the Georges River at Taren Point, Sylvania Waters and Sylvania. From this position, and particularly from Location C, the western end of the new arm and additional boats would be visible and would occupy the area currently seen as open water and the embankment to the approach road to Captain Cook Bridge on its northern side and the Sans Souci wharf, swimming pool and water police facilities.

In regard to views from the Princes Highway itself, the Motor Boat Club and associated marina can't be seen from the northbound lanes of the Georges River Bridge due to the higher elevation of the separate bridge carrying the southbound lanes.

The existing and proposed facility is also considered not to be highly visible from the southbound traffic lanes of the Princes Highway crossing the Georges River at Georges River Bridge, Location D. Whilst visible for passengers, due to the angle of view, the Marina would be outside even the peripheral vision of drivers as it is located generally behind when viewed from southbound traffic.

The proposal is probably the least obvious from the boat ramp at Sylvania and from the small reserve at the end of the Marra Place Sylvania, Locations E & F respectively. Again, the view encompasses the whole of Kogarah Bay as well as the Georges River between Captain Cook and Georges River Bridges and the suburbs on both sides of the Georges River at Blakehurst, Sans Souci, Taren Point, Sylvania Waters and Sylvania. From these positions the Marina extension is located almost due north and will be almost imperceptible from the existing view. The only change being that the first line of boats will be slightly, but almost imperceptibly closer given the very wide panorama experienced and the considerable distance of the proposal from these vantage points.

The existing Marina, and the proposed extension, will not be visible from Taren Point Reserve on the western side of Holt Road at Taren Point, Location G. The view from the boat ramp at Taren Point, Location H will be similar to that from Marra Place, Sylvania Location F. The additional Marina arm will extend the line of boats slightly further to the West when viewed from this position but otherwise it will be a minor change to a very small component of the view in a very broad panorama.

The existing and proposed facility will be visible for northbound traffic on the Captain Cook Bridge, Location I, but, as with the Georges River Bridge, it is not considered to be visible for southbound traffic. In any event, again the Marina when viewed from this Bridge represents a very small component of a very wide panorama that extends from the southern shore of Georges River at Taren Point and Sylvania through more than 180° to Towra Point on the southern shore of Botany Bay.

8.1.4 Conclusions and Recommendations

Whilst the marina will be extended in a southerly and westerly direction, and there will be a slight increase in the visual density of boats compared with the existing marina, it is considered that the difference in the appearance of the marina in the scale of the overall bay or river is very minor. Given the existence of the existing Marina and the relatively modest nature of the extensions relative to the size of waterway in which it occurs, when viewed from the public domain within its very wide effective visual catchment, the proposed alterations to the marina is considered to have only a very minor effect on view composition.

Although the site is easily visible within its visual catchment, the change it would make to the intrinsic character of the site overall is considered to be minor and in many instances is likely to be almost imperceptible to the casual observer. Any changes to the appearance of the site the development brings about will be in the context of a development that is permissible and on a site that is already used for the same purpose and has been so used for a considerable period.

In this context, the relatively modest extension to the existing marina is considered to constitute an acceptable visual impact either when viewed from the water, the opposite shore of Kogarah Bay and the Georges River or from adjoining properties.

8.2 Soil & Water

The Director General's requirements seek an assessment of the following:

- Potential water quality impacts of the projects on surface water including the proposed erosion and sediment controls during construction and any proposed upgrades to any existing stormwater infrastructure on land prior to development;
- Stability of the bed and shoreline of Georges River;
- Potential impacts of flooding, with consideration of climate change and projected sea level rise;
- Potential disturbance of contaminated sediments during construction and operation;
- Consideration of potential acid sulfate soil impacts including management measures and disposal strategies.

8.2.1 Introduction

The following reports have been prepared to address the above matters:

- Coastal Processes prepared by Cardno Lawson Treloar Pty Ltd dated 5 February 2009 (**Appendix O**);
- Geotechnical Investigation prepared by Jeffery and Katauskas Pty Ltd dated 26 October 2009 (**Appendix P**);

8.2.2 Methodology

Geotechnical

The assessment is based upon an archival search of Jefferey and Katauskas Pty Ltd database and a walk-over survey of the subject site and its immediate environs. Jefferey and Katauskas Pty Ltd have previously carried out marine investigations of the area from a barge in September 2000. The investigation comprised five boreholes augmented by in-situ tests at a further five locations. The subsurface profile data that these boreholes revealed was used in this assessment.

Coastal Processes

Cardno Lawson Treloar Pty Ltd was commissioned to provide Coastal Process input. These coastal process investigations have included wave climate investigations, hydrodynamic investigations and water quality investigations.

No measured wave data was available for the St George Motor Boat Club site; hence numerical wave modelling was required to develop a wave climate for marina analysis. The wave climate was derived from long-term measured wind data at Sydney Airport and hence includes extreme wind events.

Hydrodynamic investigations were primarily concerned with morphological, sea bed and shoreline stability issues. Flood impacts were also considered. To do this, a calibrated Delft3D hydrodynamic model was applied covering the whole of Botany Bay and the Georges River to its tidal extent.

Flood flows from the Georges River were also investigated with no identifiable change identified as a result of the proposed development. Flood flows near the marina are also not

capable of causing significant sea bed transport. Sediment loads from the upper catchments were not included in these investigations; however, should these be an issue for maintenance dredging the proposed development would not exacerbate these processes.

Water Quality sampling was undertaken on 2 occasions at various locations within the marina and, together with previous sampling undertaken at the site, provided a basic description of the background water quality.

8.2.3 Considerations

Geotechnical

Borehole tests revealed a subsurface profile of organic silty clays, which generally increased in strength with depth, with varying amounts of shells and sand. These organic clays were initially of very soft to soft strength becoming firm to stiff or better above the underlying sandstone. The weathered sandstone bedrock was of low to medium strength or of medium to high strength. The sandstone profile contained clayey bands or extremely weathered bands, or highly fractured zones, in places. The sandstone bedrock was encountered in boreholes or inferred from the in-situ testing to be at depths ranging from 0.9m to 4.6m below bed level at that time towards the eastern side of the marina, stepping down to depths between 7.4m and 11.9m near its western extremity.

Coastal Processes

Due to the orientation of the marina and its location, the most severe wave height cases occurring inside the marina are caused by westerly winds. Waves generated by these westerly winds are able to better penetrate through the marina entrances. The largest significant wave heights are found at the unprotected areas outside the western end of the marina pontoons.

The wave climate in the marina sits somewhere in between 'moderate' and 'good' as described by the Australian Standards Guidelines for Design of Marinas (AS3962). It should be noted, however, that the majority of berths satisfy the criteria of a good wave climate under AS3962.

Swell wave energy is not of particular concern at this site due to its locality. Including estimated diffraction effects, swell at the St George Motor Boat Club will not exceed 0.25m (H_s) at the 100 years ARI.

Changes in current speeds in and around the site were investigated with no identifiable change in current speed identified. There are no existing shoreline or seabed instabilities at the site and hence the proposed development would not change this state. Furthermore, there has been no requirement for maintenance dredging at the site since the redevelopment of the marina in 2001. Current speeds in the vicinity of the marina are not strong enough to enable significant sediment transport at the seabed, as a result significant maintenance dredging is unlikely to be required.

8.2.4 Conclusions and Recommendations

Geotechnical

From a geotechnical perspective it is feasible to extend the existing marina provided good engineering practices are adopted for its construction. The proposed additions to the fifth arm and the new sixth arm of the marina are to be of similar construction to the existing marina, with piled floating jetties and berthing points. Pre-cast (hollow spun) concrete or steel tube piles

would be suitable and should be engineered for the site conditions and the marine environment.

The very soft to soft organic and marine silty clays should not be relied upon to provide foundation support for piled footings due to their potentially high compressibility. Lightly loaded piles may be feasible provided they are founded below the weak and compressible sequence of clays to found in strata of adequate load carry capacity. Pre-cast or steel tube piles would be able to be driven to a suitable set on the underlying sandstone bedrock. The pile footing excavation should be drilled, cleaned, inspected and poured with minimal delay to avoid deterioration.

It is recommended that a site specific subsurface investigation (i.e. boreholes) be carried out to determine and test the subsurface conditions prior to detailed pile footing design being undertaken.

A waste classification will need to be assigned to any soil excavated from the site prior to offsite disposal. Subject to the appropriate testing, material can be classified as Virgin Excavated Natural Material (VENM), General Solid, Restricted Solid or Hazardous Waste. If the soil has been stockpiled, classification of this soil as excavated natural material can also be undertaken.

Coastal Processes

In general, the snapshot of the existing water quality undertaken for the site complies with the various guidelines and objectives for the Georges River.

Furthermore, the proposed marina development demonstrates excellent tidal flushing due to the floating nature of the majority of facility. Maximum flushing times (e-folding times) are in the order of 3.5 hours which suggests that no accumulation of dissolved contaminants would occur within the expanded marina.

Overall, the expansion of the marina will have little effect on the existing coastal processes with no changes to the hydrodynamic, morphological and water quality evident from the investigations.

8.3 Aquatic Flora & Fauna

The Director General's requirements seek an assessment of any impacts on critical habitats, threatened species, protected species, populations or ecological communities and their habitats in the region.

8.3.1 Introduction

The Aquatic Ecology Impact Assessment prepared by Marine Pollution Research Pty Ltd dated February 2010 (**Appendix Q**) provides a detailed assessment of the above aspects relating to aquatic biota

8.3.2 Methodology

A field survey was undertaken in October 2009 to assess aquatic ecological changes since the original survey undertaken for the previous marina expansion in 2001. Survey tasks included;

- Description of epifaunal communities utilising the existing marina infrastructure, in particularly arm E pontoons, as there were no pontoons at the site in 2001,
- Diver survey of the inshore benthic habitats along the foreshore at and beyond the southern end of the marina complex and within the footprint of the proposed arm F.

A desktop literature review was carried out to bring the previous marina EIS aquatic information up to date, and to provide an overview on the currently available information on aquatic ecology.

8.3.3 Considerations

The floating pontoons and associated locator piles supported a diverse epibiota typical of the locality. They include mixed green, red and brown algae, molluscs, colonial and solitary ascidians, bryozoans and sponges, crustaceans and polychaete worms.

The benthic habitats of the study area include the intertidal to shallow sub-tidal rocky rubble shoreline and the sub-tidal muddy and sandy habitats;

- The rocky shore along the waterfront of the marina car park and the southern reserve shoreline is made up of large boulder and rock fragments inshore, with sparse rock/ rubble on sand around the lower intertidal limits. The intertidal rocky sea wall, rubble and reef habitats did not support any significant fauna, and were dominated by estuarine molluscs (mainly oysters). The lower intertidal to shallow sub-tidal rock rubble benthic habitat supports some patchy algae (mainly *Sargassum spp.*, with some Kelp).
- The fragmentation of the *Zostera* seagrass bed south of the marina, observed in 2001 and subsequently documented in the Kogarah Bay Environmental Management Plan has meant that the remaining bed is further south of the marina than observed in 2001. There remain a number of isolated patches of eelgrass (*Zostera capricornii*) south of the proposed Arm F, mooring pens and fairway, but only growing amongst the kelp and Sargassum rubble habitat inshore. Extensive searching in the proposed Arm F footprint area only yielded five single shoots of eelgrass and some small amounts of Paddle weed (*Halophila ovalis*), occurring within or very close to the footprint of the inshore limits of the proposed Arm F. There were no observations of seagrass further north, underneath arm E or the access gangway or inshore along the car park seawall just north of Arm E.
- Sandy to muddy unvegetated benthic habitat extends under the existing marina and throughout the footprint of the proposed Arm F, its mooring pens and fairway. This habitat supports a mixed burrowing and epi-benthic assemblage including polychaete worms, crustaceans and molluscs, as evidenced by the uniform distribution of burrows throughout the habitat, and by the uniform distribution of stingray feeding burrows.
- There was no *Caulerpa taxifolia*, (a declared pest algae species known to occur in Botany Bay) found at the site.

8.3.4 Conclusions and Recommendations

The main benthic habitat within the area for Arm F and its mooring pens and fairway is predominantly unvegetated silty sand to mud, and given the observed distribution of seagrass plants away from the existing and proposed works, it is concluded that the construction of Arm F would not have any significant impact on the existing seagrass beds in Kogarah Bay.

There were no threatened or protected aquatic birds or marine mammal, or fish species found in the area of the development, nor does the development site constitute a significant part of the habitat of any such species. It is concluded that the proposed marina upgrade and continued use of existing berths does not pose any significant impact to any threatened species, populations or ecological communities, or their habitats with which they interact.

As there is no dredging or reclamation proposed and no significant harm to marine vegetation there is no need to obtain permits under Section 204 and 205 of the Fisheries Management Act 1994.

With regard to construction impacts there are risks to the adjacent rocky rubble habitats from anchor and propeller wash damage arising from construction vessels. This risk can be minimised to insignificance by the use of appropriate safeguards that will be incorporated into the Construction Environmental Management Plan (CEMP) for the project.

With regard to the use of the new facilities, the possibility of seabed disturbance from propeller wash during vessel manoeuvres would be restricted to the innermost berths. This risk has been avoided from the onset by relocating the walkway plus Arm F offshore and restricting use of those berths to vessels with appropriate shallow drafts.

With regard to the continued use of the currently unauthorised berths located outside the present marina Permissive Occupancy, these berths are all located over deeper water areas with unvegetated sediment aquatic habitats and thus there are no anticipated disturbance impacts arising from the continued use of these berths.

8.4 Traffic & Access

The Director General's requirements seek the following:

- A traffic impact study of the project on the safety and performance of the surrounding road network;
- An assessment of the parking demand and the potential impacts of this demand on the availability of parking (including services vehicles);
- The potential loss of public access to the foreshore and waterways of Kogarah Bay; and
- The navigation and safety impacts on water users of Kogarah Bay and Georges River.

8.4.1 Introduction

A Traffic Impact Study has been prepared by Transport and Urban Planning dated January 2010 (**Appendix R**).

8.4.2 Methodology

As part of the parking assessment Transport and Urban Planning examined the Club's planned functions on weekends between early July and the end of November 2009 to identify particular busy days at St George Motor Boat Club. Sundays were identified as having the largest functions, that would also overlap with the usage of the marina in terms of traffic and parking demand. The surveys were undertaken on Saturdays and Sundays including several Sundays where the club was very busy, as well as more typical Sundays.

Transport and Urban Planning undertook marina usage and concurrent parking surveys at St George Motor Boat Club on nine (9) separate occasions between early July and the end of November 2009 to establish the Marina usage and the parking demand associated with its usage. Marina usage for the purpose of calculating the parking demand included:

- Berths where owners / visitors or tradesmen were on the boat still moored on the berth and were relaxing or working on the boat;
- Berths where the boat had been taken out of the marina (i.e. off the berth) and was being used by the owner / boat operator.

Both AS3962 (2001) and the Roads and Traffic Authority's Guide to Traffic Generating Developments (2002) recommend traffic and parking studies be undertaken on similar marina developments to determine marina usage and the parking requirements of marina proposals.

8.4.3 Considerations

The traffic generation of the additional 78 new berths is estimated to be 28 vehicles arriving and 28 vehicles departing the marina on a busy Sunday, with up to 60% of these arriving and or departing in the busiest one hour period in the morning and afternoon. The impacts of these additional vehicles on the adjacent road network will be relatively minor and traffic conditions are expected to remain unchanged with a good level of service on the road network and at the intersections adjacent to St George Motor Boat Club and Marina.

Additional service vehicles generated by the marina expansion will include up to three (3) tradesman vehicles per day (Monday to Saturday) and one (1) additional fuel delivery per month. There will be no change to the number of service vehicles coming to the club.

The proposed marina expansion and changes to the car parking will not impact on service vehicle manoeuvring on the St George Motor Boat Club site. Service vehicle manoeuvring on the site is fully compliant with AS2890.2 requirements.

There will be no changes to other facilities which operate at the club and marina including the boat ramp, the marina workshop and slipway and the licensed club.

8.4.4 Conclusions and Recommendations

The existing vehicle access to the marina and club is via Plimsoll Street, Wellington Street and Vista Street. An entry / exit driveway to the lower car park and marina is provided in Plimsoll Street with a vehicle entry from Vista Street. Entry to the upper level car park is from Plimsoll Street with the exit via Wellington Street.

Sundays are the busiest for use of the marina and the assessment of traffic conditions on the road network adjacent St George Motor Boat Club indicates that existing traffic conditions are satisfactory on Sundays, with a good Level of Service on the roads and at the adjacent intersections.

Bus routes operate along Rocky Point Road and also in Fountainbleau Street which is a short walk from St George Motor Boat Club and Marina. Pedestrian and cyclist facilities are also provided on the adjacent road network.

Parking surveys of the car parks at St George Motor Boat Club indicate that on particular busy Sundays when large functions are held at the club, which also coincides with good boating days, the car parks reach capacity during the Sunday lunchtime and mid afternoon period.

Marina and parking surveys undertaken as part of the assessment indicates that the existing 151 berths at the marina generate a maximum parking demand of 0.35 cars / berth. Adopting this maximum figure for the proposed expansion indicates that the additional parking requirement for proposed additional berths will be a total of 36 parking spaces consisting of 27.3 spaces for the 78 new berths and 8.1 spaces for the existing 23 unapproved berths.

The proposal by providing an additional 39 spaces for use by Club members and visitors will ensure that adequate parking will be provided to cater for the maximum parking demand of the proposed additional berths at the marina. The proposed parking changes will meet or exceed the requirements of AS2890.1 with regard to space size, aisle widths, ramp grades etc. There will be no change to the existing entry and exit driveways to the car parks of the marina and club.

A Construction Traffic Management Plan will be prepared following approval of the Development Application for the marina expansion to manage the traffic impact during the construction period.

With respect to the impact of the proposal on navigation, the width of navigable waters of Kogarah Bay is approximately 466m from the end of the western-most marina component to the edge of the sandbank on the eastern side of Tom Uglys Point at Blakehurst. The proposal will extend approximately 20m further in a westerly direction which will leave 446m of navigable waters across Kogarah Bay. The width of Georges River from the southernmost marina component to the edge of the sandbank on the southern side at Sylvania is approximately 812m. The proposed new Arm F will extend 48m in a southerly direction which will leave 764m of navigable waters across Georges River.

Accordingly, the proposal will result in reducing navigable water to a minor extent but leave navigable areas of 446m to the west and 764m to the south. Furthermore, consultation with NSW Maritime Authority carried out to date has not raised any objection to the proposal in

principle and will have further opportunity to consider any impacts on navigation during the notification process.

8.5 Noise

The Director General's requirements seek an assessment of construction, operation and traffic noise.

8.5.1 Introduction

A Noise Impact Assessment has been prepared by RSA Acoustics dated December 2009 (**Appendix V**) providing an assessment in relation to construction, operational and traffic related noise as a result of the proposed development.

8.5.2 Methodology

An ambient noise survey was conducted and operational design criteria developed in accordance with the NSW DECCW's Industrial Noise Policy (INP), Interim Construction Noise Guideline and Environmental Criteria for Road Traffic Noise. Ambient noise and site specific noise were collated in order to quantify the noise environment that currently exists at the Marina.

An ambient noise survey was carried out via unattended monitoring in close proximity to the nearby residential premises. The results of the attended noise measurements carried out at the Marina and during previous project work at similar facilities were used to characterise the noise levels typically emitted from operational activities.

Unattended noise monitoring

Monitoring was carried out from Wednesday 2 September 2009 to Wednesday 9 September 2009. An acoustic Research Laboratory (ARL) environmental noise logger Type EL 215 was deployed to continuously record ambient noise levels over the survey period in 15 minute intervals. Calibration of the noise logger was checked prior to and following the measurements and the drift in calibration did not exceed ± 0.5 dBA. Data affected by adverse weather conditions during the survey has been excluded from the processed results.

The results of the noise monitoring have been processed in accordance with the procedures contained in the DECCW's INP to establish representative noise levels that occur at surrounding receivers.

The unattended noise monitoring was supplemented with attended noise measurements from operational emissions of boats entering and leaving the moorings. This was carried out at the existing Marina area.

The attended noise measurements were conducted during the morning of 2 September 2009 using Bruel & Kjaer 2260 Sound Level Meter. Calibration of the meter was checked before and after the noise measurements. During the survey, there was negligible wind and fine weather with small swell.

To determine the acoustical impact of the Marina extension in relation to construction noise on surrounding residences, calculations were performed in order to identify the significant noise sources and scenarios that could potentially affect the nearest residential properties. A daytime operational goal of 50dBA and construction goal of 55dBA were set.

8.5.3 Considerations

Maintenance activities

Noise from maintenance activities only occurs during daytime hours between 8.00am to 5.00pm Monday to Friday and occasionally on weekends as required. Typical maintenance activities include:

- antifouling using high pressure water cleaners;
- hull and stainless steel polishing using electric buffs;
- stern gear and leg maintenance using small hand tools; and
- engine service involving small hand tools.

The noise that is generated by maintenance activities is non-continuous and loud periods of work are inter-dispersed with quiet periods. The noisiest operation is the use of the high pressure water cleaner. The noise from this cleaner is generated from the machine vibrating on the ground as it operates as well as from the rotary head, as it generates a pulsating water jet, resulting in regenerated noise from the vessel's hull.

Noise from vessels

Operational activities of the Marina will continue in the same manner as currently occurs. Marina users have unrestricted access to their vessels via security gates to each of the Marina arms. Boats may therefore leave and return at any time, although this usually occurs during daylight hours. The distance between the location of the closest existing wet berth and the nearest residential receiver at 50 Plimsoll Street is approximately 60m. The location of the closest proposed wet berth remains in the order of 50m to 55m from the residential premises.

Based on measurements of a typical cruiser engine leaving and returning to the mooring, and assuming a scenario with constant operation for 5 minutes, the LAeq(15minute) noise level at the nearest residence is predicted to range between 32 dBA to 34 dBA, which complies with the LAeq(15minute) daytime, evening and night-time operational goals of 50 dBA, 40dBA and 38 dBA respectively.

The underlying "long term" ambient noise associated with the Marina consists of wave noise against boats. The existing southern Arm E is a breakwater. The proposed new arm will also act as a breakwater and calmer conditions are expected at the new vessel locations.

Sleep disturbance

Noise emissions have been predicted for people talking at raised, loud and shouting levels on board a vessel at the proposed wet berth in closest proximity to the residential receivers. It was found that:

- The night-time sleep disturbances criterion is complied with for people talking in "raised" and "loud" voices aboard a moored vessel. A marginal 1 dBA exceedance of the criterion is predicted for "shouting";

- The disposal of garbage and bottles into bins located in the lower level car park area has the potential to exceed the night time sleep disturbance criterion;
- Based upon the measured level of bowthruuster noise, emissions due to the use of bowthrusters comply with the night-time sleep disturbance criterion of 53 dBA.

Road traffic

From traffic studies carried out by Transport and Urban Planning, Plimsoll Street was shown to have the lowest existing traffic volume between 8.00am and 9.00am within the surrounding road network (Vista, Wellington and Plimsoll Streets).

The proposal will result in a further 28 vehicles arriving and departing on a Sunday (Sunday being the busiest day), with a total of 56 additional vehicle movements over the day.

A worst case scenario is that 60% of these vehicles, ie 17, arrive in the morning and depart in the afternoon over the same one hour period. The worst case acoustical scenario would occur on Plimsoll Street between 8.00am and 9.00am when the existing traffic volumes would have the greatest impact. Traffic counts indicate that approximately 87% of vehicles entering the car park do so via Plimsoll Street (the remaining 13% entering via Vista Street).

Construction noise

The overall construction period for the marina is estimated at between 5 and 6 months with the off-site pre-fabrication taking around 2 to 3 months and 3 months for on-site installation.

The noisiest operation is during piling, with exceedences of the design target of up to 9dBA when the rig is operating in closest proximity to residences to the north-east of the construction zone. Exceedences of up to 5dBA may occur at the nearest residential receivers on Plimsoll Street during deliveries of piers and floating modules to the site and operation of the crane.

8.5.4 Conclusions and Recommendations

The “on water” operation of the Marina is passive, with the primary noise source being boat engine noise as boats arrive and leave. No significant change in operational noise is likely to impact on the residences to the east from boats leaving or arriving at the Marina as a result of the extension.

Patrons “shouting” on boats moored in closest proximity to the eastern residence at night have the potential for sleep disturbance, along with the disposal of bottles. However, the proposal is unlikely to exacerbate the current situation. In any case, it is recommended these issues be addressed in the Marina Noise Management Plan / Code of Conduct.

For existing maintenance activities, the noisiest activity is the pressure cleaner which may at times marginally exceed (by around 3 dBA) the daytime operational criterion. Other activities such as vessel manoeuvring and general cleaning comply with the design goal. However, noise generated from these activities will not be any worse than the present situation and it does not necessarily follow that more boats will be serviced on the slipway simply because there are more berths being proposed. Furthermore, the proposed new parking structure will provide a slight advantage as it will assist in shielding some of the current but negligible noise generated from marina activities and vehicle movement at the lower level car park.

Wave noise to the nearest residence would essentially remain similar to the existing conditions.

Based on traffic projections, with 15 additional traffic movements on Plimsoll Street between 8.00am and 9.00am, the existing 1 hourly road traffic noise level would increase by less than 2 dBA. As such, additional road traffic generated due to the proposed marina extension is not significant in terms of acoustical impacts.

Predicted noise levels at the nearest residences from the construction activities are expected to exceed the daytime period noise design goal. The exceedances range from 5dBA to 9dBA for bored piling and crane and truck movements on site. It should be noted that it is common for noise from construction activities to exceed the daytime period noise goal being a result on the nature of the activities and the often relative close proximity of sensitive receivers.

Noise mitigation strategies have the potential to minimise impacts and should therefore be implemented wherever practical during construction works.

8.6 Air Quality

The Director General's requirements seek an assessment of air quality in relation to construction and operation of the facility.

8.6.1 Introduction

The potential for impact on air quality may arise from construction waste that could generate odour impacts that may affect nearby residents.

8.6.2 Methodology

No special studies were considered necessary given scope of works which does not involve any dredging, any excavation or any significant or unusual construction waste.

8.6.3 Considerations

Construction and operation of the extended marina is not considered likely to have any significant impacts on air quality or microclimate conditions in the locality. In any case, all construction waste will be regularly removed from the site to prevent any potential odour impacts.

8.6.4 Conclusions and Recommendations

No significant risk of impacts. However, any potential impacts can be addressed by requiring compliance with the Protection of the Environment Operations Act (1997).

8.7 Waste

The Director General's requirements seek identification, classification and quantification of the likely waste stream of the project during construction and operation and a description measures to be implemented to minimise, reuse, recycle and/ or dispose of waste.

8.7.1 Introduction

A Waste Management Plan has been prepared by Golder Associates dated 25 November 2009 (Appendix T) in relation to construction and operation of the marina.

8.7.2 Methodology

The following scope of works was carried out in the preparation of the Waste Management Plan:

- site inspection to evaluate the existing Marina structures and associated facilities;
- identify the materials to be used in the proposed construction of the Marina facility and identify any waste that may be produced;
- evaluate the production of waste from the commercial components of the Marina facility using the available data; and
- liaison with the site operations staff to ensure those areas allocated for waste storage and management are sufficient.

The Waste Management Plan assesses the potential generation of waste from both the construction phase of the additional berthing arm in addition to the ongoing operations of the marina and associated facilities.

8.7.3 Considerations

Construction phase

- Phase 1: installation of the structural piles which will allow for attachment of the floating segments. Prior to installation, a survey will be conducted to identify the location of the piles. It is anticipated that the piles will be screwed piles thus minimizing the generation of marine sediments;
- Phase 2: delivery and installation of pre-fabricated floating segments. The segments will be transported to the site, unloaded by crane, placed into position and fixed;
- Phase 3: final furnishings and services will be installed which will include services such as water, electricity and fire. Final furnishings will be fitted such as timber edging and signage.

Operational phase

Waste generated from current operation of the facility (and therefore continued operation following extension) are as follows:

- Waste generated from Marina tenants and site employees including:
 - raw sewage; and
 - domestic waste;
- Waste oils, oil filters and discarded boat parts generated from the mechanics workshop; and
- Slipway waste including paint/boat scrapings and wash water from boat and hard stand wash down.

8.7.4 Conclusions and Recommendations

A very limited volume of waste is expected to be produced during the construction phase of the new berthing arm. The waste that will be produced will largely be from construction workers and would likely to consist of general domestic waste. The generation of waste during the construction phase is the responsibility of the construction contractor. It is recommended that the provision of a skip bin would be adequate for the management of waste during construction.

The generation of additional waste as a result of the addition of extra berths is not considered to alter the current waste management practice of weekly disposal of two (2) large bins. There is enough capacity within the current set up. However, if during peak periods the waste volumes increase to near capacity, an extra bin may have to be supplied.

No additional waste will be produced from either mechanic or slipway facilities unless there is an increase in facility size. It is understood that the current facilities are operating at full capacities. No extra waste is likely to be produced per day/week/year of operation.

Any means of providing waste recycling services for tenants is considered to be difficult to implement and potentially will result in limited environmental benefits if the process is not managed appropriately.

It is recommended that a conditions be imposed that would require compliance with the Waste Management Plan (WMP). The Club anticipates that the construction of the berthing arm from engineering design to hand over will be the responsibility of the construction contractor. However, the construction contractor must adhere to the requirements of the WMP when working on the site. All works should be carried out in accordance with the Protection of the Environment Operations Act (1997) in order to prevent any potential pollution events to the waterway.

9 DRAFT STATEMENT OF COMMITMENTS

This draft Statement of Commitments has been prepared for St George Motor Boat Club (the proponent) and forms part of the Environmental Assessment (EA) for the proposed marina extension and associated parking facilities on the subject site.

The proponent confirms that:

- The proposal does not involve any dredging works;
- There are no seagrasses within the extended marina area;
- All tenants will be subject to and made aware of the Marina Code of Conduct in terms of responsibilities of leasing a berth;
- The provision of parking has been designed in accordance with AS2890.1.

Design

- The proposed new works to the marina must generally comply with the provisions of AS3692-2001- *Guidelines for Design of Marinas*.

Construction Management

- Construction of the parking facility, new berthing arm and marina alterations will take between 5-6 months.
- Construction will be restricted to the following hours:
 - Monday to Friday 7.30am to 4.00pm
 - Saturday 8.00am to 1.00pm
 - No work will be carried out on Sundays or Public Holidays
- Construction works will be carried out in accordance with the Waste Management Plan prepared by Golder Associates date 25 November 2009, submitted with the application and the construction contractor and all sub-contractors will be required to comply.
- Construction works will be carried out in accordance with the Environmental Management Plan prepared by Golder Associates date 25 November 2009, submitted with the application and the construction contractor and all sub-contractors will be required to comply.
- The construction contractor and all sub-contractors are to comply with the Club's Water Quality Management Plan and Emergency and Spill Management Plan at all times when working on the site.

Traffic Management

- A Traffic Management Plan (TMP) will be prepared for the construction activities of the marina extension and associated works, following approval of the Development Application to manage the traffic impacts of the construction.
- Traffic generation associated with the construction is estimated to be:
 - 6 construction worker trips per day (i.e. 6 arrivals and 6 departures) for 4 weeks increasing to 20 construction worker trips (i.e. 20 arrival and 20 departure trips) per day for 16 weeks;
 - 3-4 general delivery vehicles per week in small to medium rigid trucks;
 - 2 semi trailer delivery vehicles per week; and

- A 40 tonne mobile crane coming to the site up to 6 times during the 20 week construction period.

Noise Management

- Works will be carried out in accordance with the DECCW's "Interim Construction Noise Guideline" and AS 2436-1981 "Guide to Noise Control on Construction, Maintenance and Demolition Sites"
- Piling will not be conducted before 8.00am and will include respite periods;
- Regular maintenance of plant and machinery used for the project will be carried out to assist in minimizing noise emissions.

Waste Management

- Construction works and operation of the completed marina will be carried out in accordance with the Waste Management Plan prepared by Golder Associates date 25 November 2009, submitted with the application and the construction contractor and all sub-contractors will be required to comply.
- The marina has an existing sewage pump-out facility. All sewage waste removed from vessels will be disposed of directly to the Sydney Water sewage connection.
- The Club will comply with the NSW DECC and SES directions in managing spills.

Operational

- The Club will revise the existing Emergency Procedures Manual to include responses to the following identified high risk scenarios as identified by the Environmental Management Plan prepared by Golder Associates dated 25 November 2009:

Berthing:

1. Oil/fuel spill
2. Chemical spill

Refueling facilities:

3. Fuel spill into Kogarah Bay
4. Leaking UST, pipe work or bowsers

Dual Slipway:

5. Oil spill

10 CONCLUSION

This report provides an Environmental Assessment for the increase in berthing capacity, the regularization of 23 unauthorized berths and associated parking facilities at St George Motor Boat Club, Sans Souci. This Report has been prepared on behalf of the Club in accordance with Part 3A of the EP&A Act 1979 and the provisions of SEPP (Major Development) 2005.

The water based component of the proposal is permissible within the Environmental Protection 7(a) – Waterways zone and consistent with the relevant zoning objectives of Kogarah LEP 1998. The land based component of the proposal is located above mean high water mark within Residential 2(a) – Low Density zoned land in accordance with Kogarah LEP 1998. Whilst the proposed parking structure is not permitted within this zone, the site enjoys 'existing use rights' under Section 106 of the EP&A Act 1979 and therefore is permissible with consent.

The proposal responds to the Director General's requirements issued by the Department of Planning on 8 May 2009 and advice from relevant State and local authorities that have an interest in the project. Community consultation has also been carried out providing information and advice regarding the proposal to the local community

A project team of consultants has been created to consider and investigate the identified key considerations which include issues relating to visual amenity; soil and water; aquatic flora and fauna; traffic and parking; noise; air quality and waste. The conclusions and recommendations provided by the project team and accompanying studies are detailed throughout this report and annexed as supporting documents. Essentially, the supporting documentation concludes that the proposed development will not result in any significant environmental impacts subject to appropriate mitigation measures relating to construction methods as well as management and operation of the expanded facility. In this regard, the report also includes a Draft Statement of Commitments by the Club.

Overall the proposal will facilitate the continued use of an existing marina and will respond to an identified demand for additional berthing facilities in the St George and Sutherland Shire areas. The proposal is considered to be compatible with existing development in the area and represents an appropriate form of land and water based development with respect to the existing character of the area and waterfront locality. The proposal represents a capital investment of \$2 million.

The site is suitable for the development proposed which will have minimal environmental impacts and is considered unlikely to have any significant adverse impact on the amenity of the locality. Accordingly, in the circumstances of the case, the proposal is considered to be in the public interest and a positive contribution for the community.

