



Updated 8th February 2017

## FLOATING MARINA FACILITY, ST GEORGE MOTOR BOAT CLUB, SANS SOUCI

# Environmental Management Plan

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REPORT



Report Number: 097623028\_001\_R\_Rev\_EMP



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# ENVIRONMENTAL MANAGEMENT PLAN

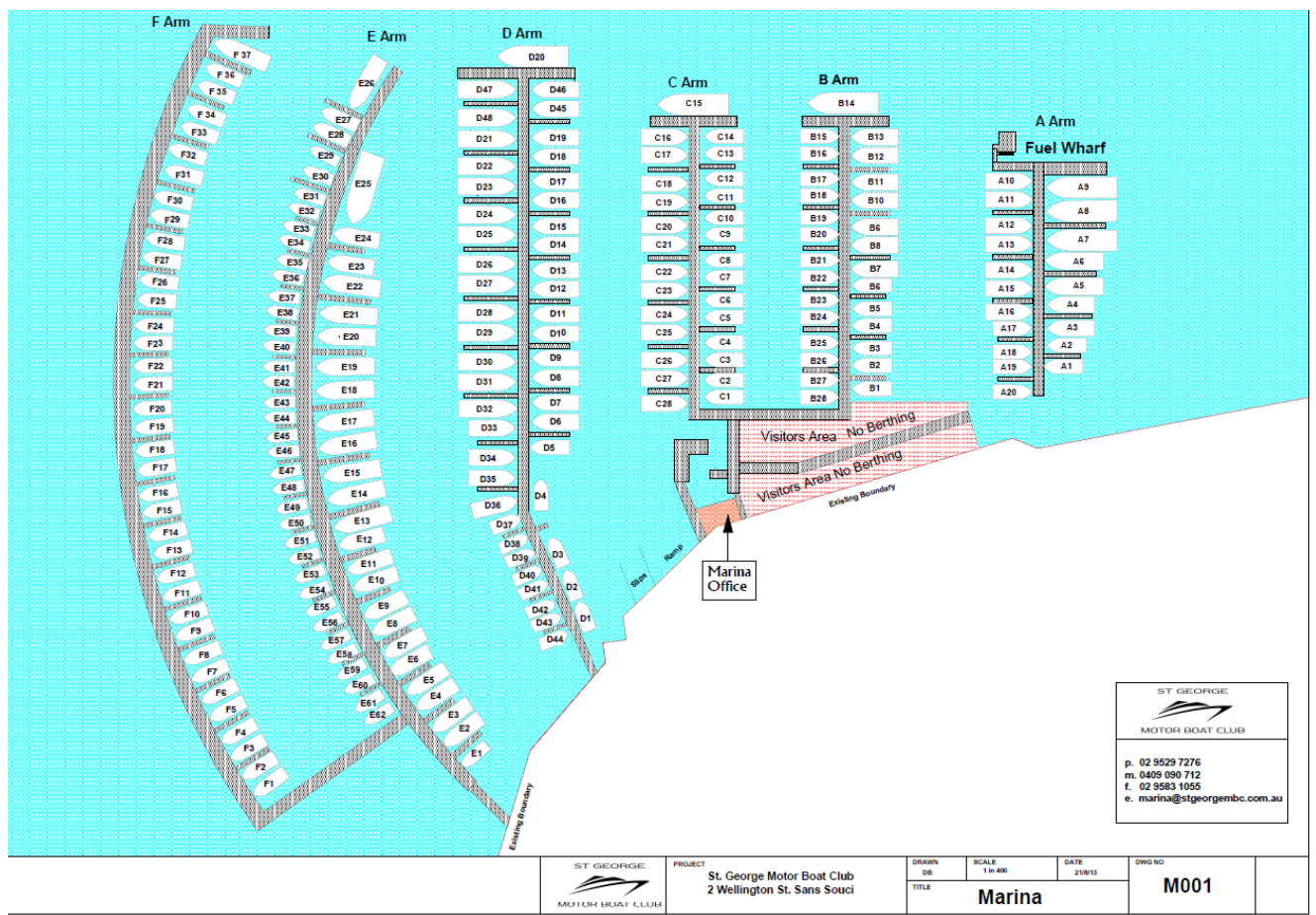
## 1.0 BACKGROUND

### 1.1 Introduction

St George Motor Boat Club ( STGMBC) is a registered club in Sans Souci. The club consists of a main building as well as a 220 berth state of the art floating marina. The venue has 90 Poker machine entitlements and turned over 33 million dollars last year. The marina is a floating Bellingham designed marina with a slipway, workshop and onsite boat brokerage.

### 1.2 Project Description

The new marina was officially opened in September 2013. In addition to 44 new car spaces the marina added 78 new berths taking the total to 220 floating berths. A copy of the new area is provided below.





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A breakdown of the days and hours of operation for different components of the Marina facility is presented in Table 1.

**Table 1: Days and Hours of Operation**

Marina Component	Days of Operation	Hours of Operation
Boat Berths	7 days a week	24 hour access for berth holders
Refueling Facilities	7 days a week	24 hour access
Wastewater Pump-out	7 days a week	24 hour access for key holders
Race Viewing Tower	Dependent upon event times	Dependent upon event times
Boat Mechanics Workshop	Monday to Saturday	8:00am to 6pm on selected days
Dual Slipway	Monday and Wednesday for cleaning and painting  Friday and Tuesday for bringing boats onto slipway for Monday and Wednesday work	8am to 5:30pm on selected days
Wastewater Treatment Plant	As required (automated system)	As required
Boat Ramp	7 days a week	24 hour access for Club members
Marina Management Office	7 days a week	8am to 5.30pm daily

It should be noted that this EMP does not include the Club Building and associated parking facilities and only relates to the Marina, associated facilities. The EMP has been prepared for the ongoing operation of the Marina facilities.

This EMP has been revised and modified in accordance with changes to the Site operations or regulatory framework. Appendix A contains a register form for future revisions of this EMP. Appendix B includes Figure 1, showing the Marina's Environmental Control Installations and facilities.

### 1.3 EMP Context

Prior to commencement of the construction of Berthing Arm F and the additional berths along Berthing Arm E the Club engaged Planning Ingenuity Pty Ltd to prepare an Environmental Assessment (EA) and facilitate development consent for the additional construction works. The additional Berthing Arm was proposed to accommodate additional boating berths (up to 80 in total) and to improve St George Motor Boat Club's capability as a marina facility.

*f* Visual amenity issues associated with construction and ongoing operation;



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- f* Soils and water issues;
- f* Aquatic flora and fauna impacts;
- f* Traffic and vehicular access;
- f* Noise issues associated with construction and ongoing operation;
- f* Air quality; and
- f* Waste management.

As part of previous construction works taking place on the marina facility an Environmental Impact Statement (EIS) was prepared. The EIS was based upon the original Director General's Requirements (dated 23<sup>rd</sup> November 2001, ref. S00/01835). The issues that the EIS addressed included:

- f* Potential noise impacts;
- f* Visual amenity impacts;
- f* Land surface issues;
- f* Water quality impacts and waste management;
- f* Air quality impacts;
- f* Social issues;
- f* Land transport and parking issues;
- f* Heritage issues;
- f* Hazard assessment;
- f* Economic issues;
- f* Cumulative impact; and
- f* Dredging impacts to marine fauna and flora, sea bed stability, tidal currents and suitability for dredged material to be dumped at sea.

The EIS concluded that the impact of the Marina upgrade would be minimal to the majority of these issues however, the dredging requirement was understood to have implications for local sea grass, marine biology and estuarine processes, and there were issues relating to the nature of the material to be dredged and its disposal.

Following the EIS, the Director General issued the Determination for the Development Application (dated 23<sup>rd</sup> November 2001, ref. S00/01835), with conditions relating to potential impacts and issues highlighted in the EIS. Conditions 34 (a to g), 35, 36 and 37 within the Determination document refer to the preparation and ongoing use of an EMP for the ongoing operations of the Marina and provided specific detail as to the composition of that EMP. This EMP was initially prepared in response to these requirements and has subsequently been updated to incorporate the construction and operation of Berthing Arm F and the additional berths along Berthing Arm E.



### 1.4 EMP Objectives

The objective of the EMP is to maintain the objectives set out earlier in this document in regard to operational controls with emphasis on Conditions 34 (a to g), 35, 36 and 37 within the Determination document refer to the preparation and ongoing use of an EMP for the ongoing operations of the Marina and provided specific detail as to the composition of that EMP.

*The Applicant shall prepare and implement an Environmental Management Plan for the operations of the Marina. This plan must:*

- a) *Describe the Marina operations (addressed in Section 1.2 of this EMP);*
- b) *Identify all the relevant statutory requirements that apply to these operations (addressed in Section 2.2 of this EMP);*
- c) *Set standards and/or performance measures for each of the relevant environmental issues (addressed in Section 4.1 of this EMP);*
- d) *Describe what actions and measures will be implemented to mitigate the potential impacts of the Marina's operations, and to ensure that these operations meet the relevant standards and/or performance measures (addressed in Section 3.2 of this EMP);*
- e) *Describe what measures and procedures will be implemented to register, report, and respond to complaints during operations (addressed in Sections 2.3 and 3.4 of this EMP);*
- f) *Describe the role, responsibility, authority, and accountability of all key personnel involved in the proposed Marina's operations (addressed in Section 2.1 of this EMP); and*
- g) *Include a detailed:*
  - f Berthing Management Plan;*
  - f Slipway Management Plan;*
  - f Water Quality Management Plan, which includes procedures for dealing with wastewater generated by the Marina's operations;*
  - f Waste Management Plan;*
  - f Fuel Management Plan, including the procedures for dealing with any spills; and*
  - f Emergency Management Plan (all of these plans are addressed in Section 3.2 of this EMP).*

As the EMP has already been prepared to comply with these requirements the document has simply been updated to incorporate the construction of Berthing Arm F and the ongoing operation of the Marina as a whole.

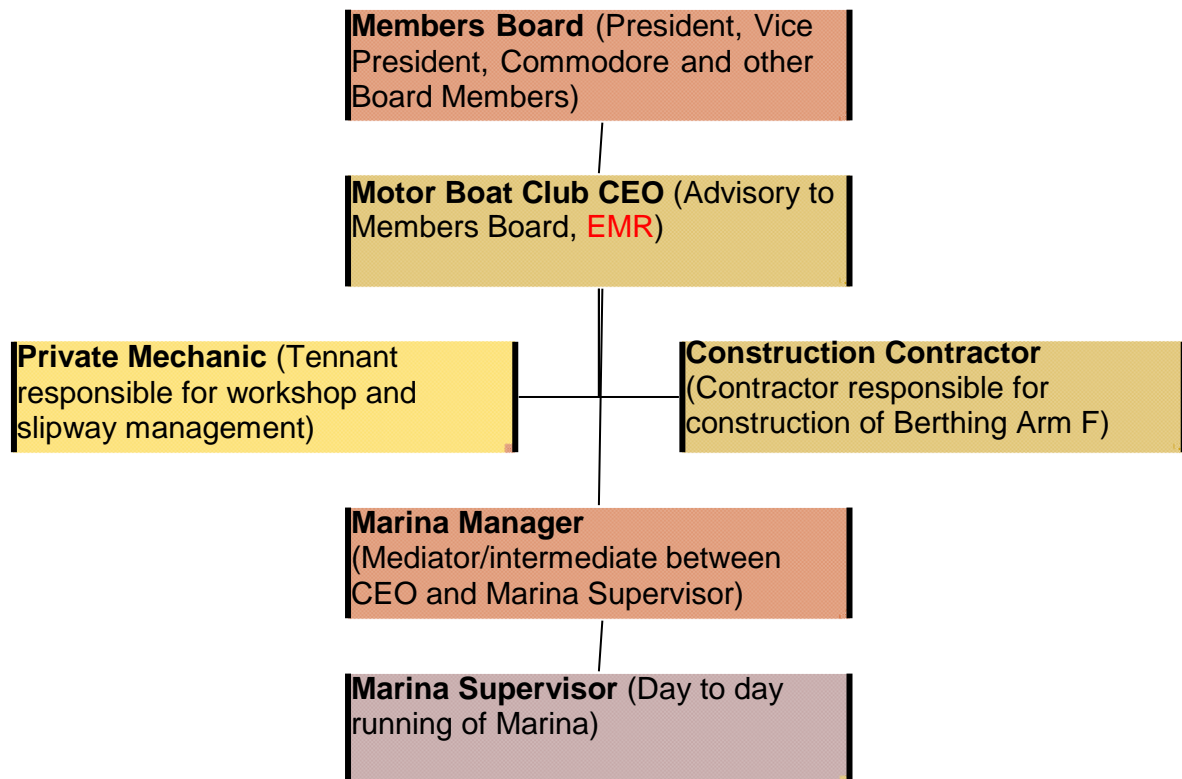


## 2.0 ENVIRONMENTAL MANAGEMENT

### 2.1 Environmental Management Structure and Responsibility

This section describes the management structure of the Club relating to Marina operations and how the implementation of this EMP is to fit into that structure. The table below presents a structure/flowchart of the Club management and the position of the EMR.

**Table 2: St George Motor Boat Club Management Organisational Chart**



The CEO will be responsible for carrying out the role of EMR. The role of the EMR is as a coordinator in relation to ongoing environmental management (issues and incidents) compliance monitoring, documentation and reporting for the Marina. The EMR role also entails the ongoing maintenance and implementation of the EMP.

The construction contractor engaged to construct Berthing Arm F and the additional berths along Berthing Arm E is responsible for maintaining their own system on environmental management. However, while operating within the marina facility that system should comply with this EMP.

### 2.2 Approval and Licensing Requirements and Reporting

The Conditions of Approval and Consent (as dictated by the Director General) are presented in Section 1.4 of this EMP. This Section also presents where in this EMP those Conditions are addressed.

Table 3 below presents a list of legislation (and regulators) relevant to the Site along with any licenses, approvals and permits required. Table 3 also identifies the person within the Club responsible for ongoing compliance monitoring.





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**Table 3: Regulatory Compliance Requirements**

Regulatory Instrument	Licence/Permit/Approval/ Guideline/Plan	Responsible Regulatory Body	Responsibility for Ongoing Compliance Monitoring	Reporting Frequency/ Milestones	Report Content
<i>Environmental Planning and Assessment Act (1979)</i>	Compliance with Director General's Requirements as per Section 75F of the Act	Department of Planning	EMR	Ongoing	Refer to Director General's requirements (dated 8th May 2009, ref. S00/01835)
<i>Protection of the Environment Operations Act (1997)</i>	Environmental Protection Licence (ref. 11166)	Department of Environment, Climate Change and Water	EMR	Current Reporting Period 30/01/2016 to 29/01/2017	Annual Return Form to be submitted to NSW DECC annually. Information to be provided includes Pollution Complaints and Details of Non-Compliance with Licence
<i>Protection of the Environment Operations Act (1997)</i>	Guideline: Environmental Action for Marinas, Boatsheds and Slipways	Department of Environment, Climate Change and Water	EMR	N/A	N/A
Section 49 of the <i>Sydney Water Act (1994)</i>	Trade Waste Agreement (TWA)	Sydney Water Corporation	EMR, Private Mechanic	Yearly monitoring of water discharge from treatment plant	Brief letter report with summary table (comparing composite results against criteria set in TWA) and laboratory certificates. Analytical program includes meter reading and discharge volume as well as copper, zinc, oil and grease, total suspended solids and total dissolved solids
<i>Work Health and Safety Act (2011)</i>	Dangerous Goods Licence (ref. 35/010902). UPSS exemption order N.0430. EPA licence 11166	WorkCover NSW	EMR	31/05/2017	N/A
<i>Waste Avoidance and Resource Recovery Act (2001)</i>	N/A	Department of Environment, Climate Change and Water	EMR	N/A	N/A
<i>Environmentally Hazardous</i>	N/A	Department of Environment,	EMR	N/A	N/A



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Regulatory Instrument	Licence/Permit/Approval/ Guideline/Plan	Responsible Regulatory Body	Responsibility for Ongoing Compliance Monitoring	Reporting Frequency/ Milestones	Report Content
<i>Chemicals Act (1985)</i>		Climate Change and Water			
<i>Contaminated Land Management Act (1997)</i>	N/A	EPA	EMR	N/A	N/A
<i>Protection of the Environmental Operations (Underground Petroleum Storage System) Regulation (2008)</i>	Environmental Protection Plan UPSS Exemption N.0430	Department of Environment, Climate Change and Water	EMR	Environmental Protection Plan by 31/05/2017  Groundwater monitoring well installation by 1/06/2017	Environmental Protection Plan, record of integrity testing, incident management procedure, groundwater well logs and monitoring results and loss monitoring report.
<i>Water Management Act (2000)</i>	Controlled Activity Approval for the construction of Berthing Arm F will be required prior to commencing works	Office of Water	EMR	Initial submission of application alongside accompanying documents.	Complete Application Form alongside fee and accompanying documents (detailing management of impact to waterways, e.g. runoff and sediment control, wastewater treatment etc).

The *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation* (2008) came into force on 1 June 2008. Under the regulation the use of Underground Petroleum Storage Systems (UPSS) is prohibited until all the following are in place:

- f* Loss monitoring/detection procedures (e.g. system to detect loss greater than 0.76 L/hr);
- f* Groundwater monitoring wells (by 1 June 2017); Exemption Order N.0430
- f* Incident management procedure;
- f* Checks for measuring instruments and recording of data;
- f* Record of equipment integrity testing; and
- f* Environment Protection Plan (by 1 June 2009).

### 2.3 Environmental Training

All employees should undergo general environmental awareness training regarding their responsibilities under the EMP. The training should ensure that all employees understand their obligation to exercise due diligence for environmental matters. It should be noted that “employees” in this instance means all people working on-Site including tenants, contractors and sub-contractors.

With respect to the operation of the Marina facilities it is the responsibility of the Club to prepare their Site specific training, however any environmental training programme should incorporate the following:

- f* A general site induction;
- f* Familiarisation with the requirements of the EMP (summary of the EMP and all associated management plans);
- f* Environmental emergency response training (outlining potential environmental emergencies and relevant contacts and response procedures), including spill management/response procedures;
- f* Familiarisation with Site environmental controls (bunded areas, spill kit locations, emergency fuel line shut-off points etc); and
- f* Targeted environmental training for specific personnel. For example, CEO and Marina Manager may require specific training in spill management and compliance monitoring.

The need for additional or revised training shall be identified and implemented from outputs of:

- f* Monitoring programmes;
- f* Changes to the Marina and surrounding receptors; and
- f* Alterations to regulatory frameworks and future reviews of the EMP as required.

For the purpose of recording training information Golder has prepared a training record sheet which is presented in Appendix C of this report.

The construction contractor engaged to construct Berthing Arm F and the additional berths along Berthing Arm E is responsible for maintaining their own system on environmental management. However, while operating within the marina facility that system should comply with this EMP.



## 2.4 Emergency Contacts and Response

Table 4: Emergency Contacts

Agency/Organisation	Name	Phone
St George Motor Boat Club	CEO/EMR (Adrian Vermeulen)	(02) 9529 7276 0418 667 241
Construction Contractor	TBA	TBA
Mechanic	Private Mechanic (Mark Evans)	(02) 9529 8109
Department of Planning	Head Office	(02) 9228 6111
Department of Environment and Climate Change	Head Office Pollution Hotline	(02) 9995 5000 131 555
Georges River Council	General Enquiries	(02) 9330 6400
National Parks and Wildlife Service	General Enquiries	(02) 9995 5000
NSW Land and Property Management Authority	General Enquiries	(02) 9228 6666
Office of Water	Wayne Connors Greg Brady	(02) 9895 7194 (02) 9895 7441
Sydney Water Corporation	Emergencies	13 20 90
SES	NSW Headquarters	(02) 4226 2444
Fire Brigade	As Required	000 or 112 (mobile)
Ambulance		
Police		



### 3.0 IMPLEMENTATION

#### 3.1 Risk Assessment

Golder has carried out a general qualitative environmental risk assessment to assist in the assigning of risk associated with activities carried out on the Marina. Risk is assessed based on the three risk matrix tables below (Tables 5 to 7) and individual potential risks are assessed in Table 8. Any additional hazards which may be identified by the the Club should be assessed based on this risk matrix.

The use of this matrix will allow the Club to predict potential hazards and their risk ranking and thus put in place appropriate management options to mitigate the risk based on its likelihood and consequences.

Table 5: Evaluating Level of Risk

Likelihood (see likelihood table)	Consequence (see consequence table)		
	Low	Medium	High
Low	L	L	M
Medium	L	M	H
High	M	H	H

Table 6: Evaluating Likelihood

Level	Descriptor	Description
High	Almost certain	Is expected to occur in most circumstances
Medium	Likely/possible	May occur at some time
Low	Unlikely/rare	May occur in exceptional circumstances



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**Table 7: Evaluating Consequences**

Level	Description
<b>High</b>	Serious damage to environmental receptor and/or human health  Potential prosecution  Potential litigation
<b>Medium</b>	Loss of Marina services and clients  Unacceptable cost over run  Unacceptable delays to Marina operations and project programmes  Potential adverse media exposure
<b>Low</b>	The consequences are dealt with by routine operations

**Table 8: Qualitative Marina Environmental Risk Assessment**

Activity	Hazard/Incident	Likelihood	Consequence	Risk
Berthing	Rubbish dumping into Kogarah Bay	Low	Low	Low
	Sewage spill/bilge water spill	Medium	Medium	Medium
	Oil/fuel spill	Medium	High	High
	Chemical spill	Medium	High	High
Refuelling Facilities	Fuel spill into Kogarah Bay	Medium	High	High
	Fuel spill onto hardstand	Low	Low	Low
	Leaking UST, pipework or bowsers	Medium	High	High
	Fire, explosion	Low	High	Medium
Wastewater Pump-out	Sewage Spill into Kogarah Bay	Medium	Medium	Medium
	Inappropriate liquid waste pumped into sewer	Low	Medium	Medium
Race Tower	Fire	Low	High	Medium
Boat Mechanics	Oil spill on hardstand	Low	Medium	Low



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Activity	Hazard/Incident	Likelihood	Consequence	Risk
Workshop	Fire, explosion	Low	High	Medium
	Paint and chemical spill on hardstand	Low	Low	Low
	Inappropriate disposal of waste	Low	Medium	Low
Dual Slipway	Oil spill	Medium	Medium	Medium
	Paint spill	Medium	Medium	Medium
	Contaminated wastewater release	Low	Medium	Low
	Dust emissions (sanding)	Low	Low	Low
	Fire, explosion	Low	High	Medium
Wastewater Treatment Plant	Plant malfunction/uncontrolled release	Low	Medium	Medium
	Inappropriate disposal of solid waste	Low	Medium	Low
Boat Ramp	Oil/fuel spill	Low	High	Medium
	Fire, explosion	Low	High	Medium
	Dumped rubbish	Medium	Low	Low
Marina Management Office	Dumped rubbish	Low	Low	Low
	Fire	Low	High	Medium



### 3.2 Environmental Management Activities and Controls

This section is structured to identify activities, mitigation and control measures to manage and minimise environmental impacts. It presents a set of management plans specific to the activities currently taking place on the Site. To ensure boat owners are aware of these management plans they are to be included as accompanying documents alongside the *St George Motor Boat Club Marina and Berthing Rules, Extracts and Additions to the Club By-Laws* (presented in Appendix D), and copies of these documents should be kept in the Marina Office and be made available to boat owners upon request or when updated.

Monitoring of compliance with these management plans should be undertaken by the Marina Supervisor. Any breaches of compliance should be reported by the Marina Supervisor to the Marina Manager who will decide upon the course of action required (dependent on the degree and nature of the breach).

#### 3.2.1 Berthing Management Plan

Boat owners are required to make a formal application to the Club for renting a permanent berth. Upon acceptance of the application the boat owner is required to agree to the *St George Motor Boat Club Marina and Berthing Rules Extracts and Additions to the Club By-Laws* (presented in Appendix D). According to the Berthing Rules the boat owner is required to comply with the following rules relating to minimising environmental impact:

- f Under no circumstances is any painting or repairs which may result in the use of paint, solvents, thinners, oils, flammable materials or chemicals is forbidden and such work is only to be carried out as part of the Slipway Management Plan.*
- f The Boat owner Member (s) shall at all times comply with the requirements of the relevant authorities and in particular shall not dispose of sewage refuse or garbage into Waterways.*
- f Whilst the Vessel is moored at the berth, the Boatowner shall not carry out any material repairs or other material work to the Vessel save for work which has been authorised by the Marina Manager.*
- f All Vessels shall be berthed in accordance with the directions of the Marina Manager. The Boatowner Member(s) acknowledges that all Vessels on the Marina shall be berthed aft towards the Marina, with the exception of (F) arm, where vessels shall be moored bow toward the Marina.*
- f No Vessel is to moor at the fuel pen of the Marina overnight without the consent of the Marina Manager. No Vessel is to berth at a vacant berth on the Marina without the consent of the Marina Manager.*

As stated above, wastes generated on the boats are to be managed in a manner compliant with the Waste Management Plan (refer Section 3.2.5), including waste oil generated during minor repairs by boat owners which is unable to be disposed of on-Site. Spills by boat owners are to be reported to the Marina Supervisor immediately and managed as per the Emergency and Spill Management Plan (refer Section 3.2.4). Small repairs on boats are allowed to be carried out within the Marina berths by boat owners at the discretion of the Marina Supervisor.

Heavy repairs to motors are required to be carried out by the private mechanic who will conduct the repairs within the mechanics workshop on land. Cleaning and painting of the hull is also required to be carried out by the private mechanic on the dual slipway. Days and hours of operation for both the workshop and the slipway are presented in Table 1.

**Note: Apart from increasing the number of available berths, the construction of Berthing Arm F and the additional berths along Berthing Arm E is not anticipated to affect the**





**Berthing Management Plan and thus no additions to the Plan are proposed as a result of the construction works.**

### 3.2.2 Slipway Management Plan

The dual slipway forms part of the lease agreement between the Club and the private mechanic situated on-Site and thus the ongoing operation and management of the slipway is predominantly the responsibility of the mechanic. The slipway component comprises a dual slipway (which can hold a maximum of two boats dependent on boat length), a paint storage shed (a storage container situated to the south of the dual slipway, a bund and associated drain (hooked directly to the wastewater treatment plant), and a gurney for cleaning of hulls. The following management requirements relate to these components of the slipway and relate to minimisation of environmental impacts.

- f* Boats are to be steered from their berths onto the slipway and off again by the mechanic or his representative. This is to minimise the potential for crashes and possible fuel and oil spills;
- f* While using the gurney care should be taken to minimise splashing of wastewater into areas outside the bunded area. The purpose of this requirement is to ensure no wastewater reaches Kogarah Bay;
- f* While using the gurney care should be taken to ensure the drain is unblocked and that wastewater does not flow over the bund on the slipway. If there is a blockage and there is a potential for overflow of wastewater into Kogarah Bay work should be ceased until the drain is unblocked;
- f* Where possible dust emissions generated as a result of sanding of hulls should be minimised so as not to impact upon water quality in Kogarah Bay or residential receptors to the south-east.
- f* Spills of oil, fuel, paint or other chemicals during spillway activities should be reported to the Marina Supervisor and managed as per the Emergency and Spill Management Plan (this includes recording of spills in the Environmental Incident Register); and
- f* Paints being used on the slipway are to be stored in the bunded paint storage shed or a bunded location in the workshop. At no point between the bunded slipway and the paint storage shed or workshop should there be a potential for spillage of paints or other chemicals into Kogarah Bay or an unprotected drain.

**Note: The construction of Berthing Arm F and the additional berths along Berthing Arm E is not anticipated to affect the slipway and thus no additions to the Plan are proposed as a result of the construction works.**

### 3.2.3 Water Quality Management Plan

A range of Marina activities have the potential to impact upon water quality in Kogarah Bay and the stormwater system. Potential sources of water quality impact include (but are not limited to) the following:

- f* Leakage from USTs;
- f* Fuel spills from Site vehicles or fuel trucks;
- f* Fuel spills from plant, cranes, trucks and drilling barges used for construction of Berthing Arm F;
- f* Sewerage, fuel and oil spills from boats;
- f* Paint spills into the bay from the paint storage container;



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- f* Dumped rubbish/chemicals from boats;
- f* Dumped rubbish/chemicals/building refuse during construction of Berthing Arm F;
- f* Runoff generated from the lower carpark area being used as a works area during the construction of Berthing Arm F and the additional berths along Berthing Arm E;
- f* Spilled waste oil from the mechanics workshop; and
- f* Contaminated water discharge from the slipway during boat servicing and repairs or from the wastewater treatment plant.

With the exception of the monitoring of the wastewater treatment plant under the Sydney Water Corporation TWA and integrity testing of the USTs, there is no regular monitoring of potential discharges and their impact upon water quality. It is considered that under the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation (2008)* a groundwater monitoring program targeting potential UST leaks will be required (to be fully implemented by 2011 according to the Regulation). However, no other ongoing monitoring is considered to be required to manage water quality. It is understood that impacts to water quality by Site activities and construction works are most likely to be the result of unanticipated and infrequent events and should be treated as such. These events should be managed as they arise through activation of the spill management plan.

**It is anticipated that no exposure of soil will take place as a result of the construction of Berthing Arm F and the additional berths along Berthing Arm E. However, should such works be required, or should elevated levels of runoff be generated across the construction Site, runoff and sediment control measures should be implemented in compliance with the *Urban Erosion and Sediment Control Guidelines*.**

### 3.2.4 Emergency and Spill Management Plan and PIRMP

A copy of the Club's existing Emergency Procedures Manual is presented in Appendix E. Spills occurring on the Marina facility may include oil and fuel spills from the mechanics workshop, boats, vehicles and fuel trucks as well as leaking USTs and associated pipes and bowsers, paint spills from the paint shed and spillway and sewage and general refuse spills from boats and the sewage pump-out point.

All spills on the Marina should be immediately referred to the Marina Supervisor. The EMR should be informed of the spill as soon as practicable. If the spilled substance is toxic and a potential threat to human health the Marina should be evacuated and the Emergency Services and NSW DECC Pollution Hotline contacted.

Spill kits and fire extinguishers should be available at strategic locations across the Marina and their contents should be audited on a tri monthly basis to ensure that the kits contain adequate equipment to deal with spills quickly. Spill kits should be located on each arm of the Marina as well as on the slipway, mechanics workshop and at the UST filling points and at the bowsers and sewage pump-out points.

It is understood that all equipment in the spill kits (as well as floating booms) are one use items and should be replaced following each use. All staff are to be trained in emergency response and use of spill kits in managing spills. The contents of spill kits are to be checked tri monthly to ensure that all necessary equipment is present and in working order.

Spills of oil and fuel or other chemicals or wastes that float on the water surface and reach Kogarah Bay should be contained as soon as possible with booms and emergency services be contacted as well as the NSW DECC Pollution Hotline (contact details in Table 4 of this report).

If a fire is started as a result of spillage of flammable chemicals the fire should be put out with the use of an appropriate extinguisher if it is safe to do so. If there is a direct risk to human life as a



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result of the fire everyone should be evacuated immediately to the emergency muster point for the Site and emergency services be contacted.

The Club should comply with all requirements of NSW DECC and emergency services in managing spills.

Following completion of management works the EMR should fill out the Environmental Incident Register and provide as much detail as possible relating to type of spill as well as quantity and time and the management works undertaken. The EMR is responsible for managing any ongoing reporting or sign-off which may be required by regulatory authorities in response to the spill.

**Note: Because all pieces of the new Berthing Arm are to be pre-fabricated off-Site and the only dominant risk of spillage on the Site is likely to result from trucks and cranes on land and the drilling barge in the water the construction of Berthing Arm F and the additional berths along Berthing Arm E is not anticipated to require any alteration or amendment to the existing Emergency and Spill Management Plan. However, all workers on-Site should be aware of the Plan and have undergone sufficient training to implement the Plan as required.**

### 3.2.5 Waste Management Plan

Refer to the separate St George Marina Facility Waste Management Plan document (097623028 002 Rev0) dated 6<sup>th</sup> November 2009.

### 3.2.6 Fuel Management Plan

The Fuel Management Plan is based on an existing system currently in place on the Site as well as the recent *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation* (2008). The Plan is as follows:

- f* Fuel is delivered weekly to the Site by the supplier (supplies are known to average between 1,000L and 6,000L each week in total for both tanks). Neither of the USTs are completely filled and the Marina Supervisor is required to be present during the filling process and sign off on the delivery;
- f* Both USTs are to be dipped daily and the information is to be recorded in the refuelling spreadsheet (attached in Appendix C). Correlation between fuel levels and the amount being used by boat owners should be made regularly to assist in the early detection of any losses through leakage in the USTs or pipes;
- f* Tank integrity tests should be conducted annually to ensure the integrity of the USTs and associated pipework and the test reports should be appropriately recorded and filed for future audits and reviews (if required);
- f* Bowers and the emergency shut-off points should be regularly serviced;
- f* All spills should be managed as shown in the Spill Management Plan and recorded in the Environmental Incident Register;
- f* The Club should conduct a review and seek to gain compliance with the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation* (2008). The regulation requires the following:
  - f* Loss monitoring/detection procedures (as shown in this management plan);
  - f* Groundwater monitoring well installation and monitoring by 1 June 2011 (yet to be conducted and requires the installation of a minimum of three wells);
  - f* Incident Management Procedure (as shown in spill management plan);
  - f* Checks for measuring instruments and recording of data (as already being conducted);



- f* Record of equipment integrity testing (as already being conducted); and
- f* Preparation of an Environmental Protection Plan to be submitted to NSW DECC by 1 June 2009.

**Note: The construction of Berthing Arm F and the additional berths along Berthing Arm E is not anticipated to affect the fuel delivery system and thus no additions to the Plan are proposed as a result of the construction works.**

### 3.3 Environmental Schedules

This Section presents copies of relevant forms and registers to be used during day to day environmental management of the Marina facility as well as the construction of Berthing Arm F and the additional berths along Berthing Arm E. The registers and forms are provided in Appendix C of this EMP. The Appendix includes the following:

- f* UST Dipping/Refuelling Register;
- f* Complaints Register;
- f* Complaints Form;
- f* EMP Training Register; and
- f* Environmental Incident Register.



### 4.0 MONITORING AND REVIEW

#### 4.1 Environmental Monitoring and Auditing

The Environmental Action Table (Table 9), comprises the environmental monitoring and auditing requirements which are set out in the five columns of the table on the following pages:

**Action:** This column lists each of the requirements under tasks, arranged as far as practicable in the sequence in which they would be undertaken.

**Responsibility:** The title of the person who is responsible for ensuring that the action is carried out should be listed in this column.

**Verification:** The title of the person responsible for checking that the action has been performed by the Contractor to a standard required by the EMP or any other documentation should be placed in this column. The verifier should check that the work undertaken fulfils the intention of undertaking the work in an environmentally sensitive manner.

**Completed (Initials/Date):** The action is to be signed off and dated by the person named in the "Verification" column when the action is satisfactorily completed.

**References and Notes:** This column is provided as space for cross-referencing actions, other documents or comments as to how work was undertaken.

The Environmental Action Table is set out below:



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**Table 9: Environmental Action Table**

ACTION	RESPONSIBILITY	VERIFICATION	COMPLETED (Initials/Date)	REFERENCE & NOTES	
<b>1. Induction</b>					
1.1	All employees shall be informed of safety and environmental 'incident management' procedures.	Marina Supervisor	EMR	Ongoing (N/A)	Records of induction are to be maintained in the EMP Training Register (Appendix C).
1.2	All employees shall be informed of the need to maintain a clean work site and minimise noise (e.g. secure fixing of tailgates, limited 'warming up' prior to vehicle use).	Marina Supervisor	EMR	Ongoing (N/A)	
<b>2. Berthing, Marina Management Office and Boat Ramp</b>					
2.1	All boat owners are to comply with the Berthing Management Plan, Emergency and Spill Management Plan, Waste Management Plan and the <i>St George Motor Boat Club Marina and Berthing Rules Extracts and Additions to the Club By-Laws</i> at all times.	Boat Owners	Marina Supervisor	Ongoing (N/A)	Any non-compliance with these documents in relation to environmental management should be referred to the EMR and noted in the Environmental Incident Register.
2.2	The Marina Supervisor and the EMR are to conduct a review of the Berthing Management Plan following any changes to the existing berthing procedures or regulatory requirements.	Marina Supervisor and EMR	EMR	Ongoing (N/A)	Records of Document Revisions in Appendix A
<b>3. Refuelling Facilities</b>					
3.1	All boat owners and Marina staff are to comply with the Water Quality Management Plan, Fuel Management Plan, Emergency and Spill Management Plan and the <i>St</i>	Boat Owners and all Marina Staff	Marina Supervisor and	Ongoing (N/A)	Any non-compliance with these documents in relation to environmental



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ACTION	RESPONSIBILITY	VERIFICATION	COMPLETED (Initials/Date)	REFERENCE & NOTES
<i>George Motor Boat Club Marina and Berthing Rules Extracts and Additions to the Club By-Laws</i> at all times around bowsers, fuel lines, USTs and fuel trucks.		EMR		management should be referred to the EMR and noted in the Environmental Incident Register.
3.2 The Marina Supervisor and the EMR are to conduct a review of the Fuel Management Plan and Emergency and Spill Management Plan following any changes to the existing berthing procedures or regulatory requirements.	Marina Supervisor and EMR	EMR	Ongoing (N/A)	
3.3 The Motor Boat Club is required to gain compliance with the <i>Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation (2008)</i> within the timeframe noted.	Marina Supervisor and EMR	EMR	Ongoing (N/A)	Preparation of a UPSS Environmental Protection Plan to be submitted to NSW DECC by 1/06/2009 and groundwater monitoring well installation and monitoring by 1 June 2011.
<b>4. Wastewater Pump-out</b>				
4.1 All boat owners and Marina staff are to comply with the Water Quality Management Plan, Emergency and Spill Management Plan, Waste Management Plan and the <i>St George Motor Boat Club Marina and Berthing Rules Extracts and Additions to the Club By-Laws</i> at all times around the wastewater pump-out.	Boat Owners and all Marina Staff	Marina Supervisor and EMR	Ongoing (N/A)	Any non-compliance with these documents in relation to environmental management should be referred to the EMR and noted in the Environmental Incident Register.
4.2 The Marina Supervisor and the EMR are to conduct a review of the Fuel Management Plan and Emergency and	Marina Supervisor	EMR	Ongoing (N/A)	Records of Document



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ACTION	RESPONSIBILITY	VERIFICATION	COMPLETED (Initials/Date)	REFERENCE & NOTES
Spill Management Plan following any changes to the existing berthing procedures or regulatory requirements.	and EMR			Revisions in Appendix A
<b>5. Boat Motor Mechanics Workshop and Slipway</b>				
5.1 The private mechanic and all Marina staff are to comply with the Berthing Management Plan, Slipway Management Plan, Water Quality Management Plan, Emergency and Spill Management Plan and Waste Management Plan at all times around the workshop and the slipway.	Private Mechanic and all Marina staff	Marina Supervisor and EMR	Ongoing (N/A)	Any non-compliance with these documents in relation to environmental management should be referred to the EMR and noted in the Environmental Incident Register.
5.2 The mechanic, Marina Supervisor and the EMR are to conduct a review of the Fuel Management Plan and Emergency and Spill Management Plan following any changes to the existing workshop or slipway procedures or regulatory requirements.	Private Mechanic, Marina Supervisor and EMR	EMR	Ongoing (N/A)	Records of Document Revisions in Appendix A
<b>6. Construction of Berthing Arm F and the Additional Berths along Berthing Arm E</b>				
6.1 The construction contractor and all subcontractors are to comply with the set hours of operation, Water Quality Management Plan, Emergency and Spill Management Plan and Waste Management Plan at all times while working on-Site.	Construction contractor and all subcontractors	Marina Supervisor and EMR		Any non-compliance with these documents in relation to environmental management should be referred to the EMR and noted in the Environmental Incident Register.
6.2 The construction contractor, Marina Supervisor and the EMR are to conduct a review of the Fuel Management	Construction contractor, all		EMR	Records of Document





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ACTION	RESPONSIBILITY	VERIFICATION	COMPLETED (Initials/Date)	REFERENCE & NOTES
Plan and Emergency and Spill Management Plan following any changes to the existing construction procedures or program or regulatory requirements.	subcontractors, Marina Supervisor and EMR			Revisions in Appendix A



### 4.2 Responsibility for Implementing this Document

Controlled copies of this EMP are to be issued to appropriate staff. All staff on-Site are to be aware of their environmental responsibility. The lists of contacts in Table 4 of this EMP are to be confirmed for ongoing operations.

At each stage of the work, when work has been satisfactorily completed, the Action-Table is to be completed, signed and dated by the relevant person responsible for verification.

The EMR will supervise and/or observe the work and will provide the verification of the actions. This will ensure that safeguards are met and that there is an early identification and resolution (where possible) of unforeseen issues.

Any changes to the EMP must be documented and signed off. A register for changes is found in Appendix A. All changes are to be registered in Appendix A.

Where work is likely to require liaison with other government agencies, this liaison should be undertaken as early as possible.

### 4.3 EMP Review

A record of the implementation of this EMP and any environmental issues which arise are to be kept by the relevant Client Managers.

During the construction of Berthing Arm F and the additional berths along Berthing Arm E, ongoing operation of the Marina and following changes to Site operation and the regulatory framework under which the Marina operates, the Manager responsible for delivery of the works (the EMR) would:

- f* Conduct regular assessments of general environmental compliance of the Marina facilities as per the Self-Assessment Checklist outlined in the NSW DECC Environmental Action for Marinas, Boatsheds and Slipways (2007) and which is included in Appendix F.
- f* Review the EMP records for completeness and update as necessary (particularly relevant following review of Marina facilities with the Self-Assessment Checklist); and
- f* Recommend any modifications to general documentation which would further improve the environmental outcomes of the EMP.

Regards,

**Mark Burwood**

**Adrian Vermeulen**

8<sup>th</sup> February 2017