DRY DOCK SYSTEM

SYC currently permits the installation and permanent berthing of Dry Dock systems on the jetty system. These systems serve the purpose of lifting or keeping vessel hulls dry while berthing. One significant advantage of these dry dock systems available on the market is their ability to minimize the growth and marine buildup on vessel hulls. Consequently, this reduces the frequency of high-pressure hull cleaning and subsequent applications of antifoul and prop speed paint.

At present, SYC has 31 units of Dry Dock systems from five different brands installed across the jetty system. In order to streamline the approval process for future installations, as recommended by DBCA, SYC is seeking a blanket approval for these five brands. Attached to this submission is relevant information of the systems currently in use.

This proactive approach to seeking blanket approval for multiple makes of Dry Dock systems will facilitate efficient and consistent approval processes for future installations. It demonstrates SYC's commitment to complying with regulations while embracing environmentally friendly solutions for vessel maintenance.

DockyDock Marine International Ltd.

182 Bradford Road, Manchester, M40 7AS. United Kingdom.

www.dockydock.com info@dockydock.com 0044 161 883 0783

DockyDock User Guide

Introduction

DockyDock is a boat hull cover designed to protect the boat hull from growth and barnacles.

Barnacles have always been a problem for all types of power boats and it can become an expensive and time consuming problem to resolve, taking the vessel out from the water, cleaning it, adding protective coatings and then placing it back in the water.

This user manual is a guide for the installation and the maintenance of the DockyDock and how to use it in the mooring space.

1– Mooring the DockyDock

- **A) Finer Mooring**
- **B) Side Mooring**
- **C) Swing Mooring.**
- **D) Pile Mooring.**
- **E) Side Mooring.**
- **F) Swing Mooring.**

2- Airbag lift system.

3- Water pump.

4- Air valve.

5– Cleaning the DockyDock

6– Repairs.

Warrantee.

We offer 2 years full warranty to the customer for receiving the DockyDock without any defect from the manufacturing process. Please check our pre order policy at our website.

Air bag lift system for the tailgate.

There are two types of airbag lift system, these two systems are needed for large boats with large tail-gates width to accede 320cm and depends on the client choice.

1– The Plug in Airbag.

This system consist of air bag with valve and air release valve, linked up to hose, and air valve at the other end, held in a metal frame to be plugged on the tailgate frame. It is easy to plug in and out if any accident happened.

2– The integrated air bag on the tailgate, this is air bag build inside the tailgate for lifting the tailgate up and down.

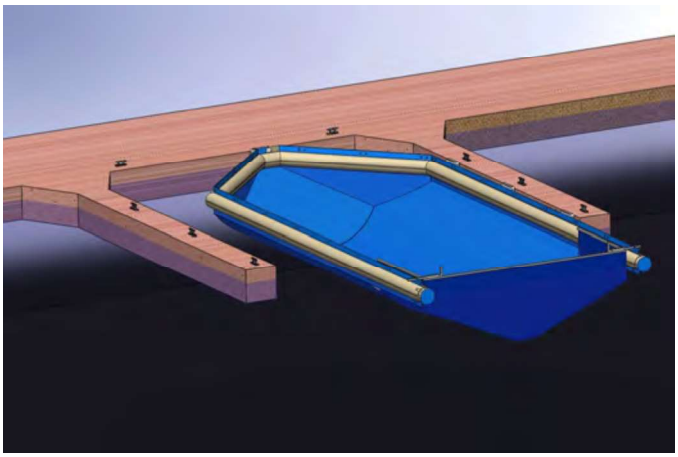


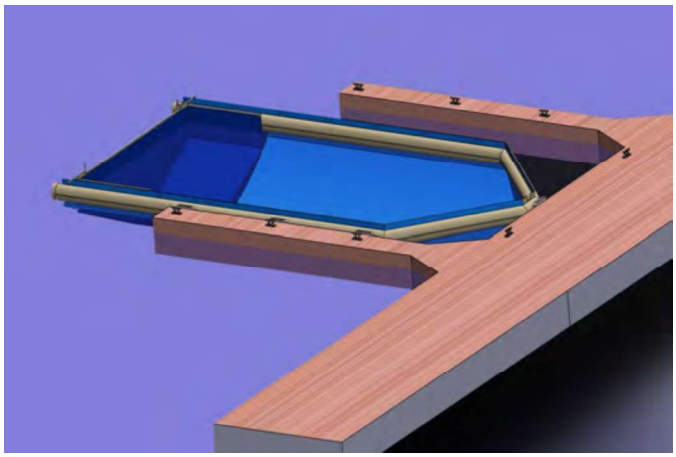







DockyDock Finger mooring

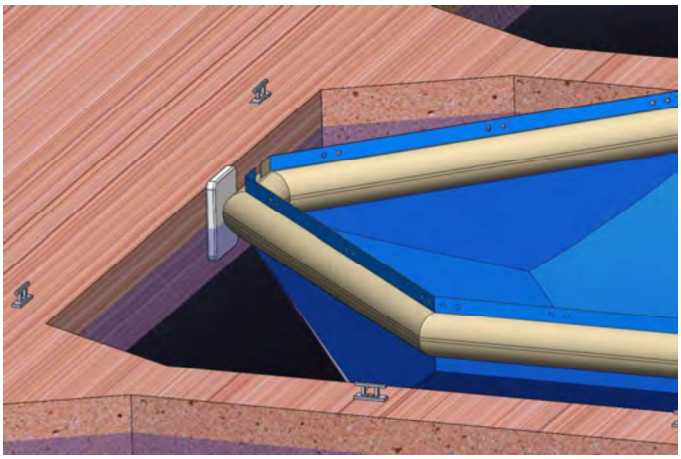


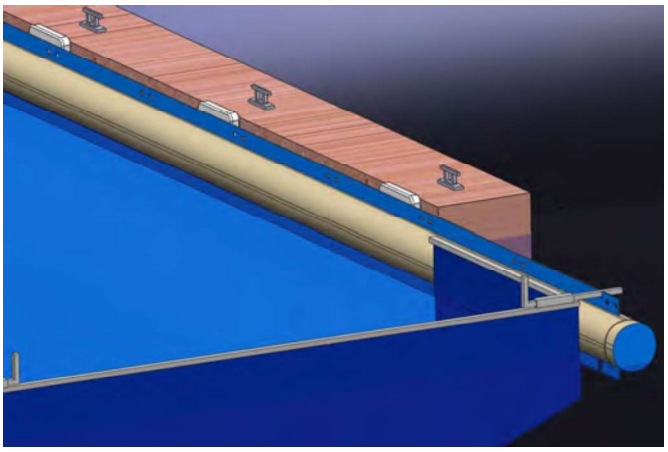


The DockyDock should be treated very similar to a rip boat with regards to protection and positioning at the mooring space.

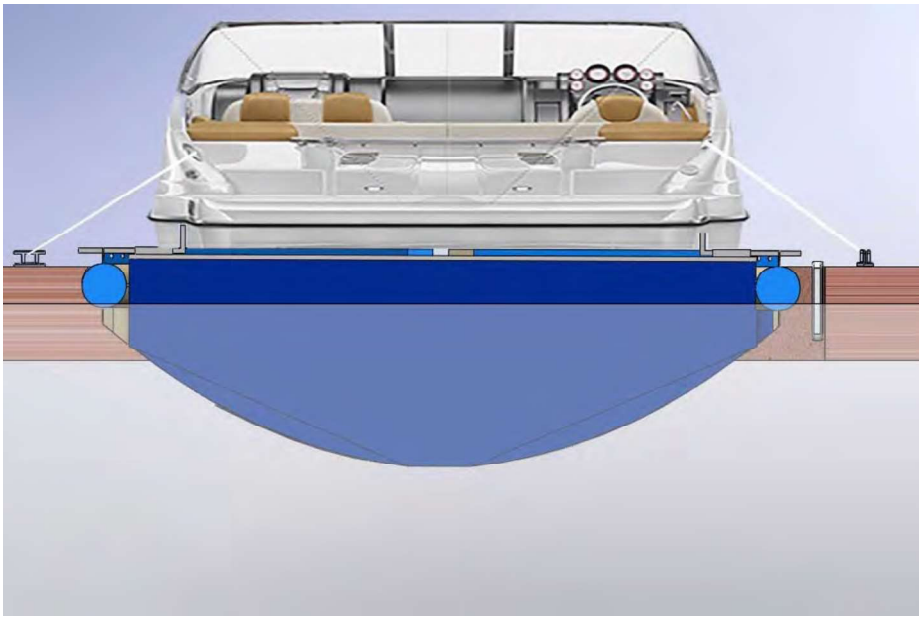
DockyDock should not be in contact with the wooden dock and rubbing against a pile or any object on outer parameter.

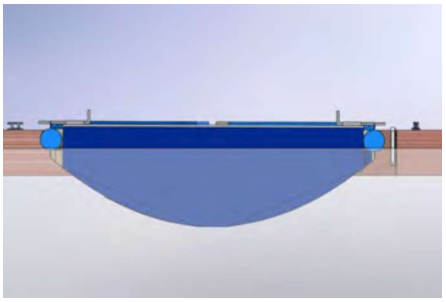
Fenders are required to isolate the DockyDock from the wooden jetty/dock.





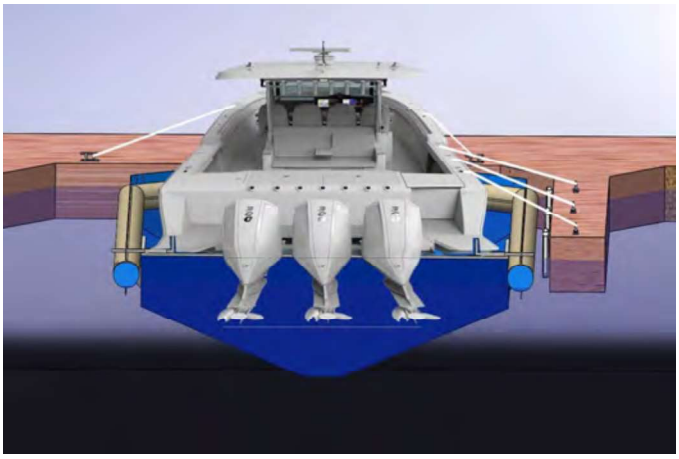
It is recommended to use a flat fenders to save the space or any suitable fenders , other options such as Whip-mooring is recommended too.

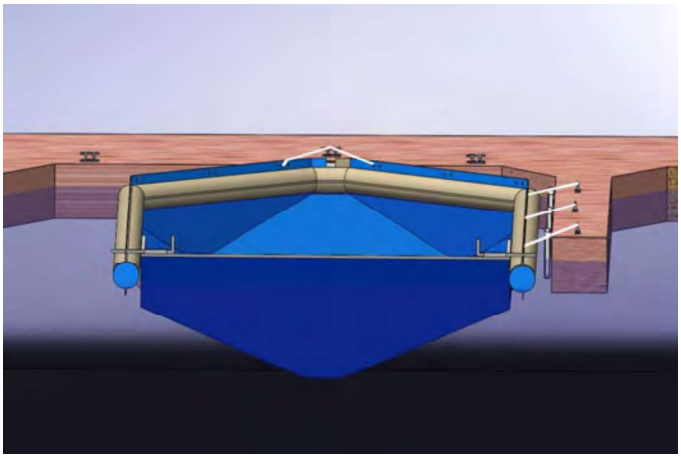


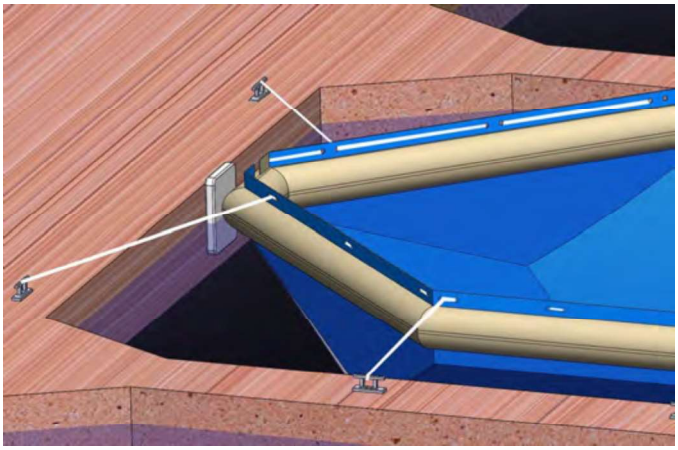


DockyDock Finger mooring

owners should check with their Marina/Yacht club for required rope thickness for securing the DockyDock as this varies.

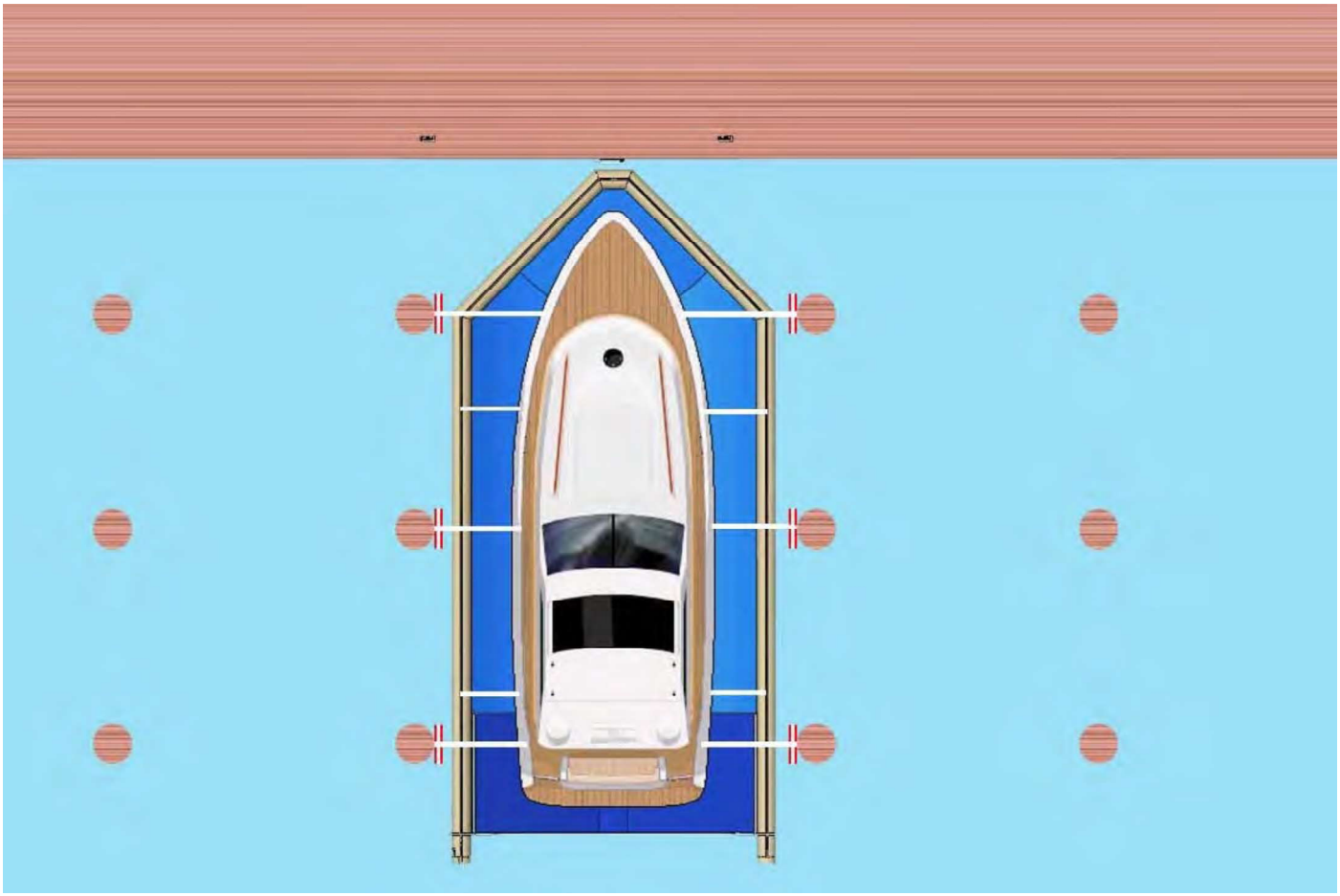


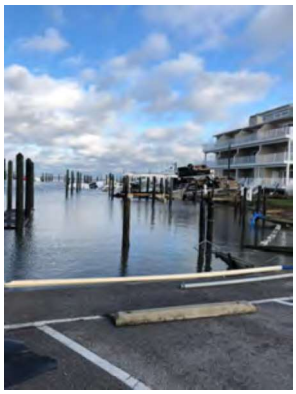




DockyDock Pile mooring

It is important to be extra carful with Pile mooring, and make sure the DockyDock is protected from rubbing against the piles, so the boat needs to be secured with the ropes and tied to the piles on both sides Port and Star Board to secure no sawing left and right pushing the DockyDock against the piles.





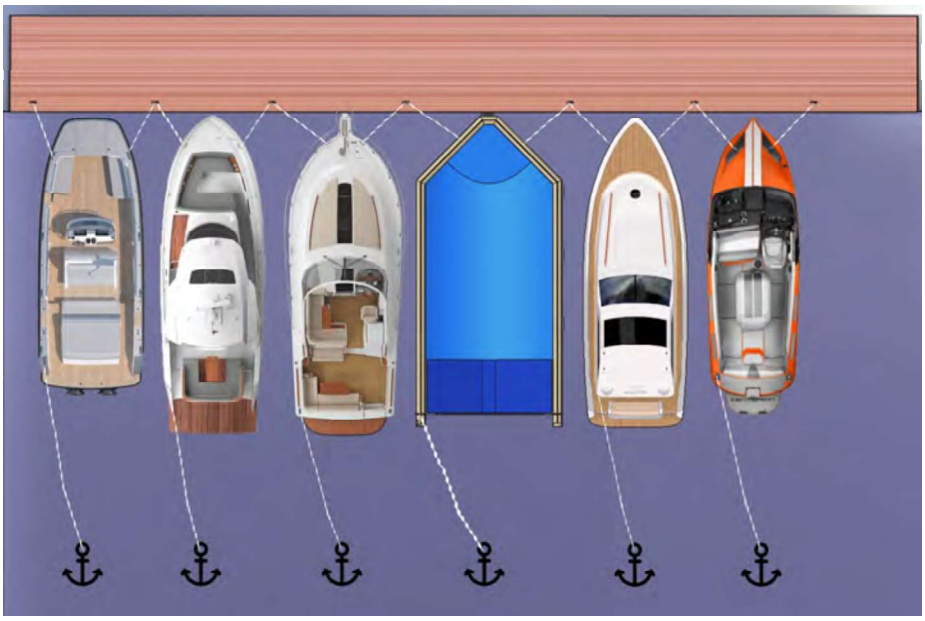
Correct and secure mooring

Bad and unsecured mooring

Side Mooring information

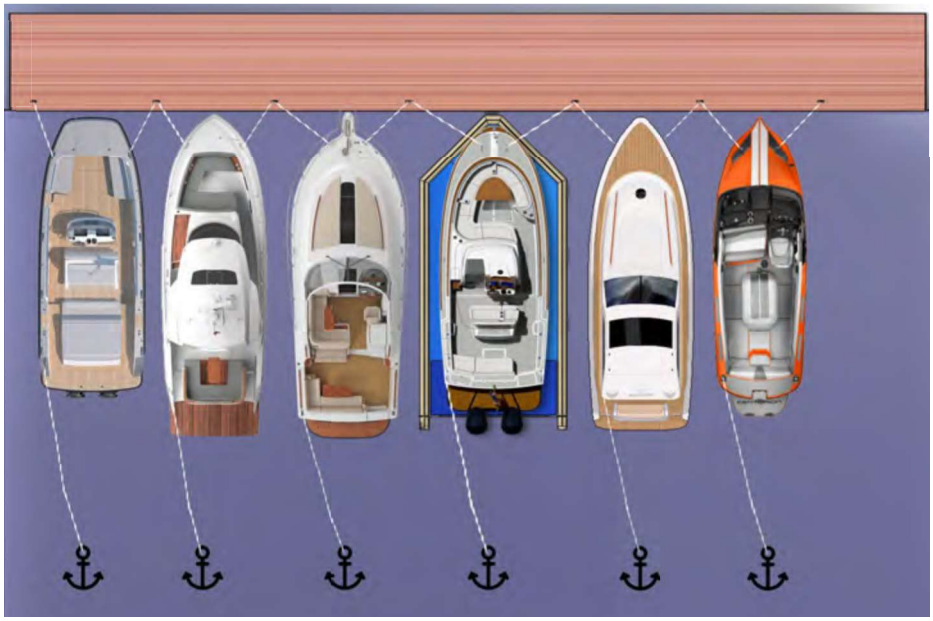
Boat outside the DockyDock

The DockyDock to be tied to the wooden dock / Jetty temporary



Boat inside the DockyDock

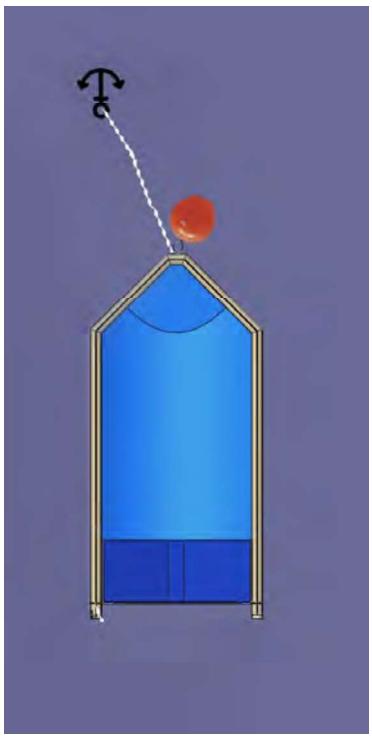
The DockyDock to be tied to the boat only.



The DockyDock to be tied to the boat only and not to the Wooden dock at the same time.
The reason is to prevent the boat to rock against the DockyDock, when the boat and the DockyDock are tied together they become one unit and when the tide is up and down, they will go up and down together.
When the boat leaves the DockyDock for activity, then the DockyDock can be tide to the wooden dock/ jetty temporarily so it will no drift away.
With regards to the anchor at the back, it has to be tide up to the boat, but when the boat is outside, then the anchor rope to be tide up to the DockyDock to stop it from swaying and drifting.

Swing Mooring information

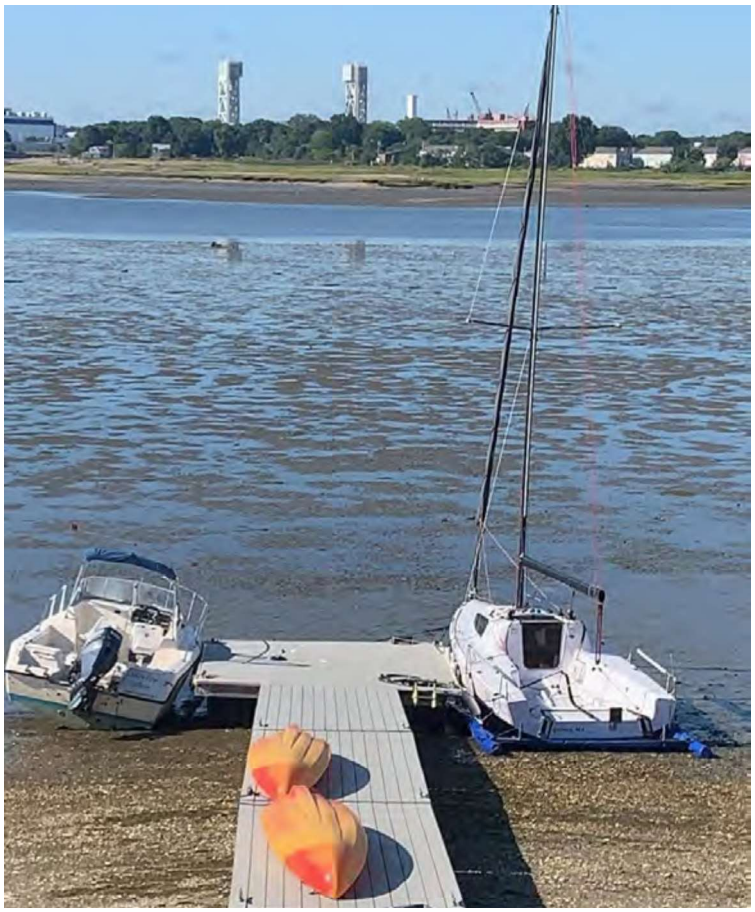
The DockyDock can be positioned in a swing mooring position.



IT is possible to have an inflatable pontoon which is available from DockyDock company , this pontoon very useful for maintaining the boat and very good stepping stone to land and then stepping to the boat.

Costal tidal Mooring information

DockyDock will protect the boat on tidal mooring and in a situation that the boat sit on the mud. DockyDock needs to be informed of the mooring situation and the situation of the mooring ground such as mud, stones, sand etc, so the bottom fabric can be strengthened with extra layer of material. The DockyDock fabric is strong enough for mud or sand.



Water pump information

Pumping the water out of the DockyDock is not necessary, it is optional, the DockyDock will protect the boat hull regardless if there is water inside the DockyDock or not.
The DockyDock product is not a dry dock, it is underwater hull cover, and it is sold on these bases.
DockyDock company does not guarantee the DockyDock hull is water tight, water can find its way from many ways, rain, condensation, water wave, or very small pin size hole.
However pumping the water out is optional and possible.
There are other ways in expelling water out of th DockyDock without using water pump, such as positioning a floating material blow the DockyDock hull, this method is guaranteed, and it can be added to the DockyDock on request.

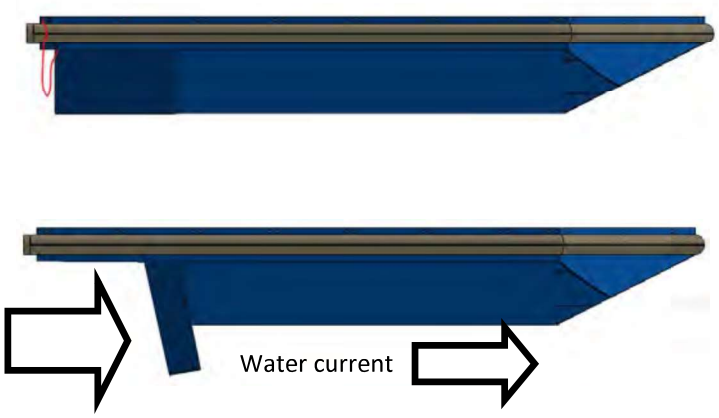
Closing the tailgate

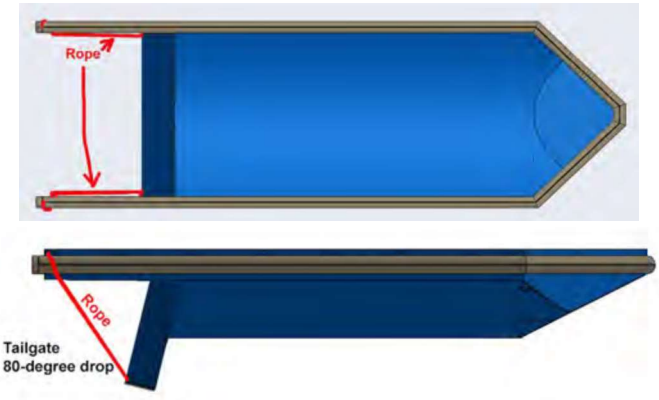







Closing and squaring the tailgate is by rapping the rope around the inflatable air chamber in a loop, and tying it in the cleat attached on the slider.





Mooring the boat and the DockyDock in a canal or Swing mooring will experience a push of drifting water current underneath, pushing the tailgate forward, this will cause difficulties lifting the tailgate with the rope.

The solution is easy, simply attach a rop from the end of the inflatable to the corner of the tailgate on both sides, the length of the rope needs to be suitable to create 80 degree angle as in the image above.

Air valve information

DockyDock has a British made Air valves, and every DockyDock has 3 chambers and 3 valves.
The valves used are

Air valve

Leafield Marine

Air valve adapter

The Valves are easy to use, it has a nob inside , and when the nob is up the valve is locked, and when the nob is low the valve is open, if you push the nob down and twist untie-clockwise the valve will be locked open. If you push down and twist clockwise the nob popup and will be locked closed.

When you inflate the DockyDock chamber you need the nob up position.

The air pressure should be 3 bar, and if you don't have a gage, you only need to feel the chamber is inflated reasonably and not to over inflate.

The inflatable DockyDock usually supplied with air valve adapter, so you can use any air pump hose with it.

Cleaning The DockyDock




Cleaning the inside of the DockyDock.
The environment are different from area to are depending on the geographic location. In a sunny countries and dusty locations, dust can accumulate inside the DockyDock, or green thin layer can happen from the sun shining inside the DockyDock. This can be cleaned with easily by inflating the DockyDock hull from underneath by passing the air pipe and pumping air through.
Powerful air pumps are available from DockyDock website





Cleaning the underneath of the DockyDock.

There is no need to clean the underneath of the DockyDock. Growth will happen underneath the DockyDock but this has no effect, because the DockyDock is not used for sailing activity, it is stationary on the mooring space.
But in the event of moving the DockyDock to another marina or for storage purpose, it is possible to remove the DockyDock and clean it with a power wash machine, it will clean easily
DockyDock company does not recommend customers add any chemicals to the DockyDock to clean the boats hull.

Patch repair information

In the unlikely event of a damage by a sharp object, and a puncture happened on the air chamber. Please check our YouTube channels for repair video, you will see full information.

However the repair is simple, you will need a PVC fabric glue consist of glue and hardener in most cases. You will need to follow the glue instructions, which is usualy two coats of glue, and 10 minuets time between each coat. The glue has to be applied on both areas the patch and the damaged area. Then to position a heavy object on the patch and to be left for 12 hours to cure.

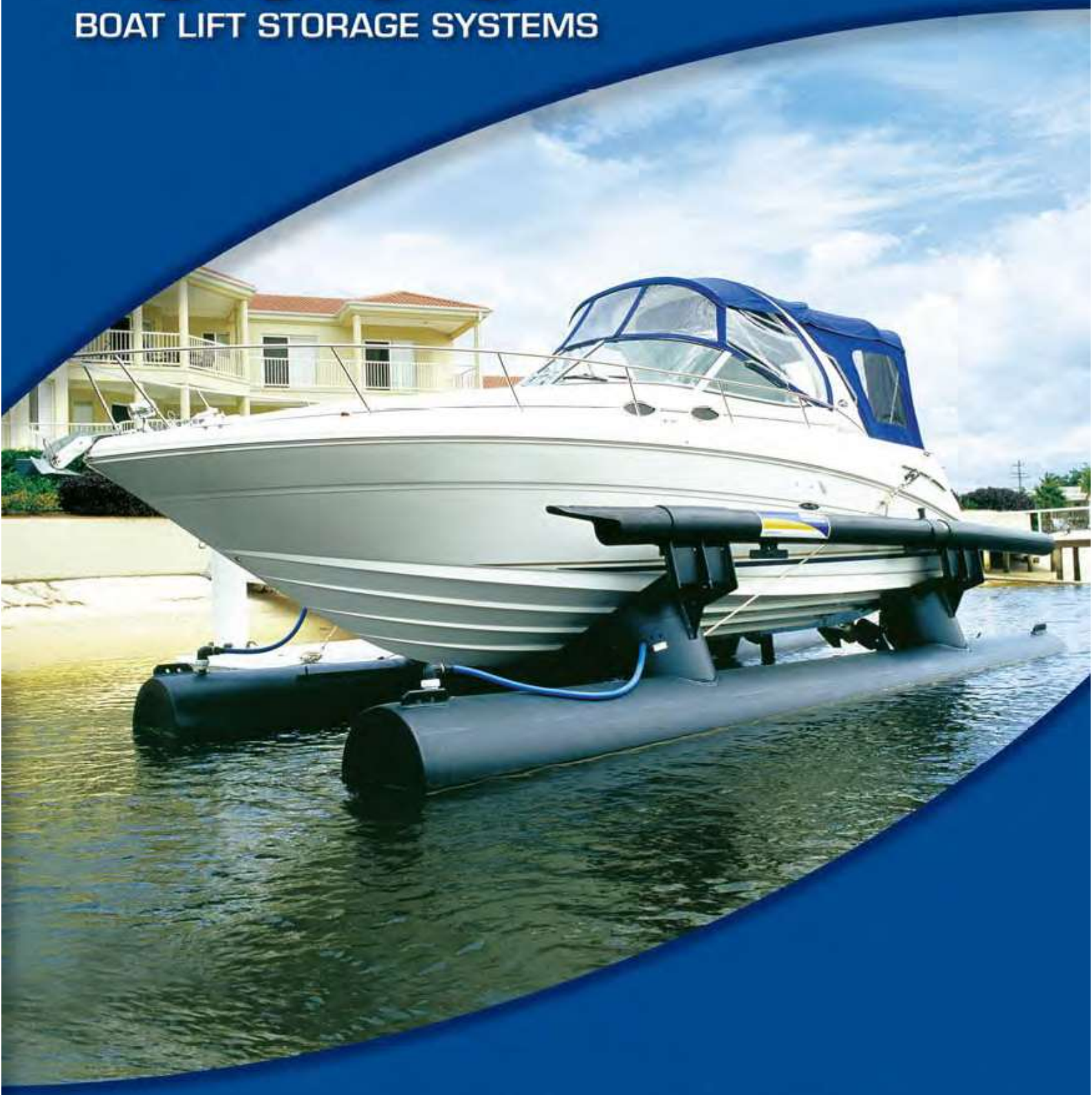
Deflate the DockyDock And clean the damaged are from salt and oil, use white spirit.

Apply the glue on both the damaged are and the patch twice, 10 minuets between each coat. Don't apply with the glue wet, let the glue be tacky and nearly dry

Push the patch hard on the damaged position, and apply heat on it using heat gun. Then leave it for 12 hours to set.

AirBerth®

BOAT LIFT STORAGE SYSTEMS



Owner's Manual

AirBerth®
BOAT LIFT STORAGE SYSTEMS

CONTENTS

AirBerth®
BOAT LIFT STORAGE SYSTEMS

INTRODUCTION

Congratulations on purchasing an AirBerth® Boat Lift System.

You now own Ultimate Boat Protection. Your AirBerth® Boat Lift System will enhance your boating lifestyle in many ways, including:

- Access to your boat day or night
- Single person operation
- Safe entry during mooring
- Greatly reduced maintenance cost for your hull and engines.
- Elimination of anti-fouling from your hull resulting in faster speed and better fuel economy
- Improved resale value of your boat
- The AirBerth® is an investment which can be recouped when you choose to upgrade or sell your vessel, versus a sunk cost like anti-fouling

This manual will provide you the owner with information on:

- Suitable Mooring Locations
- Operating Procedures
- General Safety Tips and Maintenance
- Warranty
- Technical Specifications

The AirBerth® Boat Lifting System enhances your boating lifestyle by making it easier for you to use your boat more and enjoy the boating lifestyle you've earned.

Wishing you happy boating and smooth seas,

The Team at AirBerth®

SUITABLE MOORING LOCATIONS

Floating Pontoons

Fixed Jetty

The AirBerth® is a calm water device and must not be installed or used in mooring locations with excessive wave or swell action due to exposure or commercial marine activity.

The AirBerth® requires a minimum operating water depth to raise and lower. The water depth should be checked at low tide to ensure that the AirBerth® can operate freely without restriction.

Table 1_Minimum operating depths for monohull models

	M1500	M1000	M800	M730	M650	M520	M430	M320	M230
Metres	3.0m	2.1m	2.0m	2.0m	2.0m	1.8m	1.8m	1.8m	1.8m
Feet	10’	7’	6’ 6”	6’ 6”	6’ 6”	6’	6’	6’	6’

Table 2_Minimum operating depths for catamaran models

	C1500	C1000	C800	C730	C650	C520	C430	C320	C230
Metres	3.0m	2.1m	2.0m	2.0m	2.0m	1.8m	1.8m	1.8m	1.8m
Feet	10’	7’	6’ 6”	6’ 6”	6’ 6”	6’	6’	6’	6’

SAFETY CHECKLIST

Ensure that the following is observed:

- ✔ No one is on the vessel during raising and lowering.
- ✔ The Operator must supervise the AirBerth® at all times during the raising and lowering procedure.
- ✔ No ropes restrict the AirBerth® as it raises and lowers into the water.
- ✔ There is sufficient water depth to operate the AirBerth®.
- ✔ The boat's stern cleats are strong and firmly fitted to the boat.
- ✔ Your power source has an RCD (Residual Current Device) or Earth Leakage Circuit Breaker, standard on most marinas, fitted to the circuit.
- ✔ The Blower Box is clear of any flammable material (ie. fuel or gas) or pools of water before operating.
- ✔ The Blower Box is placed on a dry and clean surface and that the vents on the base of the box are not blocked or restricted during operation.

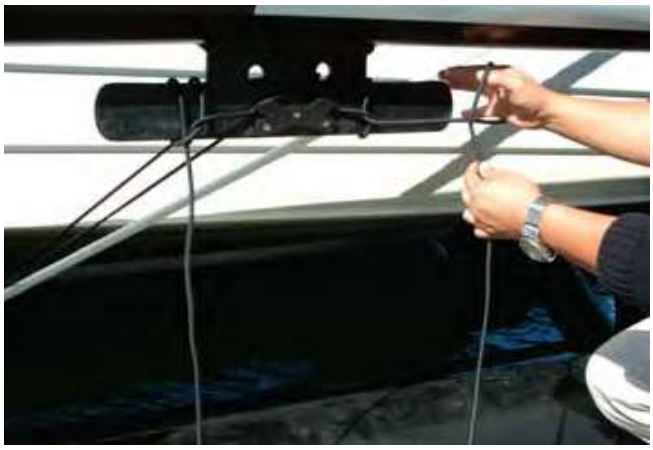
OPERATING PROCEDURES

STORE YOUR BOAT WITH AIRBERTH®

Drive the boat in between the mooring guides.

Fit the position ropes onto the cleats of the boat.

Attach the Blower Hoses from the Blower Box Outlet's to the Air Controls. Turn the blower to the far side first, then, after 2 seconds, switch the remaining blower on.



Once you see bubbles appear at the rear of the AirBerth®, wait a minimum of 30 seconds before raising both snorkels and tying them off to the Snorkel Rope Cleat.

Turn off the blowers, remove the hoses and fit the Air Sealing Caps onto the Air Control.

If you wish you can secure the Air Sealing Caps with a Padlock.

LAUNCH YOUR BOAT WITH AIRBERTH®

Release both the ropes to both Snorkels ensure that they are both fully in the water.

Remove both Air Sealing Caps simultaneously to allow water to enter the AirBerth®.

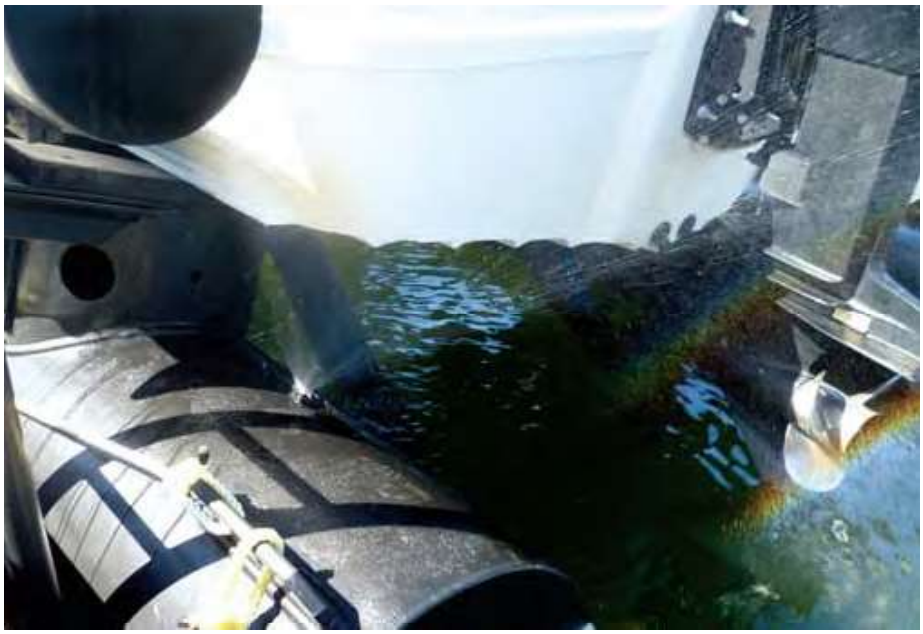
Once the unit is fully submerged, start the boat's engine/s.

Remove both Positioning Ropes and store them on the Rope Stores on the Mooring Guides.

Gently reverse out of the AirBerth® for a day's boating.

OPERATING PROCEDURES

HULL RINSING SYSTEM



Each AirBerth® is equipped with a hull rinsing system to rinse the part of the hulls which are difficult to get to. The hull rinse system can be used when the AirBerth® has been raised.

Connect a hose to the Sprinkler adaptor and turn the hose on.

Once one side is done, connect the hose to the remaining side to complete the hull rinse.

MAINTENANCE OF YOUR AIRBERTH®

- When not in use, store your blower box and hoses in a dry place out of direct sunlight.
- Periodic inspection of all parts is good practice, with particular attention to all ropes, hoses and fittings.
- If your boating takes you away for more than two days, it is highly recommended that you leave the AirBerth® raised without a boat to keep the upper parts of the AirBerth® free of barnacles and marine growth, to prevent damage to your vessel upon your return.
- Marine growth will appear underneath the AirBerth® however this will not affect its operation or performance. The AirBerth® therefore does not require any anti-fouling paint.
- Electrolysis will not affect the AirBerth® nor will the AirBerth® create any electrolysis for surrounding boats or marinas.
- The serial number for your unit can be found behind both front pedestals.

SAFETY TIPS AROUND THE AIRBERTH®

- The AirBerth® may get very hot in direct sunlight and may be slippery when wet.
- Take care when moving around the AirBerth®. Use the blue non slip pads for a better footing when alighting on and off the boat.

BOAT SUITABILITY

- The AirBerth® 'M' Series of Boat Lifts are suitable for planing monohull boats. (Displacement hull boats cannot be lifted by the AirBerth®.)
- The AirBerth® 'C' Series is suitable for Power Catamarans with stern legs, concealed shaft drives and jet drives. (Power cats with exposed shafts as well as fixed ballasted keels are not suitable to be lifted up on the AirBerth® 'C' series.)
- The total weight of the boat, including water, fuel and load, must not exceed the specified 'Lifting Capacity' as shown in the Technical Specifications table at the end of this manual and displayed on the plate mounted on the front pedestal of the AirBerth® Boat Lift. The total hull length of the boat must be within the specified 'maximum and minimum length' as displayed on the Technical Specifications table at the end of this manual.

GENERAL

AIRLOCKS

While we have made every effort to design the boat lift to operate as smoothly as possible, there may be instances where the owner has inadvertently tried to lift a boat that exceeds the weight range for the lift or has moved the boat too far forward. This may cause air to be trapped at the rear of the AirBerth® Boat Lift and the lift will not sink or lower itself.

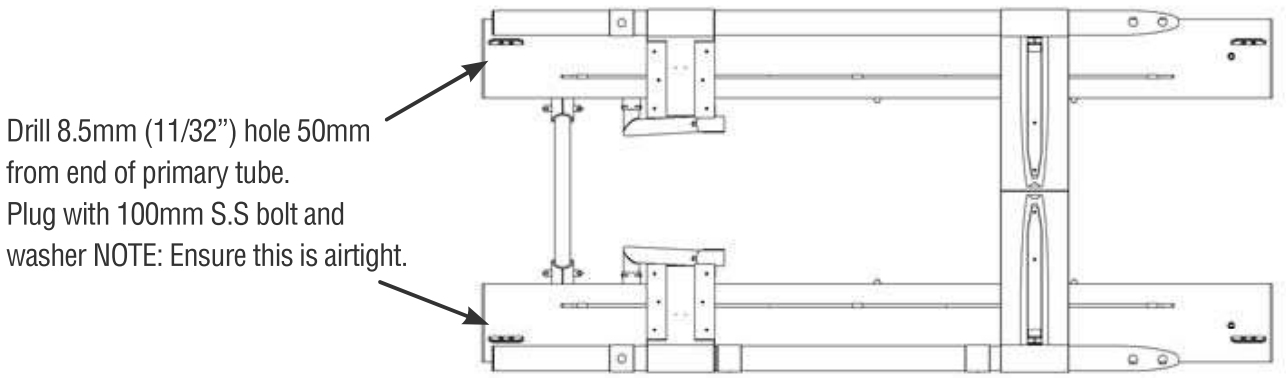
In this situation:

a) Drill one 8.5mm (11/32”) hole at the top of the rear of each primary tube.

b) This will allow the air to escape and the boatlift will sink.

c) Move the boat away and raise the AirBerth® Boat Lift again as per normal operation. Once this is done, plug the two holes with a 10mm 316 stainless steel bolt each.

d) Check to ensure your boat is in the correct weight range and dead rise for the lift. If it is, try the lift operation again and ensure that the boat is not moved too far forward.



If in doubt, always contact your Distributor or AirBerth® Boat Lift Systems for assistance.

OTHER SERVICES

A qualified AirBerth® Boat Lift service agent will be required for the following operations:

- Installing an AirBerth® Boat Lift to a new location either at a marina or a private pontoon.
- Changing the control side of your AirBerth® Boat Lift.
- Fitting a new boat to an AirBerth® Boat Lift.
- Regular maintenance of ropes, hoses and miscellaneous fittings.

AirBerth® BOAT LIFT STORAGE SYSTEMS

TECHNICAL SPECIFICATIONS

METRIC SPECIFICATIONS TABLE

MODEL	M1500	M1000	M800	M730	M650	M520	M430	M320	M230
Lifting Capacity (kgs)	15,000	10,000	8,000	7,300	6,500	5,200	4,300	3,200	2,300
Minimum Boat Length (metres)	9.8m	9.8	9.8	8.9	8.1	8.1	6.8	5.6	4.4
Maximum Boat Length (metres)	13.8m	13.8	13.8	12.6	11.4	11.4	10.0	8.2	7.1
Operating Water Depth (metres)	3.0	2.1	2.0	2.0	2.0	1.8	1.8	1.7	1.7

IMPERIAL SPECIFICATIONS TABLE

MODEL	M1500	M1000	M800	M730	M650	M520	M430	M320	M230
Lifting Capacity (lbs)	33,000	22,000	17,600	16,000	14,500	11,440	10,000	7,000	5,000
Minimum Boat Length (feet)	32’	32'	32'	29'	26'	26'	22'	18’	15'
Maximum Boat Length (feet)	46’	46'	46'	42'	38'	38'	33'	27’	24'
Operating Water Depth (feet)	10’	7' 0"	6' 6"	6' 6"	6' 6"	6' 0"	6' 0"	5' 6"	5' 6"

WARRANTY STATEMENT

The AIRBERTH® Boat Lift device has been designed and manufactured as a personal boat storage device for private use. The warranty provided, only applies to the AIRBERTH® Boat Lift device when used for that purpose.

1. AIRBERTH® MARKETING PTY LTD (A.B.N. 33 090 742 162) provides the following warranty for materials and workmanship of the AIRBERTH® Boat Lift device:

- All polyethylene materials – 5 years
- All positioning ropes, hoses, fittings and fasteners – 24 months
- Air Blowers - Original supply only – 12 months
- Construction workmanship – 24 months

2. Warranty will be VOID if:

- The device is left in waters that freeze over.
- The total weight of the supported vessel, including but not limited to water fuel and live load, has exceeded the specified weight limitation.
- The device is installed and/or used in a 'rough water' site. (Calm water device only).
- The device is allowed to 'bottom' on the sea floor.
- The device is used for a vessel type other than the vessel type as specified in the technical specifications.
- The device is subject to wilful damage or misuse.
- The device is subject to vandalism.
- The device is subject to accident damage.
- Modifications have been made to the device or it's controls.
- The device is installed in a manner that does not comply with the installation recommendations.

General:

AIRBERTH® MARKETING PTY LTD, reserve the right to repair or replace any failed component(s) of the AIRBERTH® Boat Lift device, at their sole discretion.

The obligations and liabilities of AIRBERTH® MARKETING PTY LTD, under this warranty are limited to those of the AIRBERTH® Boat Lift device only.

No other company, person, or organisation of any kind, is permitted to accept any claim on behalf of AIRBERTH® MARKETING PTY LTD unless authorised in writing to do so.

Due to ongoing development, the AIRBERTH® Boat Lift device may be improved and changed from time to time. AIRBERTH® MARKETING PTY LTD is under no obligation to supply those improvements or changes to any existing AIRBERTH® Boat Lift device.

This warranty is non transferable and applies solely to the first purchaser of each individual unit.

AirBerth®
BOAT LIFT STORAGE SYSTEMS

WARRANTY CERTIFICATE

This Warranty Certificate is issued to:

_____

(Insert Name)

of

_____

(Insert Mooring Address)

This is to certify that the AirBerth® Boat Lift designated _____(Insert Model) is warranted by AirBerth® Marketing Pty Ltd for materials and workmanship, under the terms and conditions of the AirBerth® Warranty Statement.

The Serial Number of this unit is _____

(Insert Serial Number)

Vessel fitted _____

(Insert Description of Vessel fitted, i.e. Vessel name/registration, Brand, Model)

The warranty period will commence from the date below.

Installer Name:_____

For AirBerth® Boat Lift Systems

Dated: _____

Please present this certificate to an authorised AirBerth® Service Hub when making a warranty claim.

AirBerth®

BOAT LIFT STORAGE SYSTEMS

For more information contact:

AirBerth® Marketing Pty Ltd
Unit 2/5 Taree St
PO Box 2639
Burleigh Heads QLD 4220
Australia

Phone: +61 7 5587 7888
Fax: +61 7 5593 7888
Email: info@airberth.com
Web: www.airberth.com

Your local service agent is:

SEAPEN TECHNOLOGY

PATENTED ROPE MESH TECHNOLOGY

Maximisi the air space around your boat allowing ventilation for your hull to breathe. In addition protecting the SeaPen skin from props and trim tabs, and allowing the water to drain quickly away from your boat to the SMART bilge system for drainage.

POLYMER SKIN TECHNOLOGY

Preventing barnacle growth on the outside of the skin making it virtually maintenance free with generally no need to remove the SeaPen skin for cleaning.

KEEP YOUR BOAT DRY

The SeaPen will keep your boat CLEAN& DRY to prevent barnacle and other growth on your hull - protect your boating investment long term. No more antifoul or worries about the growth on the hull - optimise your boat's performance and minimise your maintenance costs with a clean hull and props.

EASY AND SAFE DOCKING SYSTEM

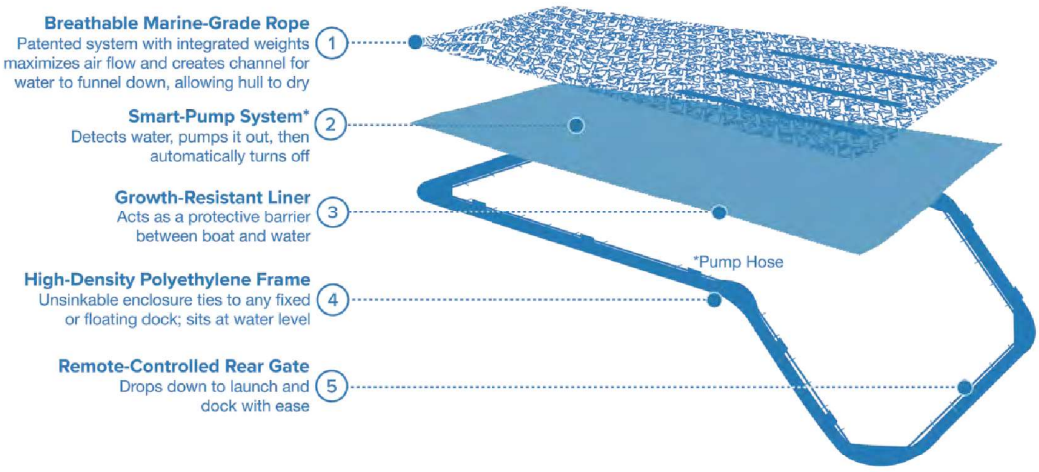
No more jumping off the boat to grab mooring lines or the boat. The SeaPen acts as a boat catcher allowing you to easily park your boat even if you're on your own, making boating enjoyable and SAFE for you and the family.

REMOTE OPERATION

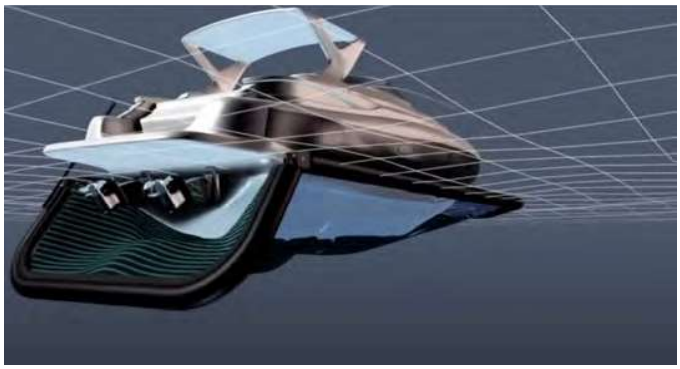
Operate your SeaPen with a press of a button like a garage door, making it a fast, convenient and safe system in which to garage your boat.

SMART CONTROLLER

NEW SMART Monitoring Algorithmic Technology for SeaPen SQ. The SMART controller turns on periodically and uses an algorithm to test for water and pump the SeaPen dry, then goes back to standby mode. A unique solution to keep your boat out of the water with a clean hull.



HOW IT WORKS

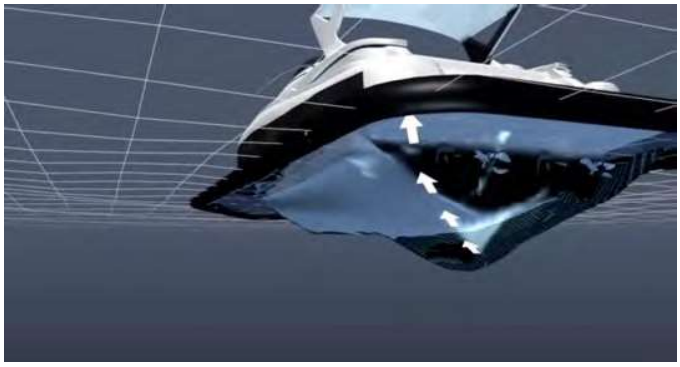


Locate.

Drive in and let the SeaPen hold you at the berth.

Isolate.

Raise the gate with the simple press of a button.



Drain.

The bilge pump will automatically switch on and drain.

Ventilate.

With SeaPen's patented rope mesh technology.

FLOATBRICKS SPECIFICATIONS

FloatBricks Brick dimensions:	500 mm × 500 mm × 400 mm LxWxH
Weight/brick:	7.0 kgs each
Wall thickness:	3-5mm
UV Stabilisation (as % of total material mass):	0.3% (Industry standard is 0.2%)
Draft unloaded:	3 cm
Material:	High Molecular Weight High-Density Polyethylene (HMW HDPE)
Warranty:	Five years warranty against manufacturing defects. Manufacturer's Warranty provided by Dockpro. Accessories have one year warranty against manufacturing defects.
Expected life:	Greater than 15 years
Maintenance:	nil

DETAILS

1. Modular design gives high tensile strength, impact strength and is quick to assemble and reconfigure.
2. Safety - Anti-slip surface designed to ensure safety.
3. UV stable – resistant to UV rays
4. Life span - greater than 15 years under normal operating conditions.
5. Eco-friendly materials: can all be recycled.

Document Ref: QYRGV-LQI3F-PQJRK-KJ8VE

ELITE DOCKING SOLUTIONS

Introducing our new vessel docking system by Elite Docking Solutions.

Our custom built docks allow quick and easy access to your vessel at all times with fast launch and retrieval times.

Elite docks are an air dock system that utilizes an air pump capable of 2500 litres per minute, pumping air into 4 separate compartments at the same time to lift your vessel up in a fast but controlled manner. Once the dock has lifted your vessel the valve system is shut off creating an air lock within the dock and maintaining your vessel out of the water.

When launching is required you simply open the 4 valves and with the weight of your vessel and gravity the water is allowed back into the dock expelling the air out of exhaust pipe.

The dock has a comfortable entry and V shape fabricated into it maintaining centre alignment when entering and exiting the dock.

The docks are built from structural grade 10mm high density polyethylene (HDPE) this material is extremely durable with a life span of over 50 years, its UV protected, has zero corrosion issues, does not need to be painted or antifouled and is 100% recyclable.

The value of Elite Docking Solutions is they can be installed to any jetty or dock system, can be custom made with additional walkways, access storage areas and multiple docks can be connected together.

Vessels up to 12 tonne can be lifted by our air dock systems, anything over this will be suited to our Displacement Dock soon to be released.

ELITE DOCKING SOLUTIONS

ELITE DOCKING SOLUTIONS

ELITE DOCKING SOLUTIONS

SYC Environmental Management System

The attached Environmental Management System (EMS) and policy of SYC will undergo a comprehensive review, following the existing audit procedure, to incorporate the new infrastructure that will be constructed at the site. This review process will involve adding and updating activities to align with the latest compliance regulations and industry standards. By ensuring the EMS reflects the most current practices, SYC aims to uphold its commitment to environmental stewardship and continuous improvement in all aspects of its operations.

ENVIRONMENTAL POLICY

Swan Yacht Club Incorporated regards the protection of the environment as an important aspect of our operations as a yacht club and a necessary element of good corporate citizenship.

To attain these ideals, an Environmental Management System has been developed to meet the requirements of AS/NZS 14001. It controls the environmental impact of all the Club's activities.

To ensure the continual improvement of our environmental performance we apply the principles and practices of HB 203.2000 and amendments Environmental Risk Management.

Our environmental objectives are:

- To establish and maintain environmentally responsible waste management and waste disposal practices.
- To store all materials in a manner that reduces their potential release to the atmosphere, soil or water.
- To reduce the potential risk of environmental harm in emergency situations by responding effectively to emergencies.
- To promote the adoption of sound environmental practices by all personnel through the improvement of overall environmental awareness.

Swan Yacht Club Incorporated will manage and achieve our environmental performance through the above specific targets and actions which will enable us to give our members and governing legislative bodies an assurance through responsible and informed work practices and decision making.

Damien Gaspar
General Manager

Environmental Management System
Of the

swan
yacht
CLUB INC
ESTABLISHED 1904

CONTENTS

ENVIRONMENTAL POLICY

Swan Yacht Club is committed to acting in an environmentally responsible manner to prevent pollution and protect the river through:

- A commitment to comply with relevant environmental legislations, regulations and requirements
- A commitment to continual improvement in the prevention of pollution
- Identifying and managing environmental risks within our operations and applying best practice principles to the prevention of pollution
- Implementing and using management systems to plan, document, measure and monitor our environmental performance
- Communicating the policy to all staff, members and contractors
- Continually improving our performance through training, management review and consultation

RISK ASSESSMENT AND OPERATIONAL CONTROL

Risk Assessment Matrix

		Consequence				
Likelihood		1	2	3	4	5
		Insignificant	Minor	Moderate	Major	Catastrophic
5	Almost Certain	5	10	15	20	25
4	Likely	4	8	12	16	20
3	Moderate	3	6	9	12	15
2	Unlikely	2	4	6	8	10
1	Rare	1	2	3	4	5

Extreme risk; immediate action required
High risk; senior management attention needed
Moderate risk; management responsibility must be specified
Low risk; manage by routine procedures

As at 25 November 2010 the Swan Yacht Club commits to implement the Operational Controls for each Risk within the stated time frames.

Time Frames

I	Already Implemented
6	To be implemented within 6 months of endorsement date
12	To be implemented within 12 months of endorsement date
24	To be implemented within 24 months of endorsement date
D	Deferred
N/A	Not Applicable

Activity/Event	Fuel Storage **Not Applicable - No fuel storage on site**				
Risk	Hydrocarbon contamination from storage tanks and associated pipe works				
Objective	Prevent loss of hydrocarbons to the environment from storage tanks and associated pipe works				
Legal Requirements	See attached list of legislation to be met				
Operational Control	All bunding and containment to be impervious	**NA**	**Likelihood**	**Consequence**	**Risk Rating**
	Minimise likelihood of tank and associated pipe works failure by ensuring tanks located as close as possible to point of delivery of fuel	**NA**	5:Almost Certain 4: Likely 3:Moderate 2: Unlikely 1: Rare	5:Catastrophic 4:Major 3: Moderate 2: Minor 1: Insignificant	
	Provision of appropriate emergency response equipment (Booms, mats etc)	**NA**			
	Develop preferred procedures for the filling of bulk fuel tanks	**NA**			
	Develop and implement an inspection and maintenance program for fuel tanks and associated pipe works	**NA**			
	Provide training to relevant staff on preferred procedures and emergency response plan.	**NA**			
	Develop an emergency response plan	**NA**			
	All incidents to be reported to manager (or delegate) of the club	**NA**			
	All fuel spill incidents to be reported to the relevant agencies (refer to Emergency & Accident Response section)	**NA**			
	System in place to detect leakage from fuel storage tanks	**NA**			

Activity/Event	Vessel Refuelling **No fuelling facilities onsite or refuelling from containers permitted**				
Risk	Hydrocarbon contamination from spillage during refuelling				
Objective	Prevent spillage of hydrocarbons (fuels) during refuelling				
Legal Requirements	See attached list of legislation to be met				
Operational Control	Bowsers fitted with variable rate delivery nozzles	NA	**Likelihood** 5:Almost Certain 4: Likely 3:Moderate 2: Unlikely 1: Rare	**Consequence** 5:Catastrophic 4:Major 3: Moderate 2: Minor 1: Insignificant	**Risk Rating**
	Bowsers fitted with auto-shut off delivery nozzles	NA			
	Members are encouraged to have fuel/air separators inline devices in their vessels that prevent fuel from escaping vents.	I			
	Provision of appropriate spill response equipment (booms, mats etc) in close proximity to refuelling facility. **Spill kits located on jetties, slipways and shed.** **Main boom located in shed.** **Locations detailed in Boat Repair Maintenance Procedures Manual.** **C28 of the Pen Regulations states that 'no decanting of fuel in pens is allowed'.**	I NA I	**2**	**2**	**4**
	Develop a member preferred procedure on refuelling.	NA			
	Provide training to members/clients/contractors on preferred procedures				
	Instructions for refuelling at bowser, including response in event of a spill				

Activity/Event	Discharge from Vessels				
Risk	Pollution of the river from bilge water				
Objective	Prevent discharge of hydrocarbons or other contaminants into river via bilge water				
Legal Requirements	See attached list of legislation to be met				
Operational Control	Suitable bilge pillow waste disposal facilities provided. **Members responsible for removing waste offsite. No facility provided by Club.** Members are encouraged to have oil separation/absorption pillow in bilges of vessels with automatic bilge pumps Bilge water contaminated with other substances (eg detergents, degreaser) to be removed and appropriately disposed. **Included in pen regulations**, **discharge of bilge into river not permitted. Members risk disciplinary action if discovered to be contaminating the river** Non compliance of members/staff/clients/contractors results in consequences. **Members are to abide by pen regulations including rules and regulations. Failure to do so can result in disciplinary measures including the removal of vessel from the club for members or denied access for contractors** Non compliance of members/staff/clients/contractors to be reported to the General Manager.	I I I I I I	**Likelihood** 5:Almost Certain 4: Likely 3:Moderate 2: Unlikely 1: Rare **3**	**Consequence** 5:Catastrophic 4:Major 3: Moderate 2: Minor 1: Insignificant **2**	**Risk Rating** **6**

Activity/Event	Hardstand / Slipway Runoff				
Risk	Pollution of the environment from contaminated runoff				
Objective	Containment and treatment of all hardstand runoff to remove contaminants				
Legal Requirements	See attached list of legislation to be met				
Operational Control	Adequate bunding and stormwater diversion to prevent cross contamination of runoff from dirty work areas and clean work areas Provision of interceptors or litter and oil traps to prevent pollution to the river from dirty work areas**.** **Environmental traps cleaned quarterly by contractor with waste being removed off site. Stormwater litter traps cleaned by members quarterly. Slipway litter traps cleaned by bosun monthly.** Interceptor traps/filtration systems regularly maintained/cleaned**. Cleaned and monitored by contractor every 3 months.** Clean water separation to minimise contamination and need for treatment of stormwater runoff**. All run off is contained.** Oil absorbent mats to be made available. **Matts located in slips, shed and jetties.** Oil separator waste routinely disposed into oily waste/oil recycling program**. Disposal of oil from vessels not permitted onsite**	I I I I I I N/A	**Likelihood** 5:Almost Certain 4: Likely 3:Moderate 2: Unlikely 1: Rare **2**	**Consequence** 5:Catastrophic 4:Major 3: Moderate 2: Minor 1: Insignificant **2**	**Risk Rating** **4**

Activity/Event	Vessel Maintenance on Hardstand (including engine maintenance, hull cleaning/stripping, antifouling, general painting & maintenance)				
Risk	Pollution of the environment from boat maintenance and hull cleaning operations on hardstand/slips				
Objective	Prevent contamination of the environment from vessel maintenance works undertaken on hardstand/slips				
Legal Requirements	See attached list of legislation to be met				
Operational Control	**<u>Boat Maintenance and Cleaning – Maximum 40ft boat allowed on slipway</u>** Provide a clearly marked designated work area with adequate kerb bunding. Containment of blasting/spraying/sanding waste by erecting a mobile barrier to catch dust and spray For e.g. a double layer of shade cloth on wheels (only airless spraying permitted).	I I	**Likelihood** 5:Almost Certain 4: Likely 3:Moderate 2: Unlikely 1: Rare	**Consequence** 5:Catastrophic 4:Major 3: Moderate 2: Minor 1: Insignificant	**Risk Rating**

	Refer to Boat Repair and Maintenance Procedures Manual. **No blasting or spraying, only hand sanding with an airbag to catch dust. Shade cloth shields on site to contain airborne contaminants.** Provide designated covered waste bins for solid wastes generate during boat maintenance and hull cleaning. **2 x Cleanaway covered waste bins 3 -4 cubic metres onsite. Serviced by contractors 2/ week.** Provide solvent and hydrocarbon recovery containers. **Members are responsible for disposal off site** Develop preferred procedures for maintenance works (eg limit blasting according to wind conditions, preferred maintenance methods and chemicals). **Pen regulations and The Boat Repair and Maintenance Procedures Manual details what is permitted and where.** Provide training to members/staff/clients/contractors on procedures for maintenance works Contingency Plan; Use external appropriately equipped facilities **Boats in excess of 40ft are not permitted in SYC slip facilities. Boats must comply with Boat Repair and Maintenance Procedures Manual.** **Noncompliance of members/staff/clients/contractors to be reported to managing body. Contractors are refused accessed to the facility if found to acting irresponsibly, members face disciplinary action if found to be acting irresponsibly. Contractors sign in whilst members sign an annual pen license agreement agreeing to abide by the club rules and regulations.** **Non compliance of members/staff/clients/contractors results in consequences.**	I I I I I I I	**2**	**2**	**4**

			Likelihood	Consequence	Risk Rating
Operational Control	**Applying Antifouling to Vessels**		5:Almost Certain 4: Likely 3:Moderate 2: Unlikely 1: Rare	5:Catastrophic 4:Major 3: Moderate 2: Minor 1: Insignificant	6
	All antifouling technology used by members/clients/contractors to comply with Department of Environmental Protection and Transport WA regulations. **Pen regulations & Boat Repair and Maintenance Procedures Manual.**	I			
	All antifoul used by members/staff/clients/contractors to be unadulterated. **Pen regulations & Boat Repair and Maintenance Procedures Manual.**	I I			
	Preferred antifouling technology readily available (at recommended retailer or chandler)	1			
	Provide information on the environmental consequences of antifouling technology	I			
	Non compliance of members/staff/clients/contractors results in consequences. **Pen regulations, Rules and Regulations contractor form and Maintenance Manual**	I			
	Non compliance of members/clients/contractors to be reported to managing body. **Pen regulations.**				
	Vessel Maintenance	NA			
	Power tools with dust extractors used on site	NA	3	2	
	Anyone wishing to carry out abrasive blasting or spray painting on the premises must inform the grounds/yard manager. **Not permitted**	I			
	No visible dust to escape into areas of public access. **Shade Cloth shields onsite.**	I			
	Wet blasting procedures are the preferred option with adequate collection & proper disposal of the run off (no abrasive blasting allowed on site). **Not permitted.**	I			
	Dust creating activities to be only carried out in calm conditions (less than 4m per sec, approx 12 knots, with direction away from areas need protection)	I			
	All contractors used on site to be registered companies.	I			
	All blasting materials to be acceptable under Department of Environmental Protection regulations				
	Encourage the use of less invasive blasting materials (eg. garnet, bicarbonate of soda)	NA			

Activity/Event	Cleaning/maintenance of Vessels in Water				
Risk	Contamination of environment due to cleaning of vessels in pen areas				
Objective	Prevent contamination of environment by cleaning agents or other substances used on vessels in pens				
Legal Requirements	See attached list of legislation to be met				
Operational Control	Use of chemicals in skirting that are harmful to the environment is not permitted. Listed in the **Pen regulations & Maintenance Manual.** No abrasive cleaning or scraping of hulls that result in hull coating (antifoul or other) being released into the river. **No in water hull cleaning allowed.** No discharge of cleaning products or effluent to river. Encourage the use of appropriate materials for cleaning. Provide training to members/staff/clients/contractors on preferred procedures for cleaning. **Non compliance of members/staff/clients/contractors results in consequences** Contingency Plan; Use suitable facilities at another club or marine facility Non compliance of members/clients/contractors to be reported to managing body of marine facility.	I I I I I I I I	**Likelihood** 5:Almost Certain 4: Likely 3:Moderate 2: Unlikely 1: Rare **2**	**Consequence** 5:Catastrophic 4:Major 3: Moderate 2: Minor 1: Insignificant **2**	**Risk Rating** **4**

<table>
<tr><td>Activity/Event</td><td colspan="5">Noise Management</td></tr>
<tr><td>Risk</td><td colspan="5">Noise pollution causing a nuisance and/or endangering the health of neighbours and members/clients/contractors</td></tr>
<tr><td>Objective</td><td colspan="5">Reduce all noise pollution such that no health risk is posed and no nuisance caused to neighbours</td></tr>
<tr><td>Legal Requirements</td><td colspan="5">See attached list of legislation to be met</td></tr>
<tr><td rowspan="4">Operational Control</td><td rowspan="4">Noise producing boat building and maintenance to occur only between the hours of 0700 and 1900 (between 0900 and 1900 on Sundays and public holidays)

If noise complaints received, club to work with Local Government Environmental Health officer and complainant to negotiate acceptable levels and times for the activity to continue.

Non compliance of members/staff/clients/contractors to be reported to managing body of marine facility</td><td rowspan="4">I

I

I</td><td>Likelihood</td><td>Consequence</td><td>Risk Rating</td></tr>
<tr><td>5:Almost Certain
4: Likely
3:Moderate
2: Unlikely
1: Rare</td><td>5:Catastrophic
4:Major
3: Moderate
2: Minor
1: Insignificant</td><td rowspan="2">4</td></tr>
<tr><td>2</td><td>2</td></tr>
</table>

Activity/Event	Property Management				
Risk	Contamination of river from fertiliser, herbicides, pesticides, green wastes, general litter.				
Objective	Prevent pollution of the river arising from general grounds and property management.				
Legal Requirements	See attached list of legislation to be met				
Operational Control	Install litter traps in stormwater drains Provide a buffer strip of native vegetation around river with reduced chemical use. **Aim to minimise use of fertiliser and herbicide. Gardens & grassed areas within club grounds minimal.** Use preferred and appropriate pesticides and herbicides. Only organic fertilisers are permitted.	I I NA	**Likelihood** 5:Almost Certain 4: Likely 3:Moderate 2: Unlikely 1: Rare **2**	**Consequence** 5:Catastrophic 4:Major 3: Moderate 2: Minor 1: Insignificant **2**	**Risk Rating** **4**

Activity/Event	Storage of hazardous and dangerous goods **Not Applicable**				
Risk	Contamination of environment from stored hazardous and dangerous goods				
Objective	Prevent contamination of the environment or unacceptable exposure to people resulting from the storage and use of hazardous and dangerous chemicals				
Legal Requirements	See attached list of legislation to be met				
Operational Control	All areas where hazardous and dangerous chemicals are stored and used to comply with current Department of Minerals and Energy and Department of Environmental Protection regulations and standards and guidelines where applicable. Provision of chemical spill stations with absorbent clean-up material Undertake inventory of all hazardous and dangerous chemicals on the premises, including those held by ground-people, contactors and sub-lessees. Ensure all Materials Safety Data Sheets (MSDS) for chemicals are available on site. Conduct inspection to quantify the level of danger (hazard) presented by the flammable, combustible or environmental hazardous material. Develop storage facilities and management practices incorporating the principles of separation from other facilities, people and property, segregation from other incompatible dangerous goods, secondary containment to intercept uncontrolled spills, security to prevent unauthorised entry and use of the materials, ventilation to prevent exposure to vapours and emergency response planning such that adequate fire fighting equipment, first aid treatment commensurate with the type of hazardous materials and appropriate emergency response contact numbers (Poisons Information, Medical, Fire and Emergency Services) are available. Dangerous goods signage should be placed on gates for the fire department Audit compliance with standards and guidelines annually Develop an emergency response plan Club to provide appropriate first aid, first line fire fighting and emergency spill equipment All spill incidents to be reported to the relevant agencies. Appropriate phone numbers must be displayed. **Bunded storage used batteries onsite.**	**NA** **NA** **NA** **NA** **NA** **NA** **I** **I** **NA** **NA** I	**Likelihood** 5:Almost Certain 4: Likely 3:Moderate 2: Unlikely 1: Rare 1	**Consequence** 5:Catastrophic 4:Major 3: Moderate 2: Minor 1: Insignificant 2	**Risk Rating**

Activity/Event	Moorings – installation and ongoing use **Not Applicable**				
Risk	Damage to sea grass and other river bed habitat				
Objective	Ensure low impact design moorings are installed when current moorings are due for replacement				
Legal Requirements	See attached list of legislation to be met				
Operational Control	Consider installation of low impact design moorings as current moorings become due for replacement.	NA	**Likelihood** 5:Almost Certain 4: Likely 3:Moderate 2: Unlikely 1: Rare	**Consequence** 5:Catastrophic 4:Major 3: Moderate 2: Minor 1: Insignificant	**Risk Rating**

Activity/Event	Minor maintenance of marina Infrastructure				
Risk	Pollution arising from maintenance works on piles, jetties, pontoons etc, such as painting/anti-fouling, denzo wrapping or other surface treatments.				
Objective	Prevent contamination of the environment from maintenance works on marina infrastructure				
Legal Requirements	See attached list of legislation to be met				
Operational Control	Contain and appropriately dispose of any dust or liquid waste/spillage arising from maintenance works on marina infrastructure. Where practicable all works carried out in the designated Boat Repair and Maintenance area as per annual maintenance plan.	I	**Likelihood** 5:Almost Certain 4: Likely 3:Moderate 2: Unlikely 1: Rare **2**	**Consequence** 5:Catastrophic 4:Major 3: Moderate 2: Minor 1: Insignificant **2**	**Risk Rating** **4**

Legislation Requirements

1. Swan River Trust
2. Environmental Protection Authority
3. Department of Mines and Petroleum
4. Department of Transport
5. Department of Environment and Conservation
6. Relevant Local Government Authorities

LEGAL REQUIREMENTS PROCEDURE **Date of Review:** **Date of Next Review:** **Officer Name:** **Officer Signature:**		
Current Legal Requirements	**Changes in Legal Requirements**	**EMS Updated Y/N**
Swan River Trust	Updated policies adopted by department of Parks and Wildlife 2015/4659 noted July 2016	Yes
Environmental Protection Authority		
Department of Mines and Petroleum		
Department of Transport		
Department of Environment and Conservation		
Relevant Local Government Authorities		

Objectives & Targets/ Monitoring & Measuring Programme

Objective	Target	Responsibility	Time frame for review	Monitoring/ Measuring
Prevent loss of hydrocarbons to the environment from storage tanks and associated pipe works **Not Applicable**	Nil leakage or spillage from bulk tanks and associated pipe work			
Prevent spillage of hydrocarbons (fuels) during refuelling	Nil spillage of fuels to water during refuelling	Management	**12 months**	
Prevent discharge of hydrocarbons or other contaminants into river via bilge water	No contaminants to be released into river via bilge water	**Management**	**12 months**	
Containment and treatment of all hardstand runoff to remove contaminants	Contaminant levels in any discharge to river are reduced to within ANZEC guidelines (95% species protection)	**Management**	**6 months**	**Tested quarterly**
Prevent contamination of the environment from vessel maintenance works undertaken on hardstand/slips	No visible dust emission beyond hardstand No harmful antifouling agents detectable in any discharge to river (TBT etc)	**Management**	**Monthly**	**Weekly site inspection**
Prevent contamination of environment by cleaning agents or other substances used on vessels in pens	No contamination of environment with cleaning agents from vessels in pens.	**Management**	**Monthly**	**Weekly inspection**
Reduce all noise pollution such that no health risk is posed and no nuisance caused to neighbours	Any noise generated is with compliant with Environmental Protection (Noise) Regulations 2007. No noise complaints received from neighbours	**Operations Manager**	**Monthly**	
Prevent pollution of the river arising from general grounds and property management.	No use of herbicides and pesticides near shoreline	**Manager**	**Monthly**	**Site inspection.**
Prevent contamination of the environment from maintenance works on marina infrastructure	No contamination of environment from maintenance works	**Manager**	**Monthly**	**Site inspection, quality control of contractors**
Ensure low impact design moorings are installed when current moorings are due for replacement **Not Applicable**	Any moorings requiring replacement are replaced with low impact designs			
Prevent contamination of the environment or unacceptable exposure to people resulting from the storage and use of hazardous and dangerous chemicals **Not Applicable**	Storage and use of hazardous substances complies with all relevant regulations at all times. Nil incidences of spillage or accidents related to hazardous substances. Nil environmental contamination from hazardous substances.			

Emergency & Accident Response

- Any incident or accident that has the potential to cause pollution or otherwise impact on the river environment must be reported immediately to the Swan River Trust, by phone call to the numbers below.
  During office hours – Duty Officer – 9278 0981
  After Hours – Duty Officer – 0419 192 845

  Depending on the nature of the incident, reporting to other authorities may also be required.

- In relation to hydrocarbon (fuel and oil) spills, it is a requirement to report any confirmed spills, AND any noticeable hydrocarbon slicks observed within or immediately adjacent to the club facilities, regardless of whether a spill source has been identified. As a rough guide, a 'noticeable' slick can be considered as any visible sheen/slick of fuel (petrol or diesel) covering an area of more than 100 m2 (10x10m or equivalent), or any slick of oil covering an area of more than 16m2 (4x4m or the equivalent).

- A written incident report should be completed and a copy provided to the Swan River Trust when an incident is considered significant, or when requested by the Trust.

Register of Emergency Response tests

No.	Description of test	Planned date	Actual test date	Responsibility	Comments
1	Deployment of spill kits and booms		Feb 2016	Management	105 members present for demonstration
2	**Emergency management**	**Oct 2016**		**Management**	

Incident Report Form

Location _____ _____

Time: _____ **Date:** _____

Detailed Description (how, size, type, impacts etc)

_____

_____

_____

_____

_____

Response (what has been done and what needs to be done)

_____

_____

_____

_____

Incident reported by: _____ **Signature:** _____

To be completed by General Manager

Is further remediation or investigation required? ❑ YES ❑ NO

_____

_____

_____

_____

Oil and Hazardous Materials Incident Report Form

Date and Time of Discharge	/ / AM/PM
Location of Discharge	
Cause of Discharge	
Steps taken to stop discharge	
Materials used to clean up, absorb or contain spill	
Type and volume of substance discharged	
Risk Rating	Minor ❑ Moderate ❑ Significant ❑ Extreme ❑
Description	Released to Water ❑ Released to Soil ❑ Damage to flora/fauna ❑ Disturbance to neighbours ❑ Other ❑ Please specify;
Person/Vessel/Activity responsible	
Contact details of person responsible or witnesses	
Was discharged reported?	YES ❑ NO ❑
Reporting Officer Name and Signature	

Responsibilities & Training Schedule

Staff Member	Job Description	Responsibility within EMS	Training Required
Kim Sorrell	*Bosun*	*Slip management*	*ongoing*
Dave Poxon	*Operations Manager*	*Emergency Response*	*Oct 2016*

Communicating with Staff & Contractors	
EMS	Induction Document readily available for reading
Policy	Readily available for reading Posted on notice board for all to read
Responsibilities in EMS	Internal Training
Consequences of Non Conformance	Internal Training
External Communication?	No
If yes, list methodology	

Document Register

Document Reference	Brief description	Storage Location	Retention Time	Protection (if applicable)	Disposal Method (if applicable)
EMS Manual	Description of the scope of the EMS and the documented procedures that underlie the system	I Drive/Administration/forms	Revised annually		
EMS	A plan that enables the Club to control the effect of its activities on the natural environment.				
Risk Management Manual	A plan that responding to and managing risks associated with the Club's activities	I drive/ administration/forms	Revised annually		
Emergency Response Plan	Procedures for responding to a comprehensive range of emergency situations that may affect the organisation	1 drive/administration/forms	Revised annually		

Evaluation of Compliance

Activity/Event	Risk	Occurrences of Non-conformance	Compliance with Legal Requirements (Y/N)	Recommended changes to controls (if any)
Vessel maintenance on hardstand	Pollution of the environment from boat maintenance & hull cleaning operations on hardstand/slips	Nil previous 12 mths	y	2016/2017 Fencing for slipway
Fuel Storage **Not Applicable**	Hydrocarbon contamination from storage tanks and associated pipe works			
Storage of hazardous & dangerous goods **Not Applicable**	Contamination of environment from stored hazardous and dangerous goods			
Refuelling	Hydrocarbon contamination from spillage during refuelling			No refuelling permitted at SYC
Discharge from vessels	Pollution of the river from bilge water	Nil reported 12 mths		
Hardstand Runoff Not Applicable	Pollution of the environment from contaminated run off	Nil reported 12 mths	y	Captured through discharge system. Monitored.
Cleaning of vessels in water	Contamination of environment due to cleaning of vessels in pen areas	2	y	Reinforce message to members through various means
Noise Management Not Applicable	Noise pollution causing a nuisance and/or endangering the health of neighbours and members/clients/contractors		y	
Property Management	Contamination of river from fertiliser, herbicides, pesticides, green wastes and erosion		y	
Marina infrastructure maintenance works	Pollution arising from maintenance works on piles, jetties, pontoons etc, such as painting/anti-fouling, denso wrapping or other surface treatments.		y	
Ensure low impact design moorings are installed when current moorings are due for replacement **Not Applicable**	Damage to sea grass and other river bed habitat			

Non Conformance register

Date	Details of preventive/correction action request	Raised by	Response to request	Close Date	Initials
Dec 2015	*Henderson (member) noted cleaning outside designated area*	*member*	*Lectured on environmental impact of his actions. Committee advised. Letter to member added to file*	*Jan 206*	*Management*

Corrective and Preventative Action Request Form

Section to be filled out by employee	
Employee name:	Date:
Concern (use additional sheet/map if necessary)	
Action taken (if any)	
Signature:	Date:
Section to be filled out by Manager	
Is this a non conformance? Why or Why not?	
Possible Solutions	
Correction and/or Preventative Action/s required Person responsible: Completed by: Due Date: Date Completed:	
EMS to be revised? ☐ Yes ☐ No If Yes, how?	
Corrective or preventative action has been evaluated and determined to be effective. Method used to verify effectiveness; - Evidence submitted (attach) - Follow up audit - Other, describe	
Corrective/Preventative Action accepted Manager signature: Date:	

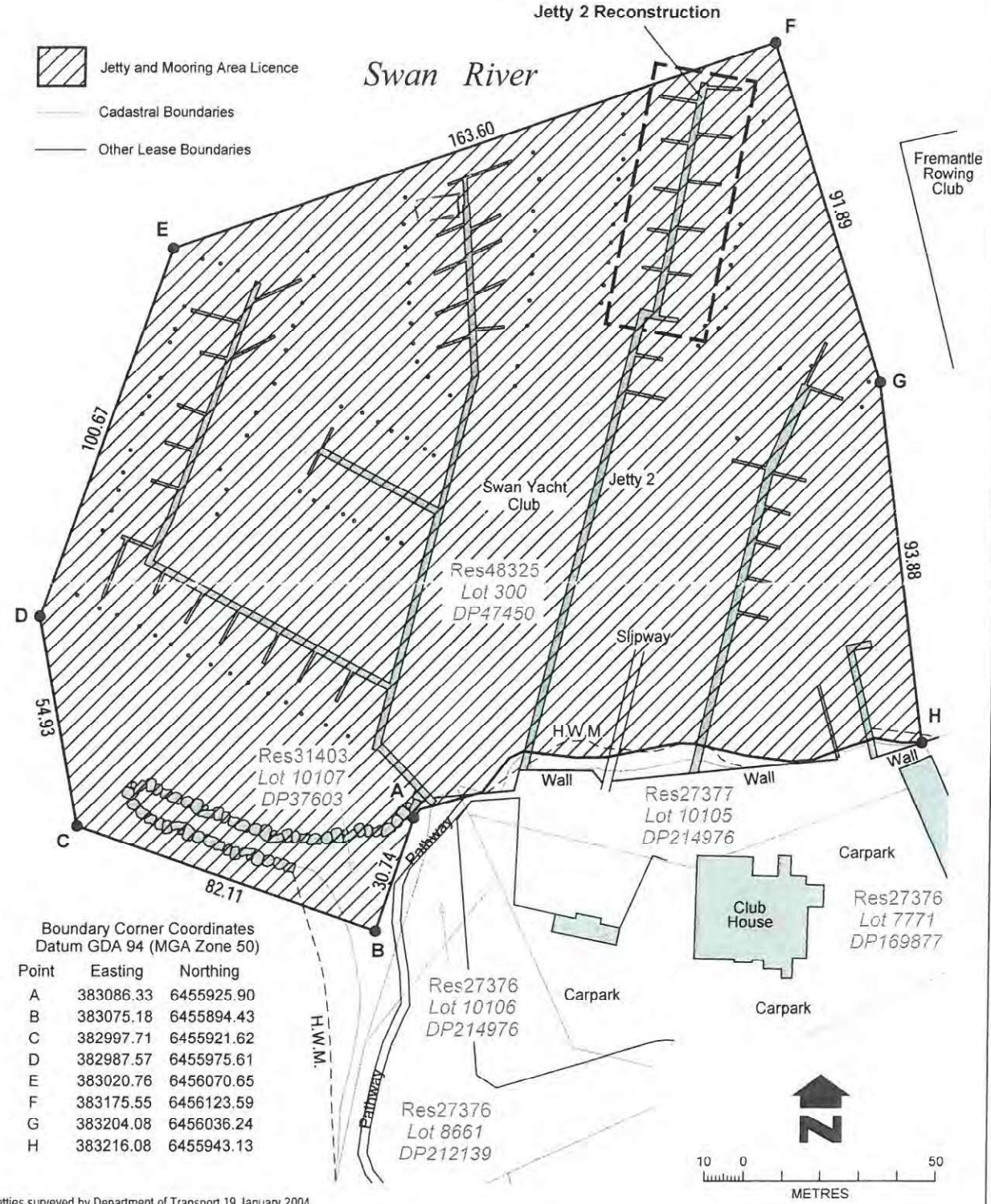
Internal Audit Schedule

Requirements	1st quarter	2nd quarter	3rd quarter	4th quarter
Policy				
Environmental Aspects & Legal requirements				
Objectives and Targets				
Resources, Roles, Responsibilities & Training and Awareness				
Communication				
Documentation				
Document and Record Control				
Operational Control				
Emergency Response				
Monitoring and Measuring				
Evaluation of Compliance				
Non conformity				
Internal Audit				
Management Review				

EXISTING LEASE AREA & FEATURE SURVEY DRAWINGS

ANNEXURE "A"

SWAN RIVER
SWAN YACHT CLUB
JETTY & MOORING AREA LICENCE PLAN



Boundary Corner Coordinates
Datum GDA 94 (MGA Zone 50)

Point	Easting	Northing
A	383086.33	6455925.90
B	383075.18	6455894.43
C	382997.71	6455921.62
D	382987.57	6455975.61
E	383020.76	6456070.65
F	383175.55	6456123.59
G	383204.08	6456036.24
H	383216.08	6455943.13

Jetties surveyed by Department of Transport 19 January 2004

High water mark obtained from Landgate February 2014 imagery.

PREPARED BY
CARTOGRAPHIC SERVICES
1 ESSEX STREET FREMANTLE

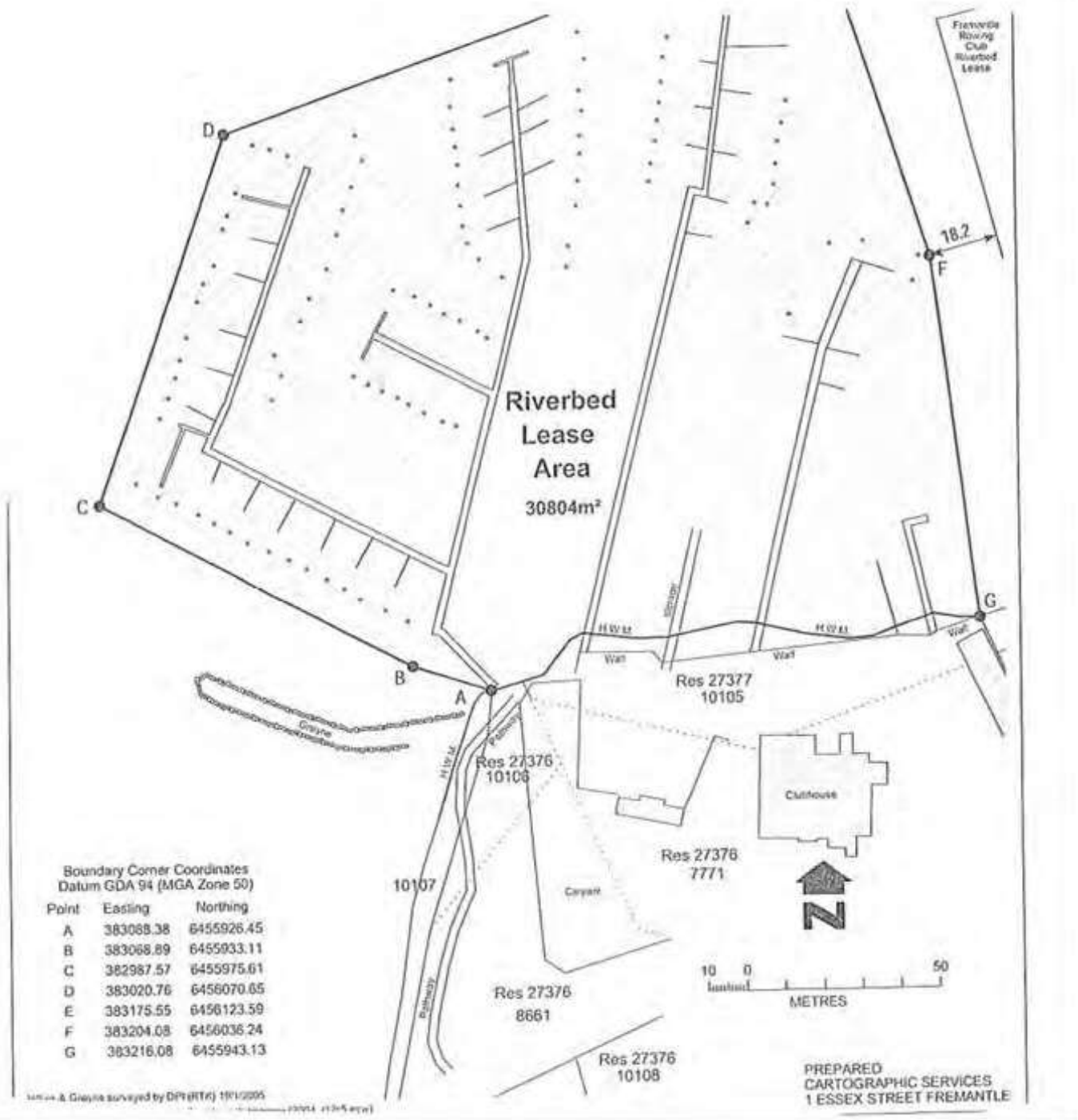
Drawn by: S Salgado	Examined by Manager Cartography:
Date: 27 August 2014	D. Daws: D. Daws
	Date: 27th August 2014

Department of Transport

GDA

PLAN 287 - 01 - 02 - C

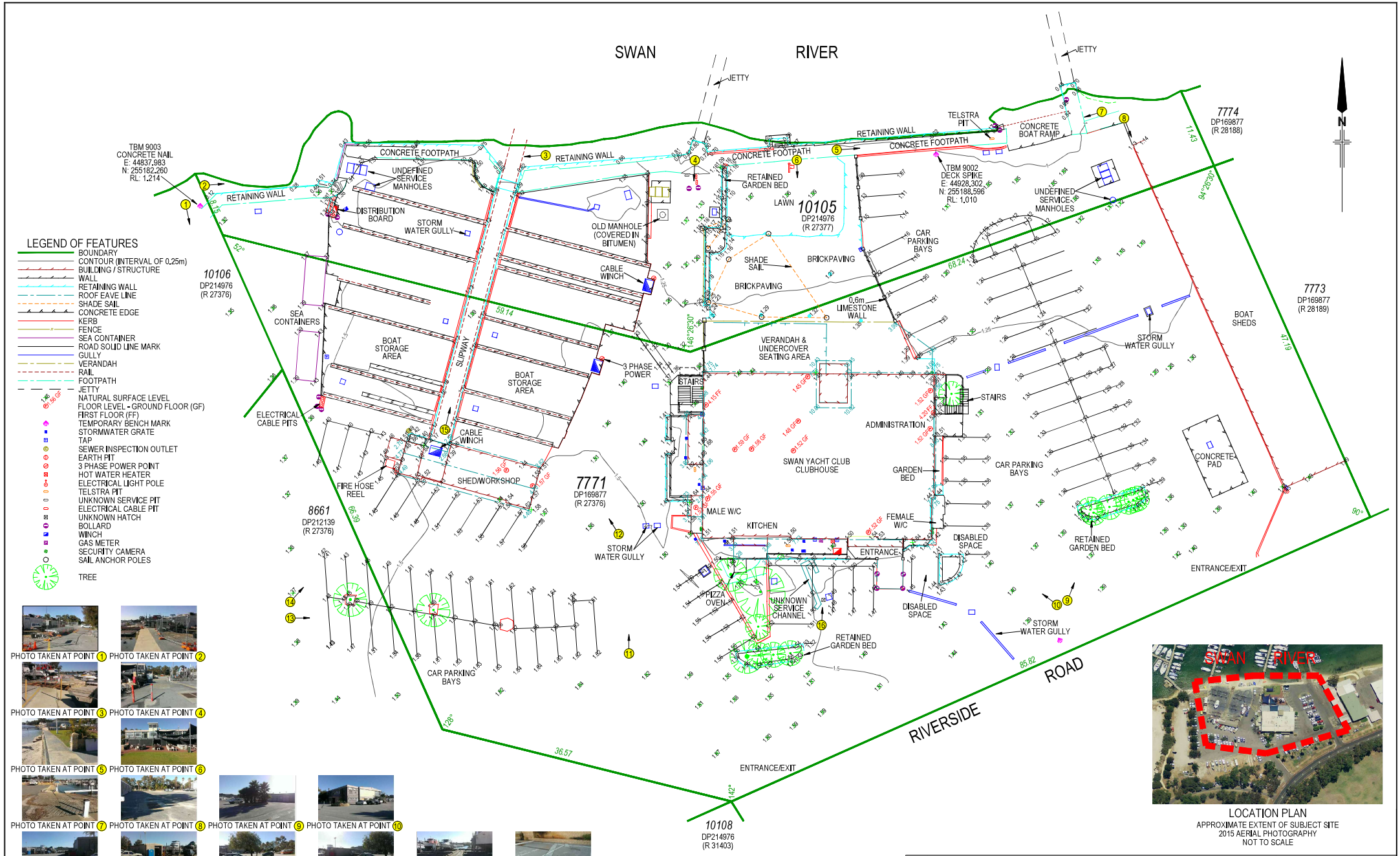
L:\HCS\TENURE\Swan & Canning\Swan_Yacht\287010202C.dgn



Boundary Corner Coordinates
Datum GDA 94 (MGA Zone 50)

Point	Easting	Northing
A	383088.38	6455926.45
B	383068.89	6455933.11
C	382987.57	6455975.61
D	383020.76	6456070.65
E	383175.55	6456123.59
F	383204.08	6456036.24
G	383216.08	6455943.13

Groyne & Groyne surveyed by DPI(RTK) 19/1/2005



LEGEND OF FEATURES

- BOUNDARY
- CONTOUR (INTERVAL OF 0.25m)
- BUILDING / STRUCTURE
- WALL
- RETAINING WALL
- ROOF EAVE LINE
- SHADE SAIL
- CONCRETE EDGE
- KERB
- FENCE
- SEA CONTAINER
- ROAD SOLID LINE MARK
- GULLY
- VERANDAH
- RAIL
- FOOTPATH
- JETTY
- NATURAL SURFACE LEVEL
- FLOOR LEVEL - GROUND FLOOR (GF)
- FIRST FLOOR (FF)
- TEMPORARY BENCH MARK
- STORMWATER GRATE
- TAP
- SEWER INSPECTION OUTLET
- EARTH PIT
- 3 PHASE POWER POINT
- HOT WATER HEATER
- ELECTRICAL LIGHT POLE
- TELSTRA PIT
- UNKNOWN SERVICE PIT
- ELECTRICAL CABLE PIT
- UNKNOWN HATCH
- BOLLARD
- WINCH
- GAS METER
- SECURITY CAMERA
- SAIL ANCHOR POLES
- TREE

PHOTO TAKEN AT POINT 1

PHOTO TAKEN AT POINT 2

PHOTO TAKEN AT POINT 3

PHOTO TAKEN AT POINT 4

PHOTO TAKEN AT POINT 5

PHOTO TAKEN AT POINT 6

PHOTO TAKEN AT POINT 7

PHOTO TAKEN AT POINT 8

PHOTO TAKEN AT POINT 9

PHOTO TAKEN AT POINT 10


PHOTO TAKEN AT POINT 11


PHOTO TAKEN AT POINT 12


PHOTO TAKEN AT POINT 13


PHOTO TAKEN AT POINT 14


PHOTO TAKEN AT POINT 15


PHOTO TAKEN AT POINT 16

LOCATION PLAN
APPROXIMATE EXTENT OF SUBJECT SITE
2015 AERIAL PHOTOGRAPHY
NOT TO SCALE

No.	DETAILS	DATE	DRAWN	CHECKED
0	APPROVED AND ISSUED TO CLIENT	25/05/2015	R.COLELLA	D.SMEDLEY

REVISIONS

FEATURE SURVEY OF LOT 7771 ON DP169877 (R 27376) AND LOT 10105 ON DP214976 (R 27377) RIVERSIDE ROAD, EAST FREMANTLE

Client: SWAN YACHT CLUB C/- MATTHEW CRAWFORD ARCHITECTS

DATUM
HORIZONTAL - PCG94
VERTICAL - AHD

SCALE 1 : 300 0 3 6 9 12 15
All distances in metres unless stated otherwise

ALL AREAS AND DIMENSIONS ARE SUBJECT TO SURVEY AND EXAMINATION

EXISTING BOUNDARY DIMENSIONS AND LOT AREAS HAVE BEEN TAKEN FROM LANDGATE RECORD DP169877 & DP214976

THE BOUNDARIES WERE NOT RE-ESTABLISHED AS PART OF THIS SURVEY THEREFORE THIS PLAN DOES NOT GUARANTEE THEIR ACCURACY

FIELD INSPECTION IS RECOMMENDED FOR LOCATION OF SERVICES PRIOR TO ANY EXCAVATION

Brown McAllister Surveyors
Licensed Surveyors | Land Development & Strata Consultants | Engineering Surveyors
Email : admin@brownmcallister.com.au
43 Broadway, Nedlands, Western Australia, 6009
Tel: (08) 9386 9688
Fax: (08) 9386 9677

SHEET	A2
SURVEYED	D.S - 18/05/2015
FIELD NOTES	
DRAWN	R.C - 25/05/2015
CHECKED	
REFERENCE	15591-1F

CLIENT PRESENTATION
SWAN YACHT CLUB
OCTOBER 2023

Matthew Crawford
Architects

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Matthew Crawford
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m p rogers & associates pl ABN 14 062 681 252
creating better coasts and ports

R1503 Rev 0

April 2021

Swan Yacht Club

Jetty 5 Sediment Investigation

marinas
boat harbours
canals
breakwaters
jetties
seawalls
dredging
reclamation
climate change
waves
currents
tides
flood levels
water quality
siltation
erosion
rivers
beaches
estuaries

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w: www.coastsandports.com.au

K1814, Report R1503 Rev 0
Record of Document Revisions

Rev	Purpose of Document	Prepared	Reviewed	Approved	Date
A	Draft for MRA review	K Worth	T Hunt	T Hunt	06.04.21
0	Issued for Client use	K Worth	T Hunt	T Hunt	20.04.21

Form 035 18/06/2013

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Table of Tables

1. Introduction

M P Rogers & Associates Pty Ltd (MRA) have been commissioned by the Swan Yacht Club (SYC) to investigate the siltation and boat wake issues surrounding Jetty 5. The SYC and area of siltation build up are shown in the figure below.

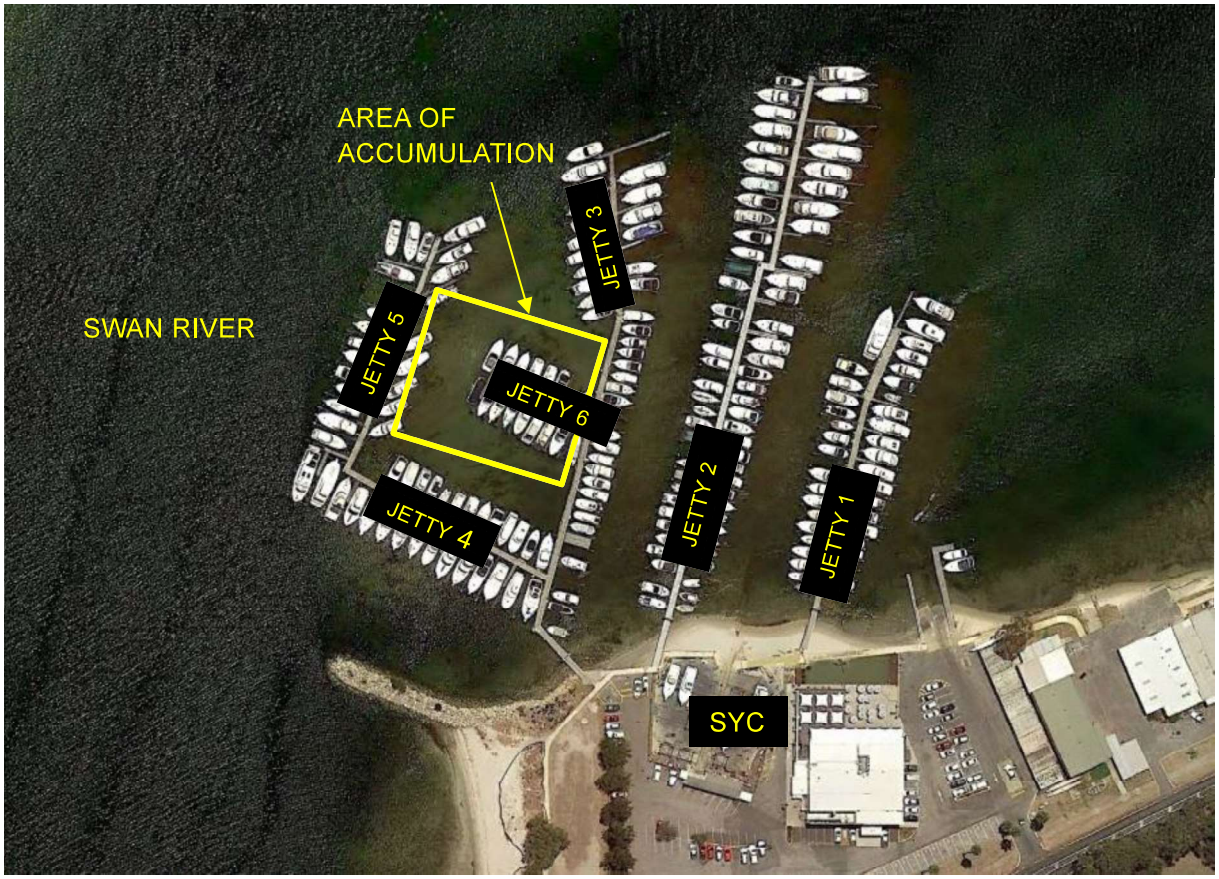


Figure 1.1 Swan Yacht Club

To investigate the source of sediment build-up, and ways to improve tranquillity in the Club, MRA have been engaged to:

- Review historical dredging campaigns completed at the Club.
- Complete hydrodynamic modelling to confirm the general patterns of sediment transport.
- Recommend options to improve siltation issues and tranquillity.

This report summarises the investigation into the source of sediment build up surrounding Jetty 5.

2. Background

The SYC was founded in 1903, and was initially located below where the Stirling Traffic Bridge is today. As a result of the construction of Stirling Traffic Bridge, the Club was relocated to reclaimed land at Preston Point in 1964 (Swan Yacht Club, 2020). Since then, the Club has undergone various configuration changes and dredging campaigns. The initial layout and existing layout of the Club is presented in the figure below.

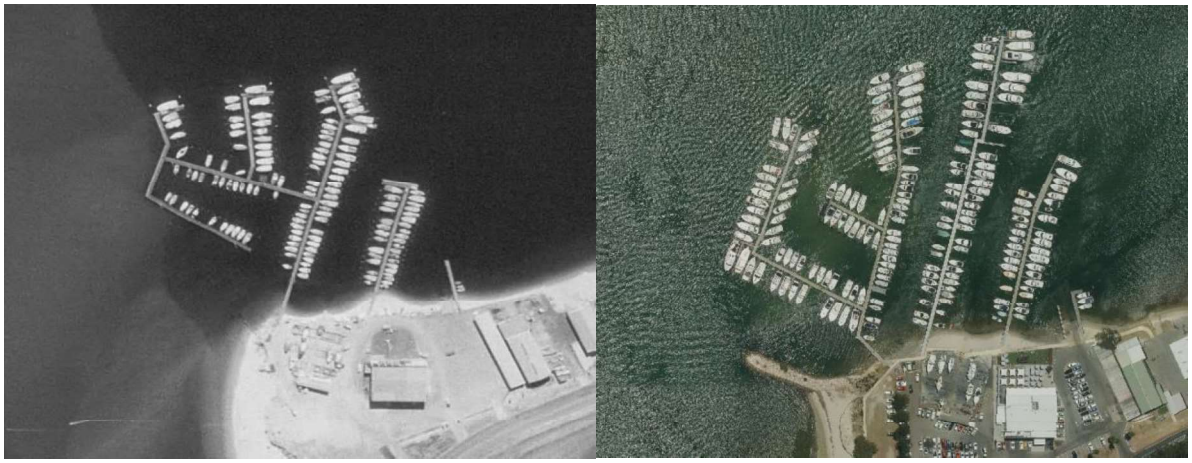


Figure 2.1 SYC (L) Initial Layout - 1970 (R) Current Layout – 2018

The Club is positioned in close proximity to the Swan River navigation channel, and is therefore susceptible to boat wake from passing vessels. In particular, Jetty 5 has historically experienced heavy boat wash and wake which has resulted in boat mooring issues.

2.1 Historical Dredging

The SYC basin has an extensive dredging history, with campaigns completed by the Public Works Department and the Club consistently since 1967 (DPLH, 2005). The table below shows information collated from the SYC regarding these campaigns.

Table 2.1 Historical Dredging Campaigns

Date	Description of Works
1967	Construction of boating basin at Preston Point for SYC.
December 1971	Dredging in SYC boating basin.
1980	Dredging of Preston Point Channel.
1983-84	SYC removed old jetties and dredged whole area.
1985	Dredging from Western boundary of SYC (approx. 6,000 m^3). Rapid siltation necessitated further removal of 2,000 m^3 by October 1985.
1993-94	Dredging of SYC area Jetty 4, 5 & 6 (4,000 m^3).
1997-98	Dredging of SYC area Jetty 4, 5 & 6 (3,000 m^3).
2002-03	Dredging of SYC area Jetty 4, 5 & 6 (3,000 m^3).
December 2008	Dredging of SYC area Jetty 4, 5 & 6 (3,000 m^3).
September 2012	Dredging of SYC area Jetty 4, 5 & 6 (3,000 m^3).
November 2019	Dredging of SYC area Jetty 4, 5 & 6 (3,000 m^3).

The Club has consistently been dredged every 3 - 7 years since the 1993-94 campaign. These campaigns are considered 'reactive', meaning that they are proposed when the Club is experiencing navigational issues as a result of the build up of sediment. This indicates that once the dredging has occurred, it takes on average 3 – 7 years for the siltation to affect navigation.

2.2 Assessment of Dredged Volumes

In November 2020 hydrographic survey was completed around the SYC so that the rate of infill from the previous dredging campaign in November 2019 could be determined. No post-works survey was completed after the November 2019 dredging, therefore it was assumed that the dredging was completed to the design requirements (-1.7 mCD). It is noted that this is a critical assumption. The assumed post dredge depth, and November 2020 survey were then used to determine the elevation difference around the SYC. This difference plot is presented in Appendix A.

The difference plot was analysed to work out the net volume of infill around the build-up area. This was determined to equal approximately 1,500 m^3 and assuming the dredging was completed to design, indicates that the sediment infills at an approximate rate of 1,500 m^3/year.

3. Model Setup, Calibration & Validation

To determine the general patterns of sediment transport and the sources of sediment infill at SYC a hydrodynamic model was developed using Delft3D.

3.1 Model Setup

The Delft suite of models is a fully integrated computer software suite that enables a multi-disciplinary approach to 3D computations for coastal, river and estuarine areas. It can carry out simulations of flows, sediment transport, water quality, morphological developments and ecology (Deltares 2011). The Delft3D models are widely used around the world.

The Delft3D Flow module is a multi-dimensional (2D or 3D) hydrodynamic and transport simulation program which calculates non-steady flow and transport phenomena that result from tidal and meteorological forcing (Deltares 2011). Modelling for this study was completed using a 2D Delft3D Flow Model.

3.1.1 Model Grids

To adequately resolve tidal and wind driven currents requires simulation over a large modelling domain. However, to provide adequate resolution to properly resolve currents in the area of interest around the SYC requires a high model resolution. As a result, to improve computational efficiency it was necessary to use a domain decomposition model setup whereby model resolution is increased surrounding the areas of interest.

The Delft3D Flow module was therefore set up using two model domains. The locations and extent of the model domains are shown in Figure 3.1.

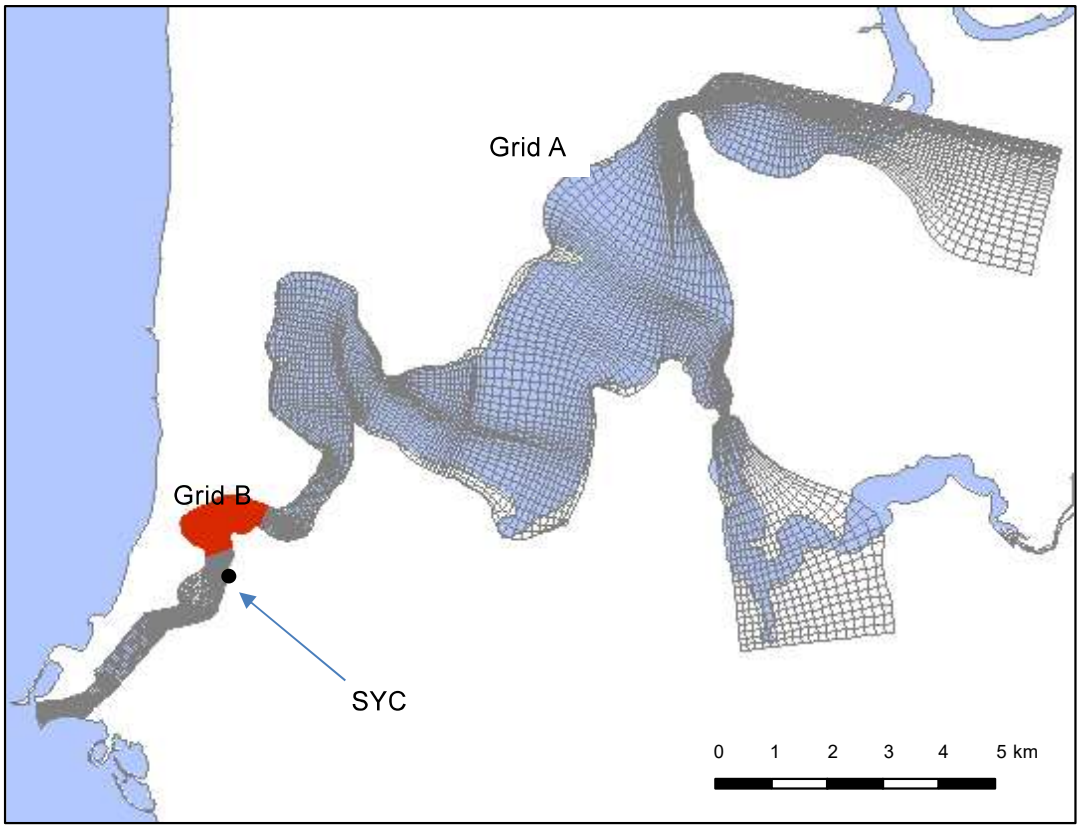


Figure 3.1 Spatial Extent of Delf3D Flow Model Domains

Boundaries to the model included an ocean boundary at the mouth of the Inner Harbour and upstream boundaries within Perth Water and the Canning River. Virtual basins were included as boundary conditions on the upstream boundaries to account for the effect of the rivers further upstream which were not included in the model domain.

The model bathymetry was obtained from various surveys completed by the Department of Transport (DoT) and JBA Surveys. Where available, higher accuracy surveys and more recent surveys were used in preference to older less accurate surveys.

3.1.2 Input Data

The following inputs were used in the model.

- Ocean Water Level
  The recorded water level within the Fremantle Fishing Boat Harbour was used to set the water level at the ocean boundary of the model.

- Wind
  Wind was included in the model using wind data recorded by the Bureau of Metereology at the Inner Dolphin Pylon, situated in Melville.

3.2 Model Calibration & Validation

The model was calibrated and validated against the available measurements taken in 2015 and 2020 which included the following.

- Water level measurements at Barrack Street Jetty.

- Drogue current measurements taken around the SYC in November 2020.

A period from 14 to 30 June 2015 was used to calibrate the model. The parameters that were used in MRA's previously calibrated Swan River model (MRA 2016), were again used in the setup of this model.

The comparison between the modelled and measured water levels at the Barrack Street Jetty is presented in the following plot.

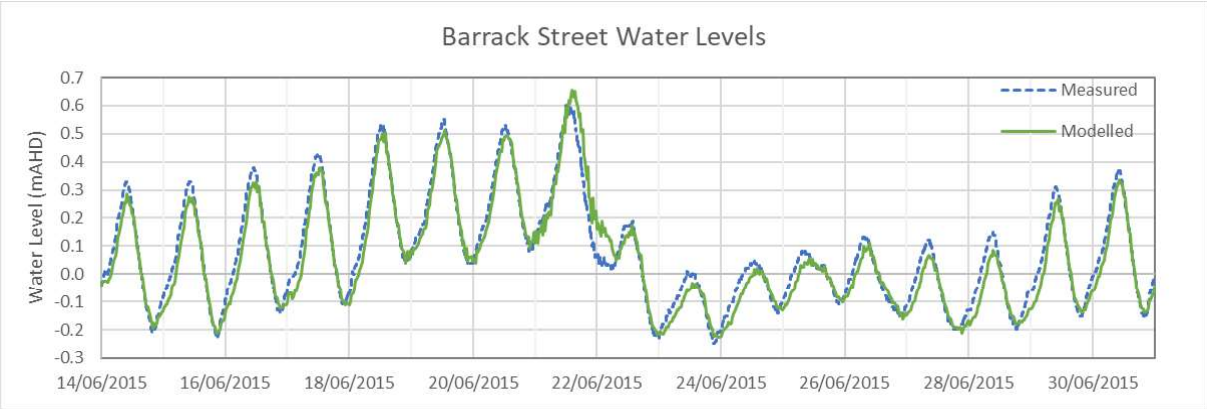


Figure 3.2 Barrack Street Water Levels

This shows that the modelled water level matches very well with the measurements and therefore the flow of water between the ocean and Barrack Street is being accurately replicated in the model.

A period from 4 to 18 November 2020 was used to validate the model. This utilized updated bathymetry, and compared the measured and modelled drogue data around SYC. The purpose of comparing modelled drogue data paths to measured drogue paths, is to ensure that the model is accurately representing current speed, direction and patterns.

The drogue measurements were collected on 11 November 2020 between 9:00AM and 4:30PM around the SYC. The measurements were taken by placing a weighted PVC pipe with a handheld GPS into the river, and tracking its movements during the flood and ebb tidal phases.

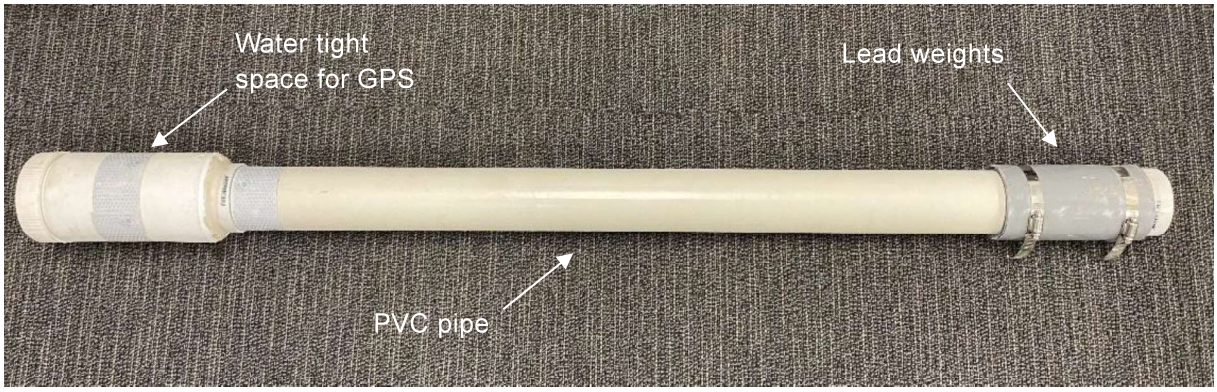


Figure 3.3 MRA Drogue

Figure 3.4 Drogue Deployment

The comparison between the modelled and measured drogue tracks during an ebb tidal phase around SYC is presented in the following plot.

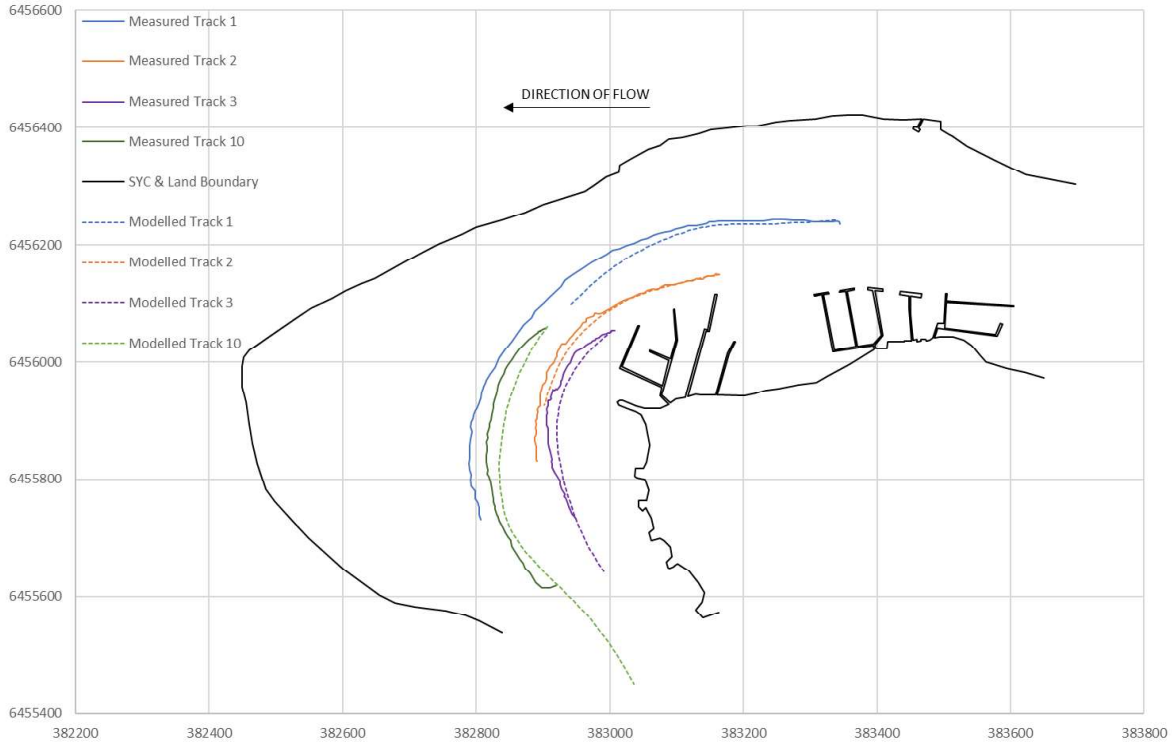


Figure 3.5 Ebb Current Tracks

This shows that the model is accurately representing the movement of the current during ebb tidal flows. The comparison between the modelled and measured drogue tracks during the flood tidal phase is presented in the figure below.

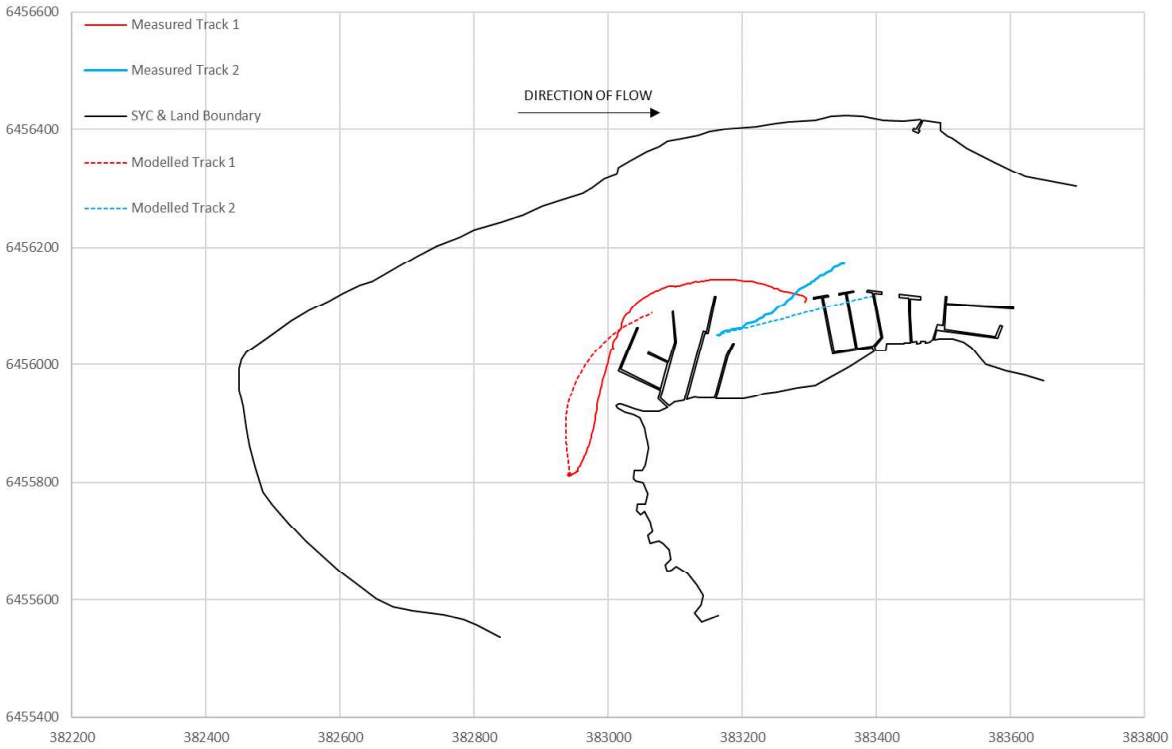


Figure 3.6 Flood Current Tracks

The flood current movements are not as accurately represented as the ebb movements. This is a result of the model not perfectly capturing the switch of tidal phase. Due to timing restrictions, drogue measurements could only be taken for two flood tracks, and these tracks were measured immediately after slack tide. The slow nature of the current speeds at this time make it difficult to validate an approximate hydrodynamic model to these movements.

4. Sediment Transport Model

To determine an approximate sediment transport model, outputs from the calibrated and validated hydrodynamic model were used.

4.1 Sediment Conditions

Several samples were collected in between Jetty 3 and 4 and analysed to give a representative sediment size (d_{50}) of 0.30 mm (Western Environmental 2019).

4.2 Calculation of Movements

The movement of sediment is complex. There is no simple or straightforward method that is applicable to the wide range of sediment and hydraulic conditions experienced in nature.

In the late 1980s, Delft completed an extensive research program into the movement of seabed sediment under the influence of waves and currents. These are the primary mechanisms of sediment movement. This initial work has since been expanded and further developed and is reported in van Rijn (2012). Simple general formulae for sand transport in rivers, estuaries and coastal waters are presented, and these formulae have been used to approximate minimum value current velocities for initiation of sediment transport.

Sediment transport can take place as a bedload, suspended load or both. The type of sediment transport depends on the size and the bed materials and the flow conditions. Bed load particle movement will occur when the instantaneous fluid force on a particle is just larger than the instantaneous resisting force related to the submerged particle weight and the friction coefficient. This limit is referred to as the initiation of motion.

The recommended methods and calculations of van Rijn have been used to estimate the potential sediment movement from the measured currents.

4.3 Limits of Movement – Currents

The critical depth averaged current velocities for initiation of motion were calculated based on a value for d_{50} of 0.30 mm. To determine a conceptual model of sediment transport, the Delft3D model was run for the month of November 2020. Water depth, depth averaged current velocity, and current direction were output from the model at nine locations around the SYC. These locations analysed together can provide a conceptual model of sediment transport. The figure below shows the location of these positions.

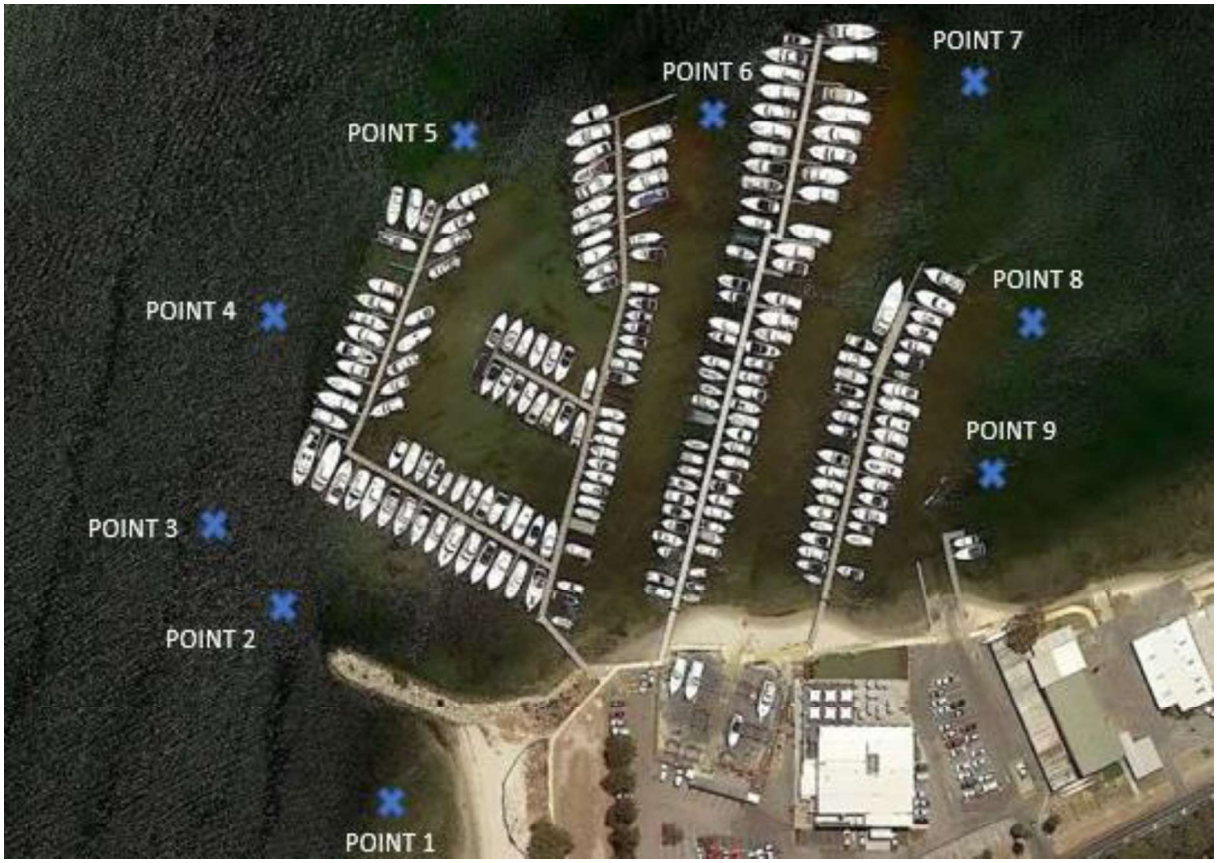


Figure 4.1 Sediment Transport Analysis Points

Each point was analysed to determine whether the depth averaged current speeds reach the critical speeds needed for initiation of motion. The analysis then involved determining whether the current was moving towards the area of build up or away. The table and figure below present the results of the analysis.

Table 4.1 Sediment Transport Analysis

Point	Sediment Moving Towards Area of Build Up (%)	Sediment Moving Away from Area of Build Up (%)	Net Sediment Movement[1] (%)
1	0	0	0
2	1	3	-2
3	9	13	-4
4	16	23	-7
5	26	21	5
6	18	6	12
7	18	3	15
8	11	0	11
9	2	0	2

Notes 1. Positive values represent movement towards the area of build-up.

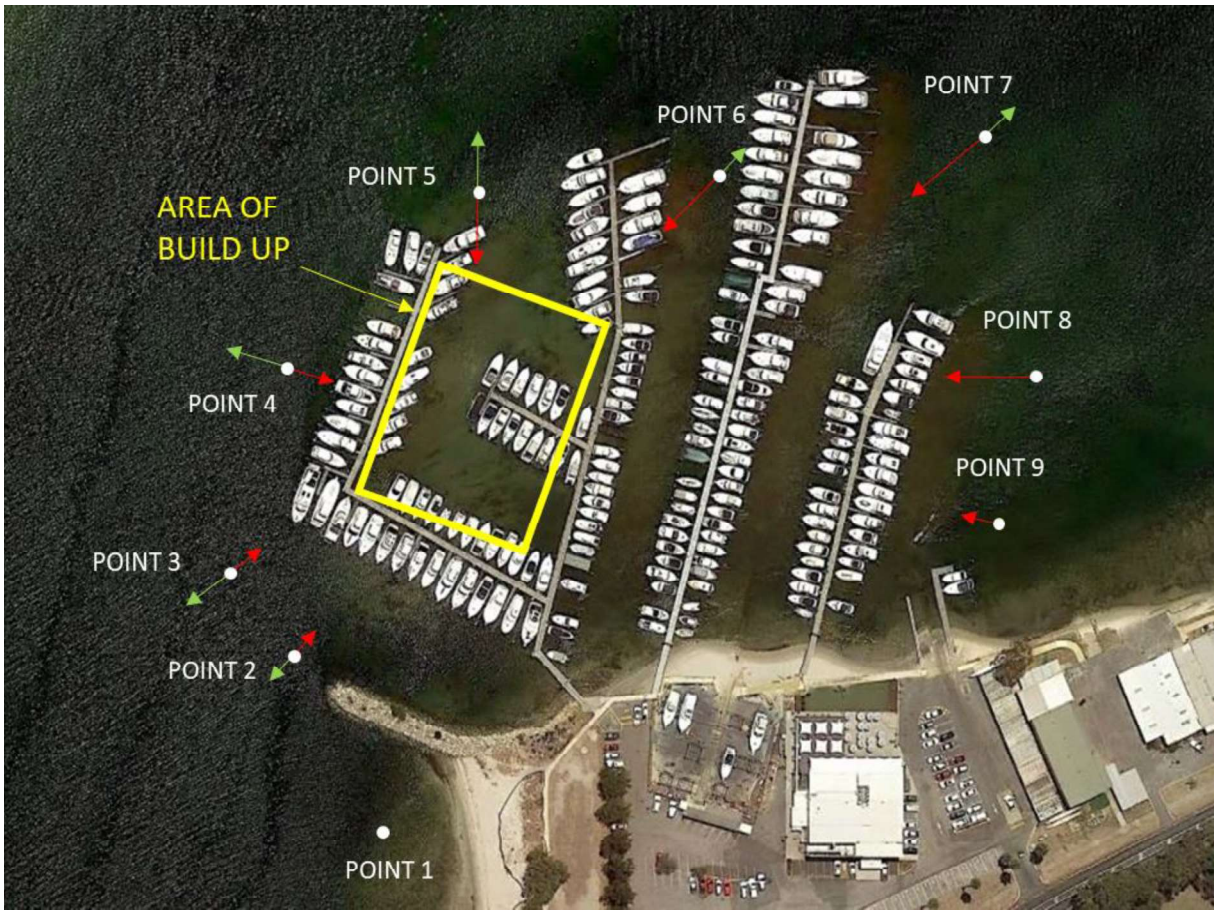


Figure 4.2 Visual Representation of Sediment Movement

The table and plot show that the greatest amount of movement of sediment towards the build-up area originates from the north east side of the club. This indicates that the only way to significantly improve siltation issues around Jetty 5 is through the construction of a hard structure around SYC that interrupts the natural sediment movement.

5. Potential Improvement Options

The Club have looked into a number of options that could potentially improve the siltation and tranquillity issues surrounding Jetty 5. These have included the redesign of Jetty 5 and the extension of the Preston Point groyne. These options, as well as the construction of additional hard structures, are assessed below against their ability to improve tranquillity, reduce siltation build up and the likelihood of gaining approval from the Department of Biodiversity, Conservations and Attractions (DBCA), and the Department of Planning, Lands and Heritage (DPLH).

5.1 Redesign of Jetty 5

Multiple conceptual redesigns of Jetty 5 have been proposed by Searle Consulting Pty Ltd and Bellingham Marine and were provided to MRA by SYC. These are discussed further below.

5.1.1 Reconfigured Fixed Jetties

The options presented by Searle Consulting involve the reconfiguration of Jetty 5 to ensure no pens are on the exposed side of the jetty, and the northern extension to Jetty 6. The layout of the proposed fixed structures with various pen sizes are presented in the figures below.

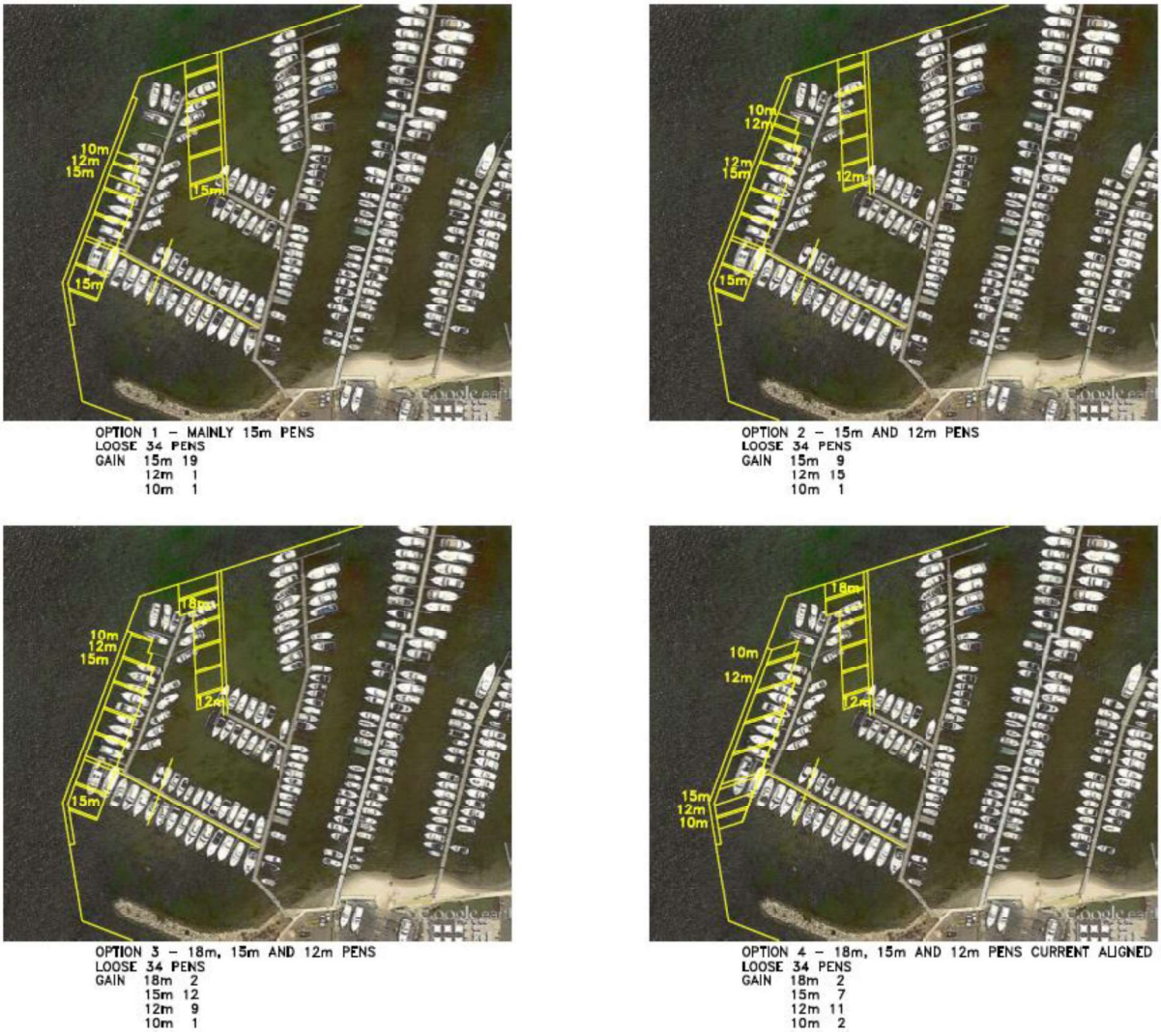


Figure 5.1 Redesign of Jetty 5 (Searle Consulting)

The re-allocation of pens to the protected side of Jetty 5 will improve tranquillity for the effected boats moored at Jetty 5. The redesigns would also likely be approved by DBCA and DPLH, as the works involve upgrades of existing jetty structures.

The options presented above are unlikely to improve the siltation issue, however a reduction in Jetty 5 pen sizes from the current configuration will require less navigable depth. The current pen sizes at Jetty 5 are presented in the figure below.

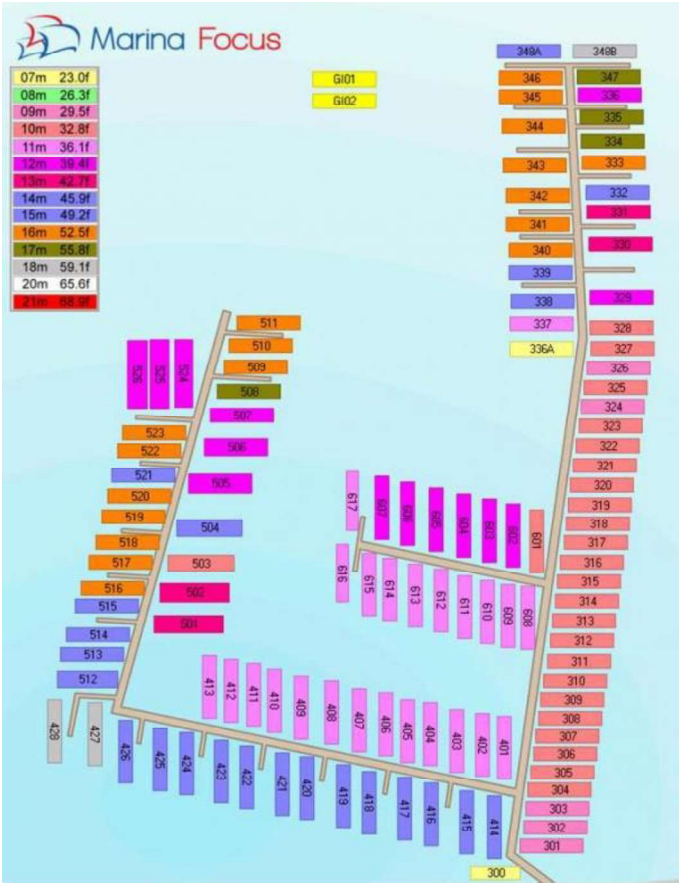


Figure 5.2 SYC Pen Sizes

The existing pens on the protected side of Jetty 5 are comprised of a range of pen sizes from 17 m to 12 m. The four options presented by Searle remove all pen sizes greater than 15 m from Jetty 5, reducing the navigable depth needed around Jetty 5. The smaller vessels require less depth and therefore less maintenance dredging would be required.

5.1.2 Floating Attenuators & Pens

Bellingham Marine provided two options to the Club for the replacement of Jetty 5 with a floating attenuator. The layout of the proposed floating attenuator structure with 15 m and 12 m pen sizes are presented in the figure below.

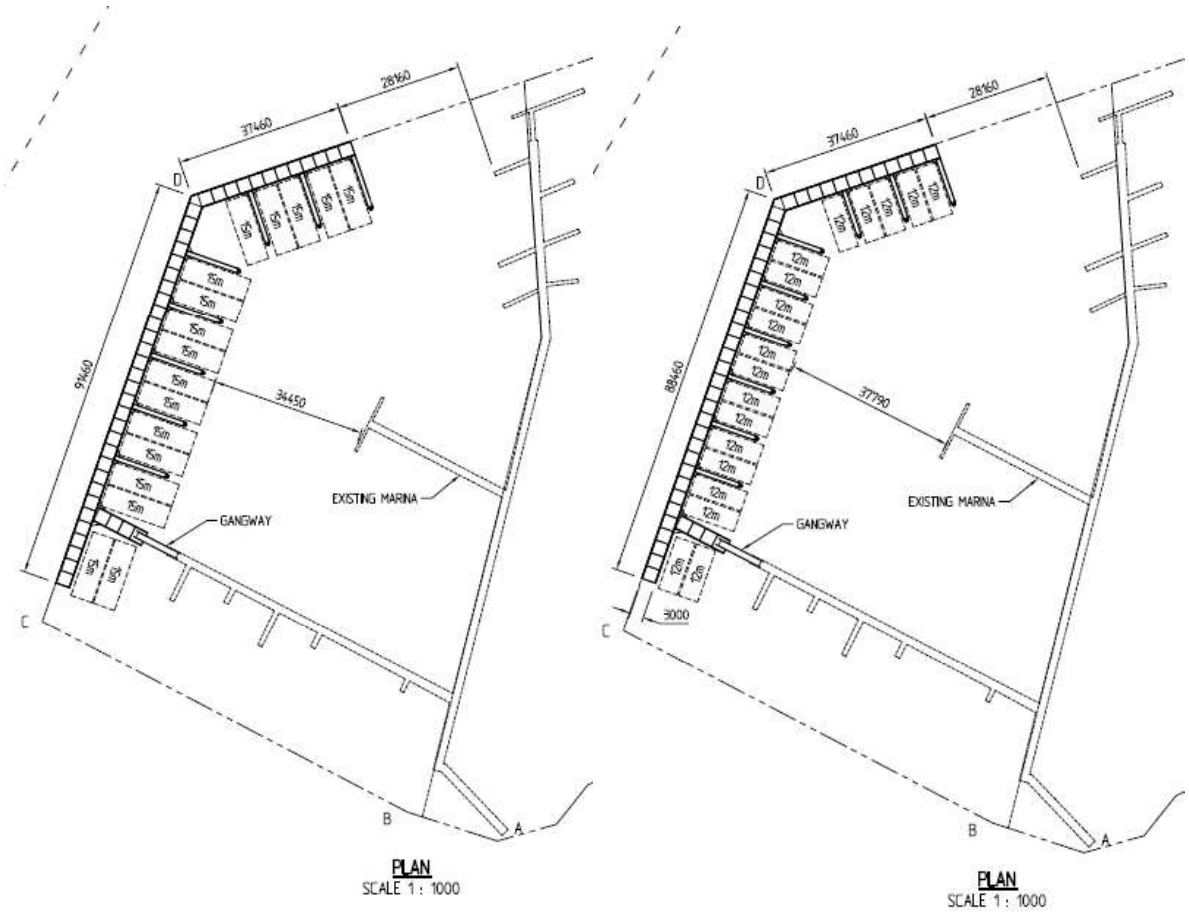


Figure 5.3 Floating Attenuator Options for Jetty 5 (Bellingham Marine)

The floating attenuator structure would dampen boat wake from passing vessels and improve tranquillity within the Club, and around Jetty 5. These works would likely gain DPLH and DBCA approval as the works involve the upgrade of an existing structure.

Similar to the options provided by Searle Consultants, the installation of the floating attenuator is unlikely to directly improve siltation issues. However, both options presented above reduce the current pen sizes. The navigable depth required for the smaller pens will be less than the navigable depth currently needed, therefore potentially reducing the volume and frequency of maintenance dredging needed.

This option, through increased protection from the attenuator, is likely to provide improved wave conditions within the pens compared to the fixed option. This is on the basis that the attenuator is designed appropriately for the wave climate. No further details of the profile or design of the attenuator have been provided and therefore no assessment of the appropriateness of the attenuator itself has been completed.

5.2 Extension of Preston Point Groyne

The option of extending the Preston Point groyne has been discussed in the past to prevent sediment build up. However, the modelling and assessment indicates that there is minimal sediment movement around the groyne compared to other locations, and extending it would not improve the siltation issue around Jetty 5. Extension of the groyne would also be unlikely to

improve the tranquillity issues from passing vessels. It is not recommended this is explored further as a solution to the options being considered.

5.3 Construction of Alternative Structures

The hydrodynamic modelling and sediment transport analysis indicates that sediment movement in the vicinity of the club is likely generated from various directions. The most viable way to manage this would be to interrupt this movement with a vertical wall, breakwater or similar structure. This would likely be required around the extents of the club and would need to extend to the riverbed to ensure sediment movement into the area of the pens is interrupted.

The construction of vertical walls around SYC would interrupt the natural sediment movement. This would not only help the siltation issues, but it would also block boat wake and therefore prevent boat mooring issues.

The construction of vertical walls in the Swan River requires the submission of a Development Application (DA) to DBCA and Section 18 consultation and approval from DPLH. Due to the obstructive nature of the works involved with the construction of a vertical wall encompassing the Club, it is likely that approval from DBCA would require extensive additional assessments and consultation to satisfy their requirements. It is likely this process would take in the order of 6 to 9 months.

Section 18 approval involves Aboriginal heritage consultation, assessment of impacts and can be a long and relatively costly process. This process is likely to take in the order of 12 months.

In addition, it is unclear that approval for these type of structures would be approved, due to their significant change to both the local conditions, amenity and function of this section of the Swan River.

The potential layout of a vertical wall structure around SYC is presented in the figure below. This is one example of this type of structure and other forms and configurations would be possible.

Figure 5.4 Potential Vertical Wall Layout

Similar to vertical walls, a breakwater would improve siltation and tranquillity issues, but would take up substantially more space and is even less likely to be approved by DBCA and DPLH.

A summary of the various options and their ability to achieve each criterion are presented in the Table below.

Table 5.1 Potential Improvement Options for SYC

Option	Criteria 1 Siltation	Criteria 2 Tranquillity	Likely DBCA/DPLH Support
Jetty 5 Redesign – Fixed Jetty	×	✓	✓
Jetty 5 Redesign – Floating Attenuator	×	✓	✓
Groyne Extension	×	×	×
Vertical Walls	✓	✓	×
Breakwater	✓	✓	×

The fixed and floating options will improve tranquillity to varying degrees through the reallocation of pens to the protected side of Jetty 5 and would be more likely to gain DBCA/DPLH approval. Out of the two alternatives, the floating attenuator structure will dampen wave conditions within the pens, and would hence be more effective in improving tranquillity to the protected areas behind the structure compared to the fixed option. Bellingham Marine presented two wave attenuator designs with 12 m and 15 m pens. The attenuator design utilising 12 m pens would require less navigable depth, which would be expected to result in less maintenance dredging and would therefore would be the preferred option.

This is based on the assumption that the floating attenuator structure is appropriately suitable and designed for the wave and vessel wake conditions experienced at the site.

The groyne extension option does not meet any of the required criteria and is not a viable option for the Club.

The construction of an alternative structure such as a vertical wall around the Club would be most effective in improving the siltation issues surrounding Jetty 5. This structure would also improve tranquillity within the Club by blocking passing boat wake. However, DBCA and DPLH would be less likely to approve these works given the scale, and environmental impact. MRA would be able to assist the Club in the preparation of these approvals to DBCA and DPLH if the Club want to proceed with this option, as well as the investigation and design involved with the construction of a vertical wall/breakwater.

6. Conclusion

This report has investigated the sediment build up and boat wake issues surrounding Jetty 5 at the SYC. The assessment included a review of historical dredging campaigns at the club, the setup, calibration and results of hydrodynamic modelling around the Club, and a high-level conceptual sediment transport model. Several options were presented and assessed with regards to their ability to improve siltation, tranquillity, and their likely acceptance by DBCA and DPLH. These included:

- Redesign of Jetty 5 with a fixed structure.
- Redesign of Jetty 5 with a floating attenuator.
- Extension of Preston Point Groyne.
- Construction of a vertical wall/breakwater around SYC.

The assessment indicates that the source of sediment that is causing navigational issues is originating from both the south and north-east sides of the Club. Reducing the natural build-up of sediment would need to involve the construction of a structure around the Club that blocks the natural movement of sediment. These works would result in a substantial change to the local conditions, amenity and function of the area and may be more onerous and less likely to gain approval from DBCA and DPLH.

Of the options provided, the redesign of Jetty 5 with a floating wave attenuator structure, with smaller pen sizes, appears the most appropriate. This may assist in reducing the dredging requirements through a reduced navigable depth requirement. The wave attenuator structure will also improve wave conditions within the pens on the lee side of the structure, and is likely to gain DBCA/DPLH approval.

7. References

Department of Planning Lands and Heritage (DPLH) 2005. *Swan Yacht Club – Siltation of Boat Pens*. Prepared for Swan Yacht Club

Department of Biodiversity, Conservation and Attractions (DBCA) 2020. *Rivers & Estuaries Branch – Development Control Procedures*.

Deltares, 2011. *Delft3D-Flow: Simulation of Multi-Dimensional Hydrodynamic Flows and Transport Phenomena, Including Sediments. Version 3.15*, Deltares, The Netherlands.

L. C. van Rijn 2012. *Simple General Formulae for Sand Transport in Rivers, Estuaries and Coastal Waters.* [Online] https://www.leovanrijn-sediment.com/papers/Formulaesandtransport.pdf

M P Rogers & Associates Pty Ltd (MRA), 2016. *Fremantle Traffic Bridge Scour Assessment.* Report R798 Rev 0. Prepared for Main Roads WA

Swan Yacht Club 2020. *The First Hundred Years*. [Online] https://swanyachtclub.com.au/the-swan-yacht-club/about-the-swan-yacht-club

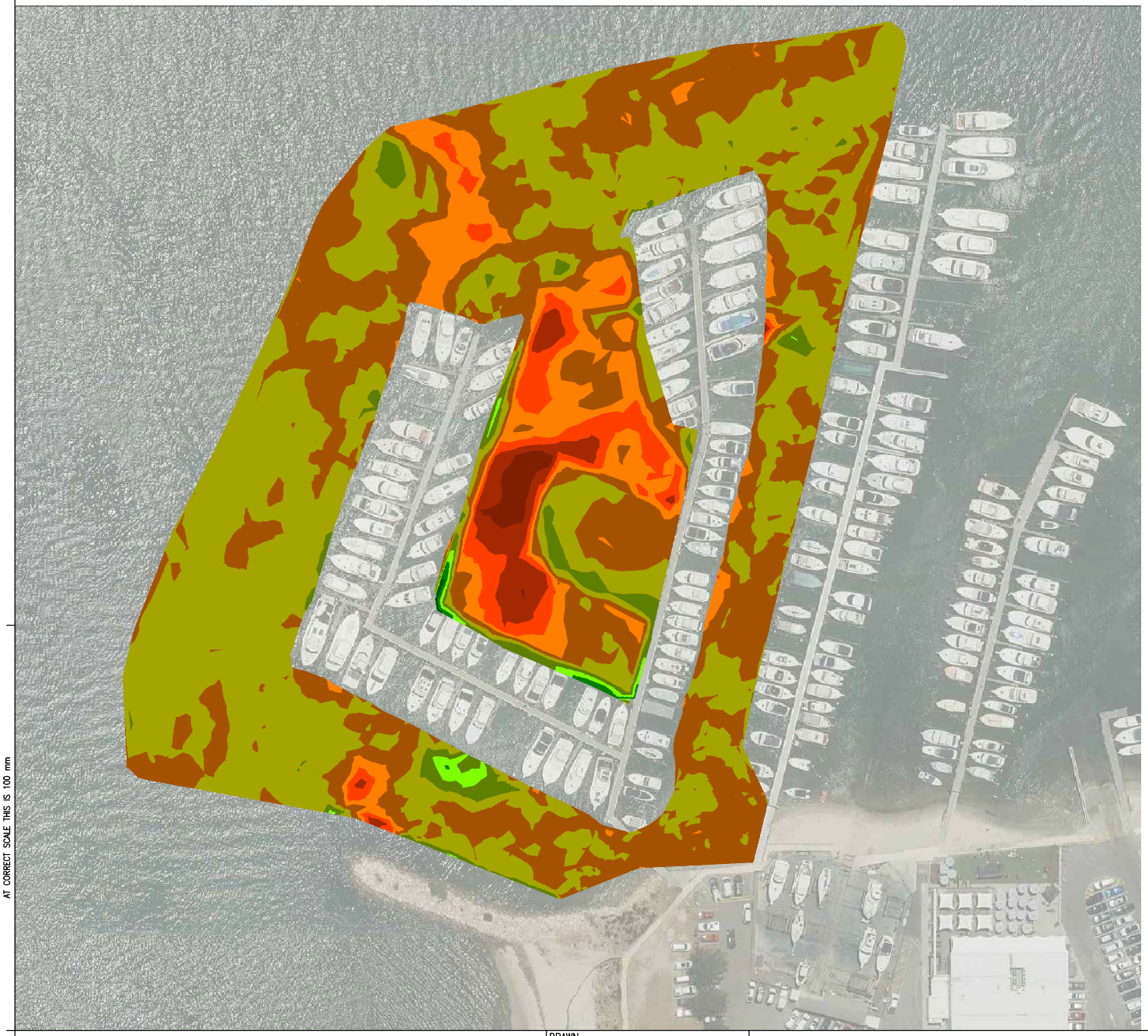
Western Environmental, 2019. *Swan Yacht Club Dredging Project – Environmental Management Plan.* Prepared for M P Rogers & Associates Pty Ltd (MRA)

8. Appendices

Appendix A Difference Plot

Appendix A Difference Plot

AT CORRECT SCALE THIS IS 100 mm



0 10 20 30 40 50m

SCALE 1:1000 AT ORIGINAL SIZE

N

LEGEND:

DIFFERENCE (m)

	> 1.0
	0.8 TO 1.0
	0.6 TO 0.8
	0.4 TO 0.6
	0.2 TO 0.4
	0.0 TO 0.2
	0.0 TO −0.2
	−0.2 TO −0.4
	−0.4 TO −0.6
	−0.6 TO −0.8
	−0.8 TO −1.0
	< −1.0

NOTES:

1. HYDROSURVEYS COMPLETED BY JBA SURVEYS IN OCTOBER 2019 AND NOVEMBER 2020.
2. HORIZONTAL DATUM IS MAP GRID OF AUSTRALIA 1994 (MGA94). VERTICAL DATUM IS CHART DATUM (CD).
3. NO POST DREDGE SURVEY AVAILABLE. DIFFERENCE PLOT ASSUMED DREDGING COMPLETED TO DESIGN.

AT CORRECT SCALE THIS IS 100 mm

m p rogers & associates pl
coastal and port engineers
Suite 1, 128 Main Street
Osborne Park 6017 t: +61 8 9254 6600
Western Australia admin@coastsandports.com.au

DRAWN R BORJA

CHECKED T HUNT

DIFFERENCE PLOT -ASSUMED OCT 2019 POST DREDGE TO NOV 2020

SWAN YACHT CLUB

SCALE AT A3 AS SHOWN

DECEMBER 2020

SK1814−01A

P:\MRA Paying Jobs\K1814 SYC – Jetty 5 Modelling Investigation\5 MRA Dwgs\D1814 – Difference Plot

m p rogers & associates pl
www.coastsandports.com.au

Additional information provided in response to referrals:

Australian Ports and Marinas
Suite 703, Level 7, 43 Bridge Street, Hurstville, NSW, Australia 2220. P: +61 2 9282 9926 M: +61 0416 028 413
ACN: 130 548 293 ABN: 93 130 548 293

Tuesday, 7 November 2023

Swan Yacht Club

C/o: Damien Gaspar

Riverside Road

East Fremantle, WA 6158

Email: manager@swanyacjhtclub.com.au

Re: Commentary on the proposed AP&M (DSA) floating attenuator design and impacts, if any, on sedimentation within the existing and proposed boat harbours.

Dear Damien,

I refer to a request for commentary/clarification from Swan Yacht Club's (SYC's) Marina Committee with regards to the following question.

Will the floating breakwater as designed by AP&M and tendered by SYC, have a negative effect/impact on the following;

a) Costal Morphology, the movement and, the potential increase in sedimentation, of the existing and proposed boat harbours.

I note that the design as proposed and tendered is represented by AP&M construction drawings delineated by drawing numbers 2151122/S.1 Rev 'D', to 2151122/S.35 Rev 'D'.

With regards to the above question, I comment as follows;

The floating concrete breakwater, restrained by steel piles embedded into seabed, has been to attenuate waves. Generally, the floating breakwater will have little impact on tidal current velocities and as such little to no impact on sedimentation or erosion.

MP Rogers & Associates Pty Ltd completed a "Jetty 5 Sediment Investigation" and report in April of 2021. This report concluded that;

- The report was triggered to investigate the sediment build up and boat wake issues.
- The report, in part looked at the performance of a floating attenuator.
- The report concluded that the source of the sediment silting up the existing boat harbour originates from both the north-east, and the south of the subject site.

- The report notes (and concludes) that "*the redesign of Jetty 5 with a floating wave attenuator structure, with smaller pen sizes, appears the most appropriate. This may assist in reducing the dredging requirements through a reduced navigable depth requirement. The wave attenuator structure will also improve wave conditions within the pens on the lee side of the structure, and is likely to gain DBCA/DPLH approval.*" The MP Rogers investigation and report supports a potential positive impact (with regards to sedimentation issues at SYC) should a floating attenuator be installed.
- We note that the proposed floating attenuator, as represented in the AP&M design, is sited in deeper water than the existing Jetty 5. The attenuator will see energy removed from waves at this location and may see sediments drop outside of the proposed boat harbour, rather than within, due to the loss of energy from waves/wake.
- We note that the likely scenario is no negative impact on sedimentation within the existing (and newly developed) marina, and, the potential for some positive impacts and hopefully a reduction in sedimentation within SYC's existing and proposed new marina amenity.

Feel free to contact our office should you require any further information.

Yours Faithfully

Joshua Parsons

B.E Struct. MIE Aust No. 5528082 MIA Sponsor

Director

Australian Ports & Marinas Pty Ltd

Suite 703, 43 Bridge Street

Hurstville, NSW 2220

+61 2 9282 9926

+61 416 028 413

joshua@aports.com.au

Australian
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ACN: 130 548 293 ABN: 93 130 548 293

Wednesday, 8 November 2023

Swan Yacht Club

C/o: Damien Gaspar

Riverside Road

East Fremantle, WA 6158

Email: manager@swanyacjhtclub.com.au

Re: Commentary on the proposed AP&M (DSA) floating attenuator design and the likelihood of waves being reflected back into the Swan River to effect other users.

Dear Damien,

Wave attenuation can take many forms. Structures or natural vegetation (siting and density) can be designed to reduce the wave climate, soak up the wave climate or reflect the wave climate.

Seawalls are designed specifically to reflect the entire wave. A seawall that permits overtopping will reflect less of the wave climate but see issues associated with overtopping.

The floating wave attenuator as proposed by AP&M has been specifically designed to absorb the wave energy. This is done in three different ways as follows;

- The HDPE wave curtain slows the incoming wave by pushing against the water column behind the curtain. The incoming wave/waves must push the water column behind the curtain landward. This acts as a handbrake. Additionally, the stronger the wave, the stiffer the water column behind the HDPE wave curtain. The curtain is tuned to the wave climate at SYC.
- The HDPE wave curtain discussed above is hit at the same time the floating concrete breakwater/attenuator is hit by the subject wave. This wave will laterally load the floating concrete attenuator and vertically load said attenuator. It must lift the attenuator and as such the mass of the attenuator effects the load it attracts. A heavier attenuator will attract more load. A lighter attenuator will attract too little load. The AP&M attenuator system has been tuned to the SYC wave climate.

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Ports and Marinas

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ACN: 130 548 293 ABN: 93 130 548 293

- The steel support piles are flexible. Under significant wave loading the piles will deflect laterally, again absorbing lateral wave loads and transferring them to seabed. This design action again acts as a spring, dampening waves as they hit the floating concrete wave attenuator. Note that the width of the floating concrete wave attenuator has been specifically designed to brake incoming waves. The 4.2m width spans beyond the wave length (distance between two crests) trapping waves and using mass and skin friction to reduce wave energy. The design ensures that the maximum amount of energy that can be taken out of the wave climate, is taken out and transferred to seabed.

The structure as designed and proposed has three different wave dampening mechanisms. These are;

1. The braking effect of the HDPE wave curtain.
2. The absorbing effect of the floating concrete amenity.
3. The braking effect of the steel piles.

The wave will flow through the floating concrete wave attenuator, but it will lose most of its energy in deflecting the wave curtain and water column, lifting the concrete attenuator and deflecting the steel piles. We simply will not see waves reflected back out into the Swan River.

These systems have been constructed/installed in Australia and we've seen their performance during weather events. Note that;

- Vessel wake is simply absorbed and attenuated with no reflection. The standard 3 wave wake is simply not continuous enough to excite a floating concrete wave attenuator.
- Wind waves are also absorbed and attenuated by the floating concrete wave attenuator. Again we are yet to see any wave reflection in real world installations.

Separate to the above, but just as important, is the water depth at the location of the proposed wave attenuator system. Waves break when they hit water that has a depth to seabed of 1.5 times the wave height. A breaking wave, or a cresting wave (a wave reaching sufficient shallow water to build to its full height) sees a larger live load when compared to a wave yet to reach a 1.5xH water depth. The current (existing) Jetty 5 sits in shallow water. Waves at berths in Jetty 5 and within interior channels, can, at low tide, be expected to be cresting or, already at a post break condition. This is because Jetty 5 sits in shallow-ish water.

The proposed new AP&M designed floating concrete attenuator sits in water 2.8m to 4.5m deep at the lowest of tides. The waves that this structure attenuates are yet to crest and will apply less energy to the attenuation system, than a breaking wave. As such there is less chance of any reflection.

Given all of the above, we are confident that the location of the proposed floating concrete wave attenuation system and its unique structural system, will absorb wake and environmental weave energy and not reflect it. Seawalls will reflect waves. Seawalls that allow water to flow through them

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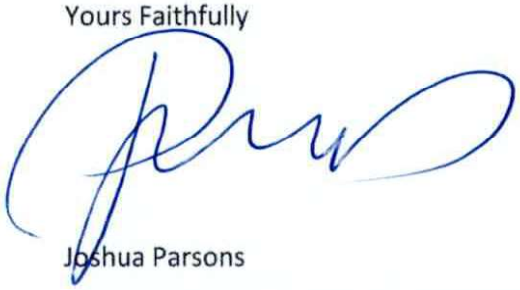
(gaps or vertical slatted wave walls) will reflect less wave energy, the AP&M designed floating concrete wave attenuator will absorb and brake incoming waves. We simply will not see any significant wave reflection back out into the Swan River.

Should you require any further information please feel free to call.

Yours Faithfully



Joshua Parsons

B.E Struct. MIE Aust No. 5528082 MIA Sponsor

Director

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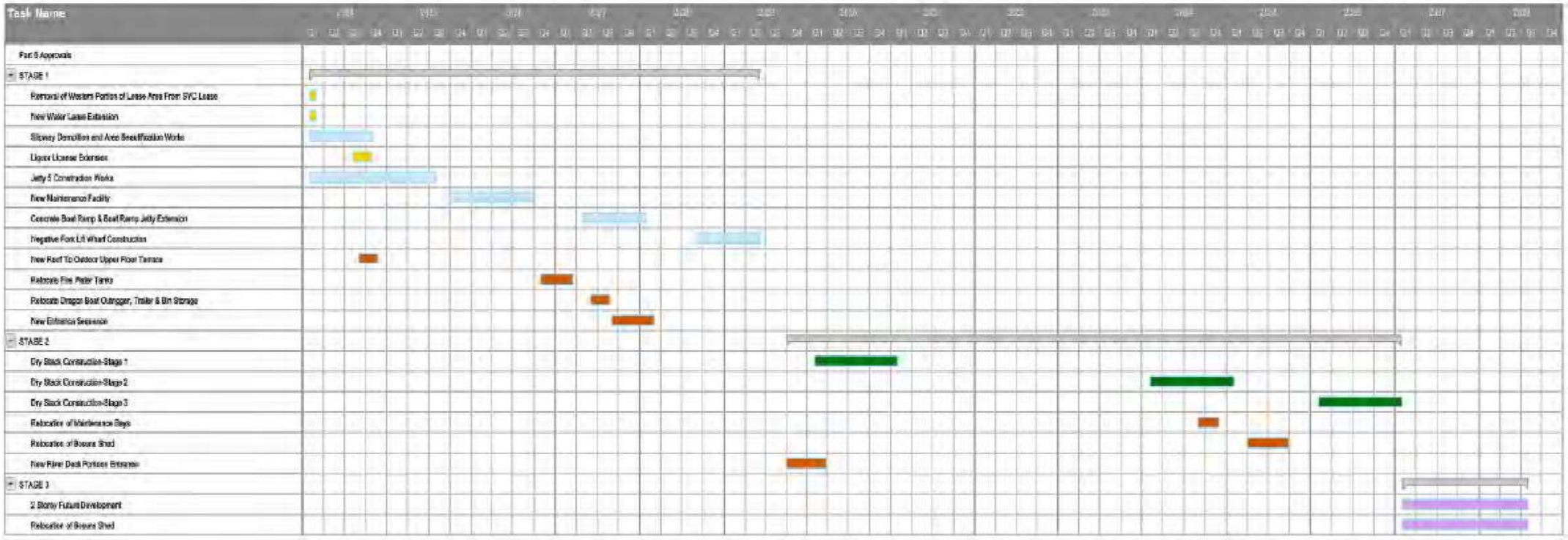
SWAN YACHT CLUB 20-YEAR MASTERPLAN

SYC Master Plan Proposed Timeline

SYC Master Plan



= Administrative Tasks

= Stage 1 Part 5 Application [this application]

= Form 7 Application

= Stage 2 Future Part 5 Application

= Stage 3 Future Part 5 Application

YOUR REF: 2023-0293
OUR REF: Swan Yacht Club
ENQUIRIES: Planning 9339 9339

TOWN of EAST FREMANTLE

27 July 2023

Department of Biodiversity, Conservation and Attractions
Parks and Wildlife Service
Locked Bag 104 Bentley Delivery Centre
Perth WA 6983
rivers.planning@dbca.wa.gov.au

Dear Sir/Madam,

RE: External referral - 2023-0293 – Implementation of Stage 1 of Swan Yacht Club's Master Plan - Riverside Road, East Fremantle - Swan Yacht Club

I refer to your email dated 20 June 2023 requesting referral advice for the proposed implementation of Stage 1 of Swan Yacht Club's Master Plan.

At its meeting of 18 July 2023 Council resolved the following;

That Council advises the Department of Biodiversity, Conservation and Attractions that:

A. the proposed Swan Yacht Club Master Plan is supported in principle on the basis that:
(i) it is implemented as a guiding document for proposed future works;
(ii) following finalisation and adoption of the CHRMAP, that the DBCA be advised that, in providing advice regarding detailed plans for future stages with the Swan Yacht Club Master Plan area, that the Town will be guided by the final recommendations of the adopted CHRMAP; and
(iii) the DBCA and the Swan Yacht Club discuss with the Town of East Fremantle the proposal to remove a portion of land on the western edge of the Lease Area prior to any determination regarding removal of this land from the Lease Area; and

B. the proposed works (including demolition of the existing slipway and beautification of the area, Jetty 5 replacement, new maintenance facilities, boat ramp works, and negative forklift wharf) at the Swan Yacht Club at Reserve 27376, Reserve 27377 Riverside Road, East Fremantle in accordance with the plans and information submitted on 29 May 2023 are supported subject to the following advice and conditions:

(1) Based on the draft CHRMAP reporting to date, it is recommended that the DBCA consider imposing development conditions relating to finished floor levels for all construction that involves habitable room floor spaces when assessing applications within the Swan Yacht Club site in order to accommodate inundation risk.
(2) Works are to be constructed in conformity with the drawings and written information submitted on 29 May 2023, other than where varied in compliance with the conditions of any subsequent approvals.
(3) A management plan is to be prepared prior to the commencement of each works project to address pedestrian movement, traffic management, site management, materials, storage, and contractor

parking. This management plan is to be submitted with the Town prior to the commencement of each works project.
(4) The applicant is to provide written verification from a licensed plumber and the Water Corporation that the subject site is connected to sewerage infrastructure in accordance with Water Corporation requirements prior to submitting a Building Permit application for any of the proposed works projects.
(5) The applicant is to receive written approval from utility providers for the relocation and reconnection of any utilities that may be required as part of the works including electricity, gas, water, sewerage, telephone, and internet, and submit these approvals with subsequent building permit applications.
(6) All structures are to be kept clean and free of graffiti and vandalism, and any graffiti or vandalism is to be remedied within 24 hours to the satisfaction of the Town.
(7) No additional signage or advertising is approved. A separate application for additional signage or advertising is required to be submitted for consideration by the Town and the Department of Biodiversity, Conservation and Attractions.
(8) Changes are not to be made in respect of the plans which have received approval, without those changes being specifically marked for the attention of the Town and the Department of Biodiversity, Conservation and Attractions.
(9) Where this development requires that any facility or service within a street verge (street trees, footpath, crossover, light pole, drainage point or similar) is to be removed, modified, or relocated then such works must be approved by the Town and if approved, the total cost to be borne by the applicant. The Town must act reasonably and not refuse any reasonable proposal for the removal, modification or relocation of such facilities or services (including, without limitation any works associated with the proposal) which are required by another statutory or public authority.
(10) The verge, kerb, foreshore footpath and footpath immediately adjacent to the subject lot are to be repaired and remediated following completion of the works to the satisfaction of the Town.
(11) The subject works areas are to be securely fenced from the public for the duration of works.
(12) Signage warning of hazards in the subject area is to be installed for the duration of the works.
(13) No construction materials or equipment associated with the works are to be store where it might obstruct the pedestrian footpath or cause a safety hazard to those using the footpath.
(14) All waste products are to be disposed of offsite at licensed waste disposal facilities in accordance with a waste management plan.
(15) The pedestrian path is to be rerouted only for the period associated with the works and there shall be unhindered access for pedestrians along the foreshore area beyond the works site.
(16) The pedestrian path is to be reopened along the foreshore upon the completion of works.
(17) Works are to be undertaken from 7am to 5pm Monday to Saturday. No work is to be undertaken on Sundays or public holidays.
(18) All works are to be undertaken in accordance with the Environmental and Construction Management Plan submitted 29 May 2023 (subject to any amendments required by the Town and the Department of Biodiversity, Conservation and Attractions).
(19) The site is to be cleared of any equipment or materials upon the completion of works and car bays reinstated where applicable.
(20) The Swan Yacht Club formally notifies the Town in writing a minimum of 1 week prior to the commencement of each works project.
Advice Notes:
(a) The Swan Yacht Club site has been identified as a potentially contaminated site on the Town's Contaminated Sites Register. Should contamination be confirmed at the property in the future, remediation will be required in accordance with the Environmental Protection Act 1986.
(b) The Swan Yacht Club be advised that the Town requests further discussions with the Yacht Club and the DBCA regarding the proposal to remove a portion of land on the western edge of the Lease Area prior to any determination regarding the removal of this area from the Lease Area.
(c) This decision does not include acknowledgement or approval of any unauthorised development which may be on the site.

(d) The application for a Building Permit is to conform with the approved plans unless otherwise approved by the Town and the Department of Biodiversity Conservation and Attractions.
(e) It is recommended that the applicant provides a Structural Engineer's dilapidation report, at the applicant's expense, specifying which structures on adjoining sites may be adversely affected by the works and providing a record of the existing condition of the structures. Two copies of each dilapidation report should be lodged with Council and one copy should be given to the owner of any affected property.
(f) All noise levels produced by the construction of the development are to comply with the provisions of the Environmental Protection (Noise) Regulations 1997 (as amended).
(g) Matters relating to dividing fences are subject to the Dividing Fences Act 1961.
(h) A demolition permit will be required to be submitted to the Town prior to the demolition of any structures on-site and all asbestos is to be removed and disposed of in accordance with government regulations associated with the management and disposal of asbestos products pursuant to the Health (Asbestos) Regulations 1992 and as amended.

The Council minutes are included as a separate attachment for your information. If you have any queries regarding this matter do not hesitate to contact the Town of East Fremantle on 9339 9339 or by email at admin@eastfremantle.wa.gov.au .

Yours sincerely

Christine Catchpole for
ANDREW MALONE
Acting Chief Executive Officer

TOWN of EAST FREMANTLE

YOUR REF: 2023-0293
OUR REF: Swan Yacht Club
ENQUIRIES: Planning 9339 9339

9 February 2024

Department of Biodiversity, Conservation and Attractions
Parks and Wildlife Service
Locked Bag 104 Bentley Delivery Centre
Perth WA 6983
rivers.planning@dbca.wa.gov.au

Dear Sir/Madam,

Re-referral - 2023-0293 – Implementation of Stage 1 of Swan Yacht Club Master Plan - Riverside Road, East Fremantle

An email from DBCA, dated 20 December 2023, was received by the Town requesting referral advice for the additional information provided as part of the Part 5 application for the Implementation of Stage 1 of the Master Plan for Swan Yacht Club.

The additional information is seen to be consistent with the previously supported Master Plan and the Town has no issues with the information that has been provided.

The Town does not wish to make any further comments in relation to this matter.

If you have any queries regarding this matter do not hesitate to contact the Town of East Fremantle on 9339 9339 or by email at admin@eastfremantle.wa.gov.au .

Yours sincerely

Andrew Malone
Executive Manager Regulatory Services

From:	Navigational Safety
To:	Rivers Planning; Navigational Safety
Cc:	Karen Sanders
Subject:	RE: Additional information provided - Re-referral - Part 5 - 2023-0293 - Implementation of Stage 1 of Swan Yacht Club"s Master Plan
Date:	Monday, 8 January 2024 1:34:00 PM
Attachments:	image002.png image003.png 231122_Revised_Plan_BMT3049.001-01-01A.pdf 231122_AustralianPorts&Marinas_WaveAttenuator&PotentialforReflectedWaves_Rev A.pdf

[External Email] This email was sent from outside the department – be cautious, particularly with links and attachments.

Good afternoon,

Please be advised that with the additional information provided, Navigational Safety have no further concerns relating to wake deflection adversely impacting of the safe navigation of vessels.

Regards,

Kathryn Davies
Team Leader Navigational Safety | Maritime | Department of Transport
5 Newman Court, Fremantle WA 6160
Tel: (08) 0436 664 789 | Mob: 0436 664 789
Email: Kathryn.Davies@transport.wa.gov.au | Web: www.transport.wa.gov.au

We acknowledge the Traditional Custodians of this land and pay respect to the Elders past and present.

From: Rivers Planning <rivers.planning@dbca.wa.gov.au>
Sent: Monday, December 4, 2023 3:21 PM
To: Navigational Safety <Navigational.Safety@transport.wa.gov.au>
Cc: Davies, Kathryn <Kathryn.Davies@transport.wa.gov.au>; Karen Sanders <karen.sanders@dbca.wa.gov.au>
Subject: Additional information provided - Re-referral - Part 5 - 2023-0293 - Implementation of Stage 1 of Swan Yacht Club's Master Plan

Good afternoon,

Thank you for your comments on the Part 5 application for Stage 1 of Swan Yacht Club's Master Plan – 2023-0293.

The Club has provided additional information in regards the design and functioning of the wave attenuator, in response to your first point below. Would you be able to advise if this information is sufficient to determine that the backwash will not impact on safe navigation?

I believe the rest of your comments can be addressed through the assessment and conditions of approval.

Please let me know if you need further information on the proposal at this point.

I look forward to your response to the additional information regarding the wave attenuator. If you could respond by the 18 December 2023, or at your earliest convenience, that would be very helpful, thank you.

Kind regards

Statutory Assessments
Rivers and Estuaries Branch
Department of Biodiversity, Conservation and Attractions
17 Dick Perry Avenue, Kensington WA 6151
Locked Bag 104, Bentley Delivery Centre WA 6983
Email: rivers.planning@dbca.wa.gov.au Web: www.dbca.wa.gov.au

We acknowledge the Whadjuk people as the Traditional Owners of this land

From:	Navigational Safety
To:	Karen Sanders
Cc:	Briant, Mark; Navigational Safety; Rivers Planning
Subject:	RE: Referral for Comment - Part 5 - 2023/0293 - Implementation of Stage 1 of Swan Yacht Club"s Master Plan - Riverside Road, East Fremantle
Date:	Thursday, 29 June 2023 9:36:22 AM
Attachments:	image002.png image003.png

[External Email] This email was sent from outside the department – be cautious, particularly with links and attachments.

Good morning Karen,

In reviewing this proposal, I can't find a spatial reference to the proposed location of Jetty 5 and therefore am unable to assess this from a navigational safety perspective.

Could you please ask the applicant to provide georeferenced drawings of the extremity of jetty 5 so that we may upload it into our GIS database. This will assist in a thorough assessment of the proposed jetty in considering the possible impacts to navigation.

Regards,

Kathryn Davies
Team Leader Navigational Safety | Maritime | Department of Transport
5 Newman Court, Fremantle WA 6160
Tel: (08) 0436 664 789 | Mob: 0436 664 789
Email: Kathryn.Davies@transport.wa.gov.au | Web: www.transport.wa.gov.au

We acknowledge the Traditional Custodians of this land and pay respect to the Elders past, present and future.

From: Rivers Planning <rivers.planning@dbca.wa.gov.au>
Sent: Tuesday, 20 June 2023 4:35 PM
To: Navigational Safety <Navigational.Safety@transport.wa.gov.au>
Cc: Karen Sanders <karen.sanders@dbca.wa.gov.au>
Subject: Referral for Comment - Part 5 - 2023/0293 - Implementation of Stage 1 of Swan Yacht Club's Master Plan - Riverside Road, East Fremantle
Importance: High

Good afternoon

PART 5 – IMPLEMENTATION OF STAGE 1 OF THE SWAN YACHT CLUB'S MASTER PLAN, INCLUDING DEMOLITION OF EXISTING SLIPWAY, LANDSCAPING, JETTY 5 REPLACEMENT, NEW MAINTENANCE FACILITIES, BOAT RAMP WORKS, NEGATIVE FORK WHARF AND INSTALLATION

OF DRY DOCKS –INCLUDES WORKS WITHIN LOT 300 ON DP47450, LOT 10015 ON PLAN 214976, LOT 10106 ON DP214976, LOT 8661 ON PLAN 21239, LOT 7771 ON PLAN 169877 - SWAN YACHT CLUB, RIVERSIDE ROAD AND RIVER RESERVE, EAST FREMANTLE

The Department of Biodiversity, Conservation and Attractions (DBCA) has received an application for the above mentioned development. The application can also be downloaded from our website here https://www.dbca.wa.gov.au/licences-and-permits/riverpark-development-and-planning/received-part-5-application/implementation-stage-1-master-plan-swan. Your department is invited to provide comments and recommendations considered relevant to this proposal as part of the assessment process.

Please provide a response to this office within **42 days** of receipt of this email. Should you not be able to respond within this time, please notify the department as soon as possible, outlining the reasons for the delay and a date when a response may be available.

In preparing your response, please be aware that it may be made available for viewing by the public as part of the assessment report, unless otherwise requested.

Please forward your response via email to rivers.planning@dbca.wa.gov.au. Should there be any queries regarding this matter, please contact Karen Sanders, Environmental Officer, on 9278 0902. In all correspondence please quote the reference number 2023/0293.

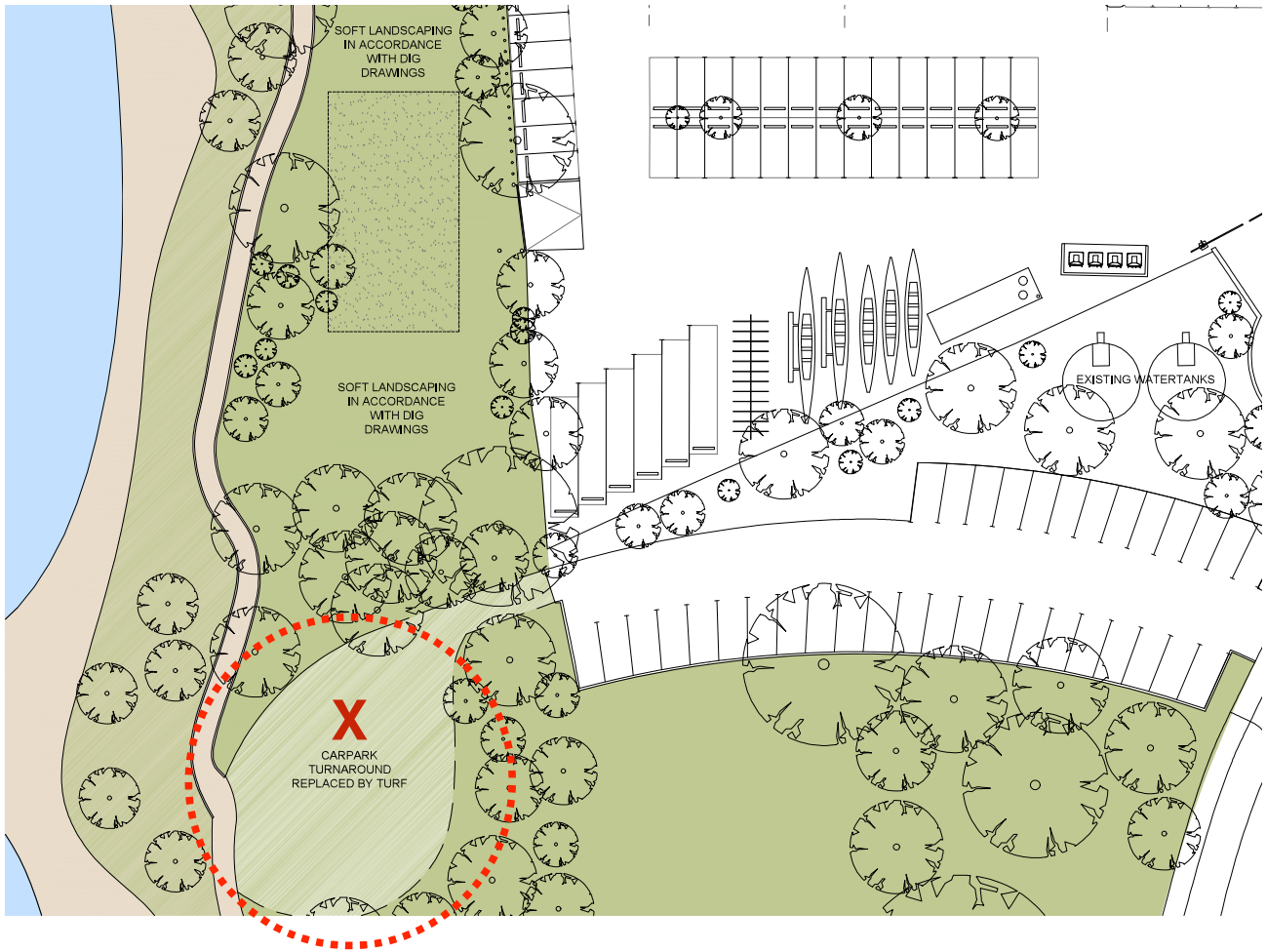
Yours sincerely

Statutory Assessments
Rivers and Estuaries Branch
Department of Biodiversity, Conservation and Attractions
17 Dick Perry Avenue, Kensington WA 6151
Locked Bag 104, Bentley Delivery Centre WA 6983
Email: rivers.planning@dbca.wa.gov.au Web: www.dbca.wa.gov.au

We acknowledge the Whadjuk people as the Traditional Owners of this land

ESTABLISHING CONNECTION WITH JOHN TONKIN PARK

REPLACEMENT OF EXISTING CARPARK TURNAROUND



ESTABLISHING CONNECTION WITH JOHN TONKIN PARK