

# WYNDHAM HARBOUR

## WYNDHAM HARBOUR OEMP



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## ***Acknowledgement***

The original version of the OEMP was developed by URS Australia Pty Ltd. Since this time, there have been amendments and additions made to the OEMP by URS and BMD to meet Council requirements. This update has been developed by URS Australia.

## ***Abbreviations***

Below is a list of abbreviation used throughout this OEMP:

ANZECC	-	Australian & New Zealand Environmental Conservation Council
CMA	-	Catchment Management Authority
DELWP	-	Department of Environment, Land Water and Planning
EPA	-	Environmental Protection Authority
EPBC	-	Environment Protection and Biodiversity Conservation Act
OEMP	-	Operational Environmental Management Plan
SEPP	-	State Environment Protection Policy

# WYNDHAM HARBOUR

## 1. BACKGROUND

Wyndham Harbour is located approximately 25km from Melbourne's CBD and is the only approved location for a safe deep-water harbour between Williamstown and Geelong (see Figure 1).

Wyndham Harbour will comprise:

- A marina of up to 1,000 berths (once Stage 7 is constructed/completed)
- Dry boat storage for up to 390 boats
- Marine servicing area
- Commercial and marina associated uses
- Marina Centre
- Up to 375 residential lots
- Apartments; and
- Landscaped open space areas and wetlands landscaped with indigenous species.

*Figure 1 – Locality Map*



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## 2. STATUTORY FRAMEWORK

The Wyndham Harbour project has been through a thorough and rigorous assessment process which has resulted in a framework of Commonwealth, State and Local government approvals. The requirement for an Operations Environmental Management Plan sits within the planning controls affecting the site pursuant to the Wyndham Planning Scheme.

The Wyndham Harbour site is zoned Special use Zone . Schedule 1 under the Wyndham Planning Scheme and is also subject to Development Plan Overlay . Schedule 9 and an Environmental Audit Overlay.

Clause 43.04 of the Wyndham Planning Scheme states that a Development Plan must:

- Be approved prior to the issue of a planning permit;
- Include an Operations Environmental Management Plan (OEMP); and
- The OEMP must include and address to the satisfaction of the Responsible Authority:
  - terrestrial and marine ecology;
  - coastal processes including sand bypassing or dredging and beach monitoring;
  - water quality;
  - air quality;
  - drainage and storm water management;
  - waste management;
  - storage and handling of hazardous materials including fuel;
  - harbour operations and management;
  - A description of the sand bypassing or dredging operation which must be sufficiently flexible to accommodate a range of materials and seasonal/climatic conditions
  - Details of the proposed monitoring of the sand bypassing or dredging operation including a monitoring protocol to ensure that off-site habitats, including those within the Point Cook Ramsar site, are not detrimentally affected by the proposed long shore sediment bypass system or dredging
  - The hours of operation of pumping and the attenuation of noise from any sand bypass and sewerage reticulation pump houses
  - The management of activity and public access in the vicinity of the inlet and outlet for any sand bypass pump
  - Details of the trigger which will result in the commencement of maintenance dredging associated with the marina and methodologies for the disposal of dredged material as part of any maintenance dredging
  - A Residents Information Kit covering issues such as preferred planting species list, domestic animal responsibilities, the sensitivity of rehabilitated natural areas, potential for infrequent odours from the surrounding environment, the role of the wetlands system and sustainability initiatives,
  - Details of monitoring and reporting requirements, contingency measures and risk management analysis in respect of issues related to groundwater protection to the satisfaction of Southern Rural Water;

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- A marine ecological monitoring program including targets for acceptable copper concentrations pre-set in consultation with the Environment Protection Authority
- Details of noise mitigation measures including the marine service area
- A community consultation program.
- Mechanisms for updating and reviewing the operation of the Operations Environmental Management Plan on the basis of monitoring results and other new information

The Wyndham Harbor Development Plan and various supplementary technical reports, was originally approved in 2008 and has since been amended. This Revision 8 of the OEMP, has been updated in to respond to Conditions of the Planning Permit 2365/08, and supersedes the previous version.

This OEMP is intended to control the ongoing management of the Wyndham Harbour development to comply with all operational and environmental obligations and requirements specified in the following documents:

- Wyndham Harbour Development Plan.
- Various Planning Permit issued by Wyndham Council which apply to the Wyndham Harbour development
- Coastal Management Act consent (as amended)
- Environmental Protection and Biodiversity Protection Act consent (as amended)
- Crown Lease
- Section 173 Agreement under the Planning and Environment Act 1987 ~~OEMP~~ Activation Wyndham Harbourq

For further information regarding the detail of these approvals, please refer to the current version of each document.

### 3. SCOPE OF THE OEMP

The OEMP has been prepared to assist in the day to day operational requirements of the harbor and ancillary facilities, with a focus on environmentally sustainable practices. . The OEMP identifies the environmental control measures required to minimise the impact of daily operations of the residential properties, harbour and the surrounding environment. These control measures will assist in maximising the long-term sustainability of the development.

The purpose and objectives of the OEMP, management measures, environmental issues and associated actions, relevant legislation, references, review of the OEMP, staff and contractor training and contingency procedures are covered within this OEMP.

The OEMP will act as a reference tool for the Owners Corporation and Marina Operator and their employees and contractors who manage and/ or work at the development. The outcomes of the OEMP will also assist residents and visitors in using the marina and residential area in an ecologically sustainable manner.

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However, it should be noted that this OEMP is not intended to be all inclusive of all areas of management. Management issues, such as those listed below, will be addressed in the Marina Rules and implemented by the Marina Operator.

- Provision of safety aids within the marina
- Dealing with sinking, unseaworthy and unserviceable vessels
- Dealing with abandoned vessels
- Requirements for insurance
- Living aboard rules
- Boating compliance within the harbour
- Protocols for visitor use for vessels.

The management obligations and responsibilities for activities within the Marina Centre such as Straddle Lift Operations will outlined in specific Marina Centre Rules to be implemented by the Marina Operator.

### 3.1 Relationship between OEMP and Other Documents

In addition to the requirements of the Development Planning Scheme referenced in Section 2 above, the below documents also set out the framework for the maintenance obligations, specific to Wyndham Harbour:

- Crown Lease for the Crown Land described as Crown Allotment 2050 and that part of Crown Allotment 26A which is adjacent to Lot 2 LP222211P, Parish of Deutgam as shown on the Plan OP122531 and comprising approximately 40 hectares of seabed and 2 hectares of foreshore.
- Development Agreement for Wyndham Harbour Marina between Wyndham Harbour Pty Ltd and Wyndham City Council.

To meet the requirements established in the documents referenced above, further details regarding protocols to maintenance, operations and emergencies are addressed in the below documents which are frequently referenced in the content of this report:

- Wyndham Harbour Marina Rules
- Wyndham Harbour Marina Emergency Response Plan
- Wyndham Harbour Marine Works Maintenance Plan.

Significantly, the Wyndham Harbour Marine Works Maintenance Plan ensures all the Marina Infrastructure remains fit for its purpose and function at a standard which ensures that they can be safely used for the life of the marina.

The operational and maintenance requirements for the marina infrastructure works referenced within this document but is provided in more detail in the Maintenance Plan.

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## 4. ROLES AND RESPONSIBILITIES

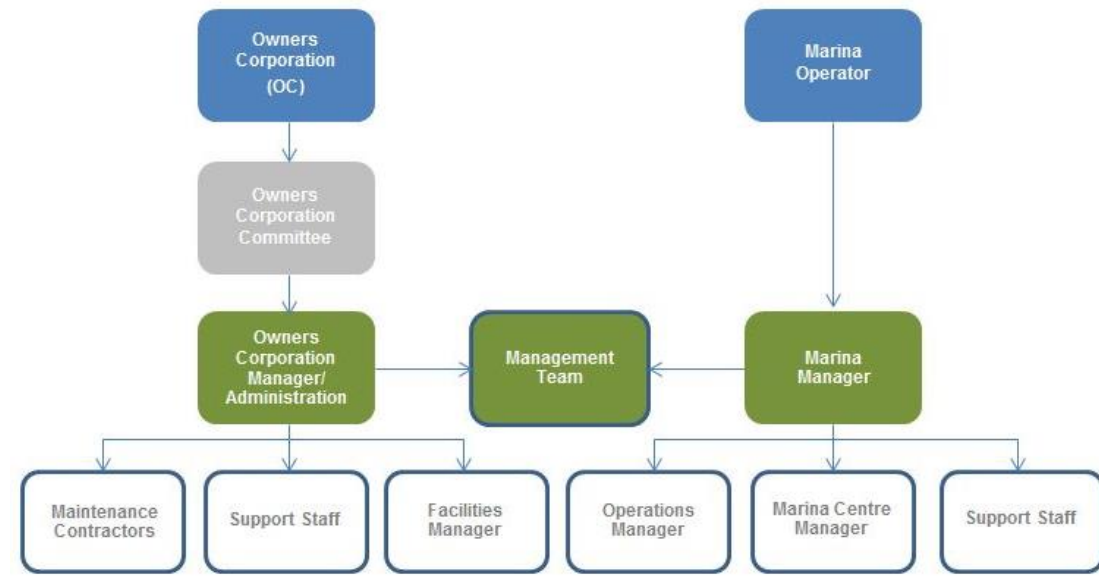
### 4.1 Management Structure

The Management Team for Wyndham Harbour is a multi-layered structure and comprises both the Owners Corporation and marina management.

The Owners Corporation Committee is elected by the Owners Corporation and the Committee acts in the capacity of a quasi-board. Its main purpose is to oversee the management of the Owners Corporation areas of responsibility. To assist in this function the Owners Corporation will appoint an Owners Corporation Manager who will be responsible for the operational roles of the Committee. The Owners Corporation Manager will appoint a Facilities Manager to undertake the facilities management obligations to ensure all the operational responsibilities of the Owners Corporation will be undertaken and appoint any other maintenance contractors as required.

The Marina Operator is responsible for maintenance of all areas within the leasehold area (foreshore and seabed) under the terms of the Crown Lease between Wyndham Harbour and Wyndham City Council (as Committee of Management) dated 25 August 2010. The Marina Operator may appoint a Marina Manager to ensure all the operational responsibilities of the Marina Operator will be undertaken. The Marina Manager will appoint an Operations Manager and any other Managers as required to undertake all operational responsibilities.

Figure 1 – Management Structure



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## 4.2 Environmental Commitments of the Management Team

The Management Team is committed to managing Wyndham Harbour in an ecologically sustainable manner where environmental, social and economic impacts are given due consideration in the day to day operations of the harbour foreshore and residential areas (including roads, open space and common property). The Management Team is committed to:

- Maintaining Wyndham Harbour to a high standard for the benefit of the residents and visitors;
- Conducting all operations in accordance with the relevant legislation;
- Continually improving environmental performance through monitoring and reviewing environmental objectives and targets;
- The prevention of pollution to the environment;
- The efficient use of resources and reduction of energy and water consumption;
- The minimisation of waste generation;
- Improvements to biodiversity; and
- Achieving an ongoing and financially stable operation of Wyndham Harbor.

The Management Team will:

- Encourage residents, staff and contractor participation in the development and on-going review of environmental management procedures and measures;
- Improve environmental awareness among employees, contractors, residents, commercial tenants, boat users and the general public who utilize Wyndham Harbour through education, training and awareness activities;
- Monitor development activities and implement actions as required;
- Improve environmental management through environmental audits;
- Require contractors to demonstrate commitment to responsible environmental management as a prerequisite for appointment;
- Supervise contractors to ensure environmental responsibilities and commitments are appropriately observed; and
- Establish an open consultation process with government agencies, stakeholders and the local community.

## 4.3 Community Liaison Committee

A Community Liaison Committee will be established to provide regular information about Wyndham Harbour. The Committee is made up of elected representatives from key community groups and stakeholders within the local area.

This Committee will consist of representatives of Wyndham Harbour, Wyndham City Council, EPA Victoria, Department of Environment, Land, Water and Planning, Southern Rural Water, Melbourne Water, Parks Victoria, residents, marina users and the local community (including farmers).

Jointly the Owners Corporation and the Marina Manager will establish the Committee will be established by the Management Team within the first quarter of commencement of marina operations. The Committee will meet at least twice yearly so as to provide stakeholders and the local community with a mechanism for ongoing discussions in relation to the OEMP for

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Wyndham Harbour and to provide the forum to address any concerns with the operations or maintenance of the Estate or Marina.



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## 4.4 General Areas of Responsibility

Wyndham Harbour has a number of stakeholders involved in the ongoing management of the Estate's day to day operation. Table 1 below lists these stakeholders and their particular areas of responsibility.

*Table 1 – General Areas of Responsibility*

Type	Ownership	Owners Corporation	Marina Operator	City West Water	Council
Road Reserve (including roads over Channel Reserve)	Council	<ul style="list-style-type: none"> <li>- Landscaping to verges</li> <li>- Directional signage</li> </ul>	- n/a	- Operation and maintenance of the sewer pump station and its access roads.	<ul style="list-style-type: none"> <li>- Road pavements including kerb and channel</li> <li>- Footpaths</li> <li>- Drainage</li> <li>- Street signage</li> <li>- Regulatory / warning signs</li> <li>- Line marking and road delineation marking</li> <li>- Street lighting</li> </ul>
Common Property	Owners Corporation	<ul style="list-style-type: none"> <li>- Tree reserves and wetlands area and Northern buffer</li> <li>- Wetlands drainage system</li> <li>- Overland flow paths and drainage systems</li> <li>- Street furniture</li> <li>- Ancillary lighting (i.e. Bollard lighting)</li> <li>- CCTV / security (within estate)</li> <li>- Outdoor gym</li> <li>- Clubhouse facility inclusive of tennis courts</li> </ul>	n/a	n/a	n/a

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Type	Ownership	Owners Corporation	Marina Operator	City West Water	Council
Channel Reserve	Owners Corporation (Leasehold)	<ul style="list-style-type: none"> <li>- Landscaping</li> <li>- Overflow car parking,</li> <li>- Entry statement</li> <li>- Landscaping to entry roundabout</li> <li>- SRW irrigation channel drain maintenance</li> </ul>	n/a	n/a	n/a

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Seabed / Foreshore Lease	WHPL (Leasehold)	<ul style="list-style-type: none"> <li>- Maintenance of fencing to waterfront lots including access paths from title boundary to Bay Trail</li> <li>- Landscaping to coastal foreshore including Bay Trail from fencing of waterfront lots to top of rock revetment walls</li> <li>- Bollard lighting</li> <li>- Protection of native vegetation</li> <li>- Maintenance of Ramsar signage</li> <li>- Maintenance of bio-retention systems excluding outfall drains</li> <li>- Marina Square and Marina Park (central piazza) . north and south of Quay Boulevard</li> <li>- Management of GPT<sub>0</sub> in storm water systems</li> <li>-</li> <li>- Access, management and maintenance of the community meeting room.</li> </ul>	<ul style="list-style-type: none"> <li>- Waterways</li> <li>- Overtopping Breakwaters</li> <li>- Foreshore rock revetment walls</li> <li>- Maintenance Dredging and associated monitoring</li> <li>- Utility services to berths (e.g. power, water)</li> <li>- CCTV / security (within marina)</li> <li>- Pontoons and walkways including mooring piles, fenders and access gangways</li> <li>- Safety fencing to berths</li> <li>- Ongoing monitoring and protection of the aquifer in accordance with the approved GPMP</li> <li>- Marina Centre (temporary and permanent)</li> </ul>	Maintenance of drainage network out letting into bio-retention systems
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			<ul style="list-style-type: none"><li>- Central Spine including car parking , pedestrian walkway, landscaping (temporary and permanent), street furniture , boom gate access and roadway from road reserve boundary to Central Spine</li><li>- Amenities Building including public toilets</li><li>- CCTV / Security (along foreshore, centre spine and marina)</li><li>- Sand bypass system and associated monitoring</li><li>- Fish cleaning areas</li><li>- Navigational aids</li></ul>		
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Type	Ownership	Owners Corporation	Marina Operator	City West Water	Council
			<ul style="list-style-type: none"> <li>- Regulatory and all other signage</li> </ul>		
Marina Service Area	WHPL (Leasehold)	-	<ul style="list-style-type: none"> <li>- Non overtopping breakwater including public walkway, lighting and fishing platform</li> <li>- Non overtopping breakwater including public walkway, lighting and fishing platform</li> <li>- Marina Service area (dry stack and hardstand)</li> <li>- Marina Service area car park and road access including landscaping</li> <li>- Public toilets.</li> </ul>		
Northern Beach / groyne	DELWP (Council to be appointed Committee of Management)	- Northern beach	<ul style="list-style-type: none"> <li>- Northern groyne and breakwater</li> <li>- Sand bypass system and</li> </ul>		n/a

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Type	Ownership	Owners Corporation	Marina Operator	City West Water	Council
			associated monitoring		
Southern Beach/ car park	Council (Committee of Management)	n/a	- Sand bypass system and associated monitoring		<ul style="list-style-type: none"> <li>- Southern beach</li> <li>- Southern beach car park</li> <li>- Maintenance (including litter removal) of the Southern beach and southern beach car park.</li> </ul>

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## 4.5 Relevant Environmental Legislation & References

Presented in Table 2 is an overview of legislation and other requirements as they apply to the operation of Wyndham Harbour. The table has been developed as part of the baseline review of the relevant legislative requirements for the operation of Wyndham Harbour.

*Table 2 - Register of Legal and Other Requirements*

Environmental Issues	Acts, Regulations, Laws, Licenses, Obligations or Agreements
Sewage Pump Out	<ul style="list-style-type: none"> <li>- AS3962 Guidelines for the Design of Marinas</li> <li>- AS4997 Guidelines for the Design of Maritime Structures</li> <li>- ANZECC Best Practice Guidelines for Waste Reception Facilities at Ports, Marinas and Boat Harbours in Australia and New Zealand</li> <li>- Environment Protection Act 1970</li> </ul>
Bilge Water	<ul style="list-style-type: none"> <li>- SEPP (Waters of Victoria) Schedule F6 Waters of Port Phillip Bay, 1997</li> <li>- SEPP (Waters of Victoria) 2003</li> </ul>
Solid Waste Management	<ul style="list-style-type: none"> <li>- Environment Protection Act 1970</li> <li>- EPA Publication IWRG600 <i>Waste Categorisation</i></li> </ul>
Litter Management	<ul style="list-style-type: none"> <li>- Environment Protection Act 1970</li> </ul>
Fish Waste	<ul style="list-style-type: none"> <li>- Environment Protection Act 1970</li> <li>- SEPP (Waters of Victoria) Schedule F6 Waters of Port Phillip Bay, 1997</li> <li>- SEPP (Waters of Victoria) 2003</li> </ul>
Liquid Waste Management	<ul style="list-style-type: none"> <li>- Environment Protection Act 1970</li> <li>- EPA Publication 347, Bunding Guidelines, Dec 1992</li> <li>- Environment Protection (Industrial Waste Resource) Regulations 2009</li> </ul>
Prescribed Waste	<ul style="list-style-type: none"> <li>- Environment Protection (Industrial Waste Resource) Regulations 2009</li> <li>- Environment Protection Act 1970</li> <li>- Dangerous Goods Act 1985</li> <li>- Dangerous Goods (Storage and Handling) Regulations 2012</li> <li>- Australian Standard 1940 - 2004 - The Storage and Handling of Flammable and Combustible Liquids</li> <li>- EPA Publication 347, Bunding Guidelines, Dec 1992</li> </ul>
Burning of Waste	<ul style="list-style-type: none"> <li>- Environment Protection Act 1970</li> <li>- Council Local Laws</li> <li>- Council Planning Scheme</li> <li>- SEPP (Air Quality Management) 2001</li> </ul>
Dangerous Goods	<ul style="list-style-type: none"> <li>- Environment Protection Act 1970</li> <li>- Dangerous Goods Act 1985</li> <li>- Dangerous Goods (Storage and Handling) Regulations 2012</li> <li>- Dangerous Goods (Explosives) Regulations 2011</li> <li>- Australian Standard 1940 - The Storage and Handling of Flammable and Combustible Liquids</li> <li>- EPA Publication 347, Bunding Guidelines, Dec 1992</li> </ul>
Foreshore Management	<ul style="list-style-type: none"> <li>- Coastal Management Act 1995</li> <li>- Agreement under section 173 of the Planning and Environment Act 1987 <i>WYNDHAM HARBOUR COASTAL PROCESSES REPORT AND SAND MANAGEMENT PLAN</i></li> </ul>
Sand bypass Processes	<ul style="list-style-type: none"> <li>- Coastal Management Act 1995</li> <li>- Environmental Protection and Biodiversity Conservation Act 1999</li> <li>- Victorian Coastal Strategy 2014</li> <li>- <i>Wyndham Harbour Coastal Processes Report and Sand Management Plan</i></li> <li>- Environment Protection Act 1970</li> </ul>

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Environmental Issues	Acts, Regulations, Laws, Licenses, Obligations or Agreements
Boat Maintenance	<ul style="list-style-type: none"> <li>- Code of Practice for Antifouling and In-Water Hull Cleaning and Maintenance (ANZECC 2000)</li> <li>- Environment Protection (Industrial Waste Resource) Regulations 2009</li> <li>- EPA Victoria Publication 347, Bunding Guidelines, 1992</li> <li>- EPA Victoria Publication 624, Guidelines for Protecting Victoria's Marinas, 1998</li> <li>- Pollution of Water by Oils and Noxious Substances Act 1986</li> <li>- Pollution of Water by Oils and Noxious Substances Regulations 2012</li> </ul>
Vehicle Maintenance	<ul style="list-style-type: none"> <li>- Environment Protection Act 1970</li> <li>- Pollution of Waters by Oils and Noxious Substances Act 1986</li> <li>- SEPP (Waters of Victoria) Schedule F6 Waters of Port Phillip Bay, 1997</li> <li>- SEPP (Waters of Victoria) 2003</li> </ul>
Vehicle & Boat Washing	<ul style="list-style-type: none"> <li>- Environment Protection Act 1970</li> <li>- Pollution of Waters by Oils and Noxious Substances Act 1986</li> <li>- SEPP (Waters of Victoria) Schedule F6 Waters of Port Phillip Bay, 1997</li> <li>- SEPP (Waters of Victoria) 2003</li> <li>- EPA Publication 624, EPA Guidelines for Protecting Victoria's Marinas, October 1998</li> <li>- Code of Practice for Anti-fouling and In-water Hull Cleaning and Maintenance, ANZECC</li> </ul>
Boat Painting	<ul style="list-style-type: none"> <li>- EPA Publication 624, EPA Guidelines for Protecting Victoria's Marinas, October 1998</li> <li>- Code of Practice for Anti-fouling and In-water Hull Cleaning and Maintenance, ANZECC</li> </ul>
Refueling	<ul style="list-style-type: none"> <li>- Environment Protection Act 1970</li> <li>- Pollution of Waters by Oils and Noxious Substances Act 1986</li> <li>- SEPP (Waters of Victoria) Schedule F6 Waters of Port Phillip Bay, 1997</li> <li>- SEPP (Waters of Victoria) 2003</li> <li>- EPA Publication 347, Bunding Guidelines, Dec 1992</li> <li>- Dangerous Goods Act 1985</li> <li>- Dangerous Goods (Storage and Handling) Regulations 2012</li> <li>- Australian Standard 1940 - 2004 The Storage and Handling of Flammable and Combustible Liquids</li> <li>- EPA Publication 888, Guidelines on the Design, Installation and Management Requirements for Underground Petroleum Storage Systems</li> </ul>
Marina Service Area	<ul style="list-style-type: none"> <li>- Environment Protection Act 1970</li> <li>- EPA Publication 624, EPA Guidelines for Protecting Victoria's Marinas, Oct 1998</li> <li>- Environment Protection (Industrial Waste Resource) Regulations 2009</li> <li>- City West Waters Trade Waste requirements</li> </ul>
Maintenance Dredging	<ul style="list-style-type: none"> <li>- EPA Publication 691, Guidelines for Dredging, October 2001</li> <li>- Coastal Management Act 1995</li> <li>- SEPP (Waters of Victoria) Schedule F6 Waters of Port Phillip Bay, 1997</li> <li>- SEPP (Waters of Victoria) 2003</li> <li>- Port Services (Designated Ports) Regulations 2004</li> </ul>
Groundwater Management	<ul style="list-style-type: none"> <li>- Environment Protection Act 1970</li> <li>- SEPP (Groundwaters of Victoria) 1997</li> </ul>
Bio-Retention Systems	<ul style="list-style-type: none"> <li>- Coastal Management Act 1995</li> <li>- Environment Protection Act 1970</li> <li>- SEPP (Waters of Victoria) Schedule F6 Waters of Port Phillip Bay, 1997</li> <li>- SEPP (Waters of Victoria) 2003</li> <li>- Wyndham City Council, Planning Permit Conditions . Wyndham Harbour</li> </ul>



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Environmental Issues	Acts, Regulations, Laws, Licenses, Obligations or Agreements
Entertainment Areas	<ul style="list-style-type: none"> <li>- SEPP (Control of Music Noise from Public Premises) No-N2.</li> <li>- Council Local Laws</li> <li>- EPA Publication 1254 . Noise Control Guidelines, Oct 2008</li> </ul>
Noise	<ul style="list-style-type: none"> <li>- SEPP (Control of Noise from Commerce Industry and Trade) 1989 No. N-1</li> <li>- Council Local Laws</li> <li>- EPA Publication 1254, Noise Control Guidelines, Oct 2008</li> <li>- Environment Protection (Residential Noise) Regulations 2008</li> </ul>
Food and Retail Outlets	<ul style="list-style-type: none"> <li>- Council Local Laws</li> <li>- Environment Protection Act 1970</li> <li>- Food Act 1984</li> </ul>
Flora and Fauna Management	<ul style="list-style-type: none"> <li>- Flora and Fauna Guarantee Act 1988</li> <li>- Environment Protection and Biodiversity Conservation Act 1999</li> <li>- EPBC Approval (2004/1331)</li> <li>- Wyndham City Council, Planning Permit Conditions . Wyndham Harbour</li> <li>- Catchment and Land Protection Act 1994</li> </ul>
Ramsar Site & Berm Grassy Shrubland Protection	<ul style="list-style-type: none"> <li>- Flora and Fauna Guarantee Act 1988</li> <li>- Environment Protection and Biodiversity Conservation Act 1999</li> <li>- Environment Protection and Biodiversity Conservation Act 1999</li> <li>- EPBC Approval (2004/1331)</li> <li>- EPBC Approval (2004/1331)</li> <li>- Victorian Biodiversity Strategy 1997</li> </ul>
Emergency Management	<ul style="list-style-type: none"> <li>- Wyndham Harbour Environmental Emergency Plan</li> <li>- Site Emergency Plan</li> </ul>

## **5. ENVIRONMENTAL MANAGEMENT TARGETS**

### **5.1 Key Areas of Environmental Management**

An assessment of the potential environmental risks associated with the activities that will be performed within Wyndham Harbour has identified the key areas of environmental management issues that will be addressed within the OEMP. Environmental Implementation Plans have been developed for these key management issues and are listed below

- Waste management
- Coastal Infrastructure
- Marina operations
- Water quality
- General public areas
- Retail and Food outlets
- Flora and Fauna management
- RAMSAR site protection
- Emergency management

### **5.2 Objective, Targets and Responsibilities**

Table 3 shown below lists the environmental objectives and targets for Wyndham Harbour, along with defining the entities that hold responsibility for ensuring that these objectives and targets are met.

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*Table 3 – Objectives, Targets and Responsibilities*

Issues	Objectives	Targets	Responsibility	Reference
<b>Waste Management</b>				
<b>Sewer Pump Out Facilities</b>				
Discharge of sewage from boats into Marina	To prevent sewage from recreational boats being discharged in the Marina by the provision of adequate sewage pump out facilities to service the Marina	<p>No impact on local wetlands, Marina or Port Phillip Bay water quality.</p> <p>No discharge of sewage into Marina</p> <p>Whilst within the Marina, all sewage discharge to be via dedicated sewage pump out facility</p>	Marina Operator	Section 8.1.1
<b>Bilge Water</b>				
<p>Discharge of bilge water within the Development has the potential to:</p> <ul style="list-style-type: none"> <li>- Introduce marine pests to the marina and Port Phillip Bay</li> <li>- Devalue the recreational and commercial activities of the Marina and Port Phillip Bay</li> <li>- Pollute the Marina with petroleum products</li> </ul>	To minimise the occurrence of contaminated bilge water and its discharge to the environment.	<p>No impact on water quality within the Marina and Port Phillip Bay</p> <p>Avoid introduction of marine pests.</p> <p>No impact on fish or aquatic organisms.</p>	Marina Operator	Section 8.1.2
<b>Solid Waste</b>				
<p>Solid waste if not managed correctly can:</p> <ul style="list-style-type: none"> <li>- Reduce the visual appeal of the Marina and Port Phillip Bay.</li> <li>- Create hazards to wildlife</li> </ul>	To reduce amount of solid waste generated within the Marina and ensure that the waste produced is disposed of correctly.	<p>Minimal solid waste generated.</p> <p>Recycling of materials.</p>	<p>Owners Corporation</p> <p>Marina Operator where applicable</p>	Section 8.1.3

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Issues	Objectives	Targets	Responsibility	Reference
<ul style="list-style-type: none"> <li>- Pose a threat to human health</li> <li>- Disrupt boating and recreational activities</li> </ul>	To encourage recycling of waste materials	<p>No impact from waste on boating, recreational activities or flora and fauna.</p> <p>No impact on water quality within the Marina and Port Phillip Bay</p>		
<b>Fish Waste</b>				
Impact on local water quality due to the dumping of fish waste	To minimise the impact of fish waste on the marina environment.	No impact on local wetlands, Marina or Port Phillip Bay water quality.	Marina Operator	Section 8.1.4
<b>Liquid Waste</b>				
<p>The release of liquid waste to the environment can:</p> <ul style="list-style-type: none"> <li>- reduce water quality</li> <li>- threaten aquatic life and habitats</li> <li>- threaten human health and safety</li> </ul>	To minimise pollution through the release of liquid wastes to the environment.	<p>No impact on water quality within the Marina and Port Phillip Bay</p>	<p>Owners Corporation</p> <p>Marina Operator where applicable</p>	Section 8.1.5
<b>Prescribed Waste</b>				
<p>Incorrect disposal of prescribed waste can:</p> <ul style="list-style-type: none"> <li>- threaten human health and safety</li> <li>- adversely affect the environment</li> </ul>	To minimise the generation of and manage prescribed wastes generated within the marina so as to control negative environmental impacts and threats to human health and safety.	<p>No impact from waste on boating, recreational activities or flora and fauna.</p> <p>No impact on water quality within the Marina and Port Phillip Bay.</p>	<p>Owners Corporation</p> <p>Marina Operator where applicable</p>	Section 8.1.6
<b>Burning of Waste</b>				
The burning of waste can have negative impact on people's health and safety, along with detrimental effect on the environment.	No burning of waste will occur at Wyndham Harbour	No burning of Waste	<p>Owners Corporation</p> <p>Marina Operator where applicable</p>	Section 8.1.7

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Issues	Objectives	Targets	Responsibility	Reference
<b><i>Dangerous Goods</i></b>				
Hazardous waste management  Hull and topside maintenance . painting	Ensure that all dangerous goods stored at Wyndham Harbour are managed in accordance with all applicable legislative requirements.  Reduce the generation of hazardous waste.	No impact on water quality within the Marina and Port Phillip Bay.	Owners Corporation  Marina Operator where applicable	Section 8.1.8
<b><i>Flare Disposal</i></b>				
If disposed of incorrectly, out of date, damaged or water logged flares can create public safety risks.	To encourage the safe disposal of unwanted flares	Safe disposal without adverse impacts on people or the environment	Marina Operator	Section 8.1.9
<b><i>Battery Disposal</i></b>				
Batteries contain an electrolyte sulphuric acid solution and lead. If incorrectly disposed, batteries can have a detrimental impact on both humans and the environment.	To encourage the safe disposal of unwanted batteries	Safety disposal without adverse impacts on people or the environment	Owners Corporation  Marina Operator where applicable	Section 8.1.10
<b><i>Sand Bypass Processes</i></b>				
The operation of the Marina has the potential to impact on coastal processes, in particular the movement of sand.	To minimise the impact of the marina operation on coastal processes.	Management of coastal process to minimise impact on the marina, Berm Grassy Shrubland, Port Phillip Bay and surrounding Ramsar sites.	Marina Operator	Section 8.2.5
<b><i>Marina Centre</i></b>				
<b><i>Boat Maintenance</i></b>				
Maintenance and repair of vessels is a possible source of contamination to Port Phillip Bay, due to: - Cleaning boats in and out of the water	To undertake maintenance and repairs of vessels in a manner that does not result in adverse impacts to people's amenity or the	No impact on the Marina or Port Phillip Bay water quality.	Marina Operator	Section 8.3.1

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Issues	Objectives	Targets	Responsibility	Reference
- Repairs and maintenance to boats	water quality of the Marina or Port Phillip Bay.			
<b>Engine Repair and Maintenance</b>				
Incorrect fuel mix in outboard engines may result in hydrocarbon pollutants on surface water. Poorly maintained boat engines have potential to emit high levels of polluting emissions to the air and aquatic environment.	To minimise the generation of incompletely combusted hydrocarbon pollutants to the environment from outboard engine boats. To encourage boat owners/operators to maintain their vessels in good condition and to ensure that waste generated during servicing and maintenance is correctly disposed.	No impact on the Marina and Port Phillip Bay water quality from engine repair or maintenance activities. No impact on air quality from poorly serviced vessels.	Marina Operator	Section 8.3.2
<b>Hull and Topside Painting</b>				
Potential for release of liquid solvents and harmful vapours to the environment during hull painting and topside coating activities.	To minimise the generation of hazardous waste and to manage the disposal of all hazardous waste so that they are not released to the environment. To undertake hull painting of vessels in a manner that does not result in adverse impacts to air quality.	No impact on the Marina or Port Phillip Bay water quality.  No impact on air quality from hull painting activities.	Marina Operator	Section 8.3.3
<b>Refueling</b>				
Spills of fuels and/or oils whilst refueling	To provide refueling facilities for users and visitors of the development enables the safe and appropriate refueling of vessels	No impact on local wetlands, Marina or Port Phillip Bay water quality.  All vessels to only be refueled within designated refueling area.	Marina Operator	Section 8.3.4

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Issues	Objectives	Targets	Responsibility	Reference
<b>Vehicle Maintenance</b>				
Impact on water quality	To prevent the release of contaminants associated with vehicle maintenance (i.e. waste oils, radiator fluid, and other chemicals) from entering into the Marina (and adjacent Port Phillip Bay) via the local storm water system.	No impact on local wetlands, Marina or Port Phillip Bay water quality.	Owners Corporation  Marina Operator where applicable	Section 8.1.5
<b>Maintenance Dredging</b>				
Impact of maintenance dredging on the Marina and Port Phillip Bay water quality	<p>To ensure that all aspects of maintenance dredging operations have minimal impact on the Marina and surrounding environments.</p> <p>To incorporate best practice into all planning and operational management associated with dredging operations.</p>	Maintenance dredging undertaken in accordance with best practice resulting in minimal environmental impacts.	Marina Operator	Section 8.3.6

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Issues	Objectives	Targets	Responsibility	Reference
<b>Water Quality</b>				
<b>Surface Water</b>				
Activities impacting on surface water quality resulting in decreased water quality in Marina and Port Phillip Bay.	To maintain water quality for the benefit of existing and future users and for the environment	To achieve the surface water quality performance targets as set out in this OEMP.	Marina Operator  Owners Corporation where applicable	Section 8.4.2
<b>Bio-Retention Systems</b>				
Activities impacting adversely on operation of the bio-retention systems resulting in decreased water quality in the Marina and Port Phillip Bay	To maintain water quality for the benefit of existing and future users and for the environment.  To maintain the bio-retention systems to ensure the protection of the asset.	To achieve the surface water quality performance targets as set out in this OEMP.  To ensure the ongoing and efficient functionality of the bio retention systems.	Owners Corporation	Section 8.4.3
<b>Groundwater</b>				
Potential impact on the aquifer, resulting in impact on beneficial uses of the aquifer	To maintain groundwater quality for the benefit of existing and future users and for the environment.	To achieve the ground water quality performance targets as set out in this OEMP.	Marina Operator	Section 8.4.5
<b>Management of General Public Areas</b>				
<b>Entertaining Area</b>				
Adverse impacts from noise on local residents	To ensure music noise levels are in compliance with State Environment Protection Policy (Control of Music Noise from Public Premises) No-N2. To ensure public address systems are in compliance with EPA Publication 1254, Noise Control Guidelines (October 2008)	Compliance with State Environment Protection Policy (Control of Music Noise from Public Premises) No-N2. Compliance with EPA Publication 1254, Noise Control Guidelines (October 2008)	Owners Corporation  Marina Operator where applicable	Section 8.5.1



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Issues	Objectives	Targets	Responsibility	Reference
<b>Noise</b>				
Noise from commercial activities adversely impacting on local residents, or local fauna.	<p>To minimise noise resulting from day to day operation of the marina by complying with the State Environment Protection Policy N-1 "Control of Noise from Commerce, Industry and Trade" (SEPP N-1)</p> <p>To protect noise sensitive locations. (noise sensitive locations are defined as being within 10 metres of a residence)</p> <p>Adhere to EPA publication 1254 Noise Control Guidelines, October 2008.</p>	No impacts on local residents or fauna from noise	<p>Owners Corporation</p> <p>Marina Operator where applicable</p>	Section 8.5.3
<b>General Marina Maintenance</b>				
Poor maintenance leading to adverse environmental impacts	<p>To maintain the Marina public facilities and areas to a high standard</p> <p>To reduce the environmental impacts of on-going maintenance activities.</p>	No negative environmental impacts from the Marina common areas and infrastructure	Marina Operator	Section 8.5.4
<b>Retail and Food Outlets</b>				
Adverse environment or health impacts from the operation of Food and Retails outlets	<p>To ensure all shop and restaurant owners maintain their businesses in an ecologically sustainable manner.</p> <p>To ensure all food businesses comply with the Food Act 1984.</p>	<p>No adverse environmental impact from these outlets</p> <p>Compliance to the Food Act 1984</p>	<p>Owners Corporation</p> <p>Marina Operator where applicable</p>	Section 8.6

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Issues	Objectives	Targets	Responsibility	Reference
<b><i>Flora and Fauna Management</i></b>				
Management of all common property and foreshore reserve	<p>To encourage biodiversity within the Estate where possible.</p> <p>To incorporate environmental values into landscaping programs.</p>	<p>Minimise impact on flora and fauna species within the Estate.</p> <p>Increase in biodiversity values.</p>	Owners Corporation	Section 8.7
<b><i>Ramsar Site &amp; Berm Grassy Shrubland Protection</i></b>				
Operation of the Estate potentially impacting on Berm Grassy Shrubland and surrounding Ramsar sites.	To minimise the impact of the operation of the Estate on Berm Grassy Shrubland and neighbouring Ramsar sites.	No impact on Berm Grassy Shrubland and neighbouring Ramsar sites.	Owners Corporation	Section 8.8
<b><i>Emergency Management</i></b>				
<p>Impacts on people and the environment when there is a lack of emergency planning for unexpected incidents, such as:</p> <ul style="list-style-type: none"> <li>- spills and leaks</li> <li>- fires, explosions and gas leaks</li> </ul>	To plan for emergency situations and ensure personnel are trained to respond to such incidences.	No impact from an emergency situation to people or the environment	<p>Owners Corporation</p> <p>Marina Operator</p>	Section 8.1.11

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## **6. AUDIT AND REVIEW OF OEMP**

### **6.1 Background**

The OEMP is intended to be continuously improved and updated as the development of the site progresses. To be fully effective, the OEMP must be incorporated into the day to day operations of Wyndham Harbour. This process is most effective when ongoing consultation and an effective audit program is incorporated into the plan.

### **6.2 Objectives**

To ensure the ongoing implementation of the OEMP and that the Wyndham Harbour development is maintained to a high standard.

### **6.3 Internal Audits**

The Owners Corporation will be responsible for the management of the OEMP. As part of this role, the Owners Corporation will prepare quarterly compliance and incident reports which will include:

- Reporting of any incidents that have occurred during the quarterly period, management of the issue and any recommendations for amendment to the OEMP and/or management practices as a result of the incident.
- Audits of selected activities at Wyndham Harbour against the requirements of the OEMP,
- Commentary on the management of the OEMP.
- The outcome of any additional audits, inspections or Independent Review that have occurred during the quarter.

The report will be submitted by the Owners Corporation to the Community Liaison Committee 1 week prior to its scheduled meeting..

### **6.4 Ongoing Consultation**

It is recognised that additional information will be included into the OEMP as the staged development of the Wyndham Harbour occurs. Once the OEMP is approved it is proposed to establish a Community Liaison Committee to assist with ongoing environmental management of Wyndham Harbour and surrounding land uses.

### **6.5 Management Review**

The OEMP will be reviewed and amended where necessary to ensure continued environmental improvement. The OEMP will require updating as the development progresses and additional development stages are approved. This is particularly relevant in relation to the referenced reports in this document.

The Owners Corporation Manager will coordinate all amendments/revisions and implement any changes required. Any substantive changes to the OEMP will be reported to the Community Liaison Committee.

It is noted that any proposed changes to the OEMP must be consistent with the Amendment principles outlined in Section 3.2 of the OEMP Activation Deed.

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## **6.6 Independent Review**

An independent environmental auditor will conduct an audit of the performance of the development against the requirements of the OEMP every year (this may change over time). This audit will specifically include an assessment of the results of the water, sediment and groundwater monitoring programs against the requirements of the relevant State Environment Protection Policies and compliance of the Wyndham Harbour operations.

In accordance with the Planning Permit conditions pursuant to the site, any amendments to the OEMP arising from the management or independent review of the document will require approval by Council. Amendments to the OEMP may also require approval by DELWP and Parks Victoria.

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## 7. OVERVIEW OF IMPLEMENTATION PLANS

### 7.1 Introduction

The Operational and Environmental Implementation Plans within the OEMP have been developed to detail the environmental protection measures to be implemented as part of the ongoing management of Wyndham Harbour.

Each implementation plan has been developed to manage key operational and environmental aspects related to the ongoing operations of Wyndham Harbour. These implementation plans are divided into the following sub sections:

- Issues
- Objectives
- Relevant Legislation & References
- Management Actions
- Monitoring

The relevant reporting and auditing requirements of these implementation plans are specified in Section 8, unless specifically stated within the implementation plan.

### 7.2 Issues

This provides a summary of the operational and environmental aspect that has been identified as potentially causing impacts.

### 7.3 Objectives

This section states the broad operational and environmental management objectives to be achieved. The objectives define the intent of the implementation plan and allow the formulation of consistent mitigation strategies aimed at achieving the stated objective.

### 7.4 Relevant Legislation & References

The relevant legislation and references applicable to the mitigation measures to be performed are nominated in this section.

### 7.5 Management Actions

This section defines the actions and methods required to achieve the objectives and identifies the party / parties responsible for undertaking these actions.

It may include operational and environmental control measures which are generic and apply throughout Wyndham Harbour and are recommended to mitigate and/or prevent negative impacts. The control measures are to be implemented by the responsible parties at the appropriate stage.

### 7.6 Monitoring

This section contains the regime of inspections/monitoring/testing to be undertaken to ensure that the control measures (including environmental control measures) which have been implemented are performing adequately and the requirements of the relevant legislation are being met, as well as achieving the objectives of the implementation plan. It also identifies the party responsible for managing these regimes.

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The OEMP provides details (as appropriate) for the specific tests, protocols or monitoring procedures to be employed, the frequency and location of monitoring, the reporting mechanisms/system and other relevant requirements.

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## 8. IMPLEMENTATION PLANS

If not managed correctly, the activities associated with the ongoing operation and management of Wyndham Harbour have the potential to have adverse impacts on the surrounding terrestrial and marine environments. To ensure that Wyndham Harbour is managed to prevent such impact, the following requirements have been developed for implementation by the relevant key stakeholders of the Wyndham Harbour development:

### 8.1 Waste Management

The principles of cleaner production will be practiced in the management of all wastes generated at Wyndham Harbour including the Marina Service Area. Wastes must be managed in accordance with the following hierarchy, in order of preference:

- Waste avoidance practices which prevent the generation of wastes altogether
- Waste reduction practices which reduce waste produced
- Waste reuse practices which direct reuse of waste materials for the same grade of use
- Waste re-cycling or reclamation using valuable components of the waste in other processes
- Waste treatment to reduce hazard or nuisance
- Waste disposal, if necessary, will be done in the most environmentally sound manner.

Education and training of staff and contractors will be regularly completed to ensure they are familiar with the requirements of waste management. This will be conducted at the start of the use of the facility, employment of new staff, on a regular basis as a refresher course and at the implementation of new procedures or equipment. This ensures that personnel not only conduct their jobs in an environmentally conscious manner but also present themselves as role models for residents and visitors.

Following are implementation plans for the different types of waste that require management at Wyndham Harbour.

#### 8.1.1 Sewer Pump Out Facilities

##### Issues

All vessels with a toilet which are stored at Wyndham Harbour should have sewerage holding tanks and pump out facilities to allow for disposal at dedicated sewage pump out facilities.

The organic matter in sewage discharged from recreational boats into surface waters consumes dissolved oxygen as it decomposes. The amount of dissolved oxygen required to decompose sewage and other organic matter is measured as the biological oxygen demand+ (BOD) of a water body. Consumption of oxygen by decomposing organic matter leaves less oxygen for fish and other aquatic organisms that live in the marina. In addition adverse health effects associated with exposure to recreational waters contaminated with sewage can lead to a number of health problems, such as gastroenteritis

##### Objectives

- To prevent sewage from recreational boats being discharged in the Marina and provide adequate sewage pump out facilities to service the Marina.

##### Relevant Legislation and References

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- Environment Protection Act 1970
- ANZECC - Best Practice Guidelines for Waste Reception Facilities at Ports, Marinas and Boat Harbours in Australia and New Zealand
- AS4997 - Guidelines for the Design of Maritime Structures

## Management Actions

Wyndham Harbour will be a no discharge zone for sewage. Vessels without onboard holding tanks will not be permitted to use on boat toilets, sinks and showers in the Marina.

Pump out connections will be installed at convenient locations and will be clearly labeled. They will be fitted with one inch BSP fittings in accordance with the recommendations of the ANZECC Best Practice Guidelines for Waste Reception Facilities at Ports, Marinas and Boat Harbours in Australia and New Zealand.

## Monitoring

Action	Frequency	Responsibility
Pump out connections and waste receptacles will be inspected to ensure they are in good working condition.	Daily	Marina Operator
Signage and instructions will be inspected to ensure that relevant information is available.	Monthly	Marina Operator

## 8.1.2 Bilge Water

### Issues

The discharge of bilge water has the potential to be a significant source of pollution in the Marina. This can include the introduction of marine pest species to Port Phillip Bay. Once introduced into an area, exotic plants and sea life can be very difficult to remove and often have adverse impacts on water quality, marine habitat, recreational and commercial activities. In addition petroleum products from poorly maintained boats can be discharged with bilge water.

### Objectives

- To minimise the occurrence of contaminated bilge water and its discharge to the environment.

### Relevant Legislation and References

- SEPP (Waters of Victoria) 2003
- SEPP (Waters of Victoria) Schedule F6: Waters of Port Phillip Bay

### Management Actions

- Boat Berth users that are berthing boats within the harbour from outside Port Phillip Bay must flush cooling systems and bilge water prior to entering Port Phillip Bay to minimise the risks of introducing marine pest species to Port Phillip Bay.
- Boat users will not be permitted to discharge contaminated bilge water directly to the Wyndham Harbour environment.



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- Absorbent barriers will be placed around storm water drains in the Marina Service Area to prevent bilge water from entering the storm water system.
- Bilge water must be pumped out and collected in a plastic storage container and disposed to a prescribed waste facility when required. Alternatively, discharge to sewer may be undertaken with a trade waste agreement from City West Water.

### Monitoring

Action	Frequency	Responsibility
Educational material will be available to marina users regarding the management of bilge water.	Ongoing	Marina Operator
Signage advising boat owners that contaminated bilge water must not be discharged to the environment.	Weekly	Marina Operator
Educational material will be available to marina users regarding the control of exotic species.	Ongoing	Marina Operator
Boats entering the Marina will be checked randomly for plant fragments and their place of origin.	Random (weekly)	Marina Operator

### 8.1.3 Solid Waste

#### Issues

Solid waste can create a nuisance and become an eyesore if not managed correctly. The visual appearance of the Marina, nearby beaches and foreshore can be significantly reduced by the presence of solid waste. Additionally, solid waste can create hazards to wildlife and pose a threat to human health and boating/recreational activities. It can cause injury to people and wildlife, encourages pest animals such as rats, mice and seagulls as well as the spread of germs and disease.

Littering is an offence, incurring possible statutory fines of up to \$6,500.

#### Objectives

- To reduce the quantity of solid waste generated within the development and to ensure that the waste produced is disposed of correctly.
- To encourage recycling of waste materials.

#### Relevant Legislation and References

- Council local by-laws
- Environment Protection Act 1970
- EPA Publication IWRG600, Waste Categorisation

#### Management Actions

- Sufficient facilities for general waste and recyclables will be maintained in all public areas and signage will be displayed encouraging their correct use. These facilities will be fitted with wind/wildlife proof covers and regularly maintained to ensure birds and vermin are not attracted by inappropriate rubbish disposal. Signage will be displayed in public areas encouraging visitors and patrons to utilise correct waste facilities.
- The current Wyndham City Council kerb side waste collection service will be utilised in the residential areas at Wyndham Harbour.

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- The Owners Corporation will be responsible for waste collection service from the apartments and commercial tenants. Commercial tenants are responsible for maintaining sufficient facilities for general waste and recyclables in a manner that does not attract birds and vermin.
- An effective education program is one of the most powerful tools for achieving long-term change within the community. Appropriate signage and regular bin-emptying schedules will also play an important role in litter management at Wyndham Harbour.
- The Owners Corporation / Marina Operator will work with tenants, residents and marina users to develop new waste avoidance and re-use strategies.
- Additional education programs will be implemented if waste minimisation strategies are not being adopted.
- Gross pollutant traps (GPTs) will be established for storm water discharges from the Marina Centre and the Marina Service Area. These will be maintained by the Owners Corporation / Marina Operator to ensure they are regularly cleaned and continue to be effective in the collection of litter, prior to stormwater entering Port Phillip Bay.
- Litter will be regularly removed from the harbor, northern and southern beaches.

## ***Management Methods***

<b>Action</b>	<b>Frequency</b>	<b>Responsibility</b>
Provide educational material to residents, boat owners, and marina users to promote the benefits of appropriate waste disposal.	Initially, within the Residential Information Kit then, Continually by : <ul style="list-style-type: none"> <li>- Printed material</li> <li>- Signage</li> <li>- Residents Intranet portal</li> </ul>	Owners Corporation  Marina Operator where applicable
Litter removal from the harbour, northern and southern beaches will be regularly undertaken.	Weekly in summer. As required in other seasons dependent on need.	Owners Corporation.  Council (Southern Beach and Southern Beach Car Park only).

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## **Monitoring**

Action	Frequency	Responsibility
Litterbins will be inspected to ensure they are in good working condition, are being used correctly, no leakage has occurred and that sufficient receptacles are provided.	Weekly	Owners Corporation  Marina Operator where applicable
Recycling facilities will be inspected to ensure they are in good working order and that sufficient receptacles are provided.	Weekly	Owners Corporation  Marina Operator where applicable
General site inspections will be made to ensure that litter is not entering the Marina.	Daily	Owners Corporation  Marina Operator where applicable
Inspection of marina retail tenancies and commercial premises will be undertaken to ensure tenants are implementing waste minimisation strategies.	Monthly	Owners Corporation  Marina Operator where applicable
Stormwater pit inspection and obstacle removal (within Common Property and foreshore / marina leasehold area only)	Monthly	Owners Corporation
Stormwater pit cleaning (within Common Property and foreshore / marina leasehold area only)	Twice per year	Owners Corporation
Gross pollutant trap inspection and cleaning (within Common Property and foreshore / marina leasehold area only)	Monthly inspection Bi-monthly cleaning and after extreme rainfall	Owners Corporation
Harbour, northern and southern beaches will be inspected to ensure the frequency of litter removal is adequate.	Monthly	Owners Corporation  Council (Southern Beach and Southern Beach Car Park only)

### **8.1.4 Fish Waste**

#### **Issues**

Disposal of fish waste in high quantities within the Marina can deplete the dissolved oxygen in the water and consequently impact on water quality. Inappropriate disposal of fish waste can also attract vermin and lead to odour problems, discouraging people from using the facilities.

#### **Objectives**

- To minimise the impact of fish waste on the marina environment.

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## Relevant Legislation and References

- Environment Protection Act 1970
- SEPP (Waters of Victoria) 2003
- SEPP (Waters of Victoria) Schedule F6: Waters of Port Phillip Bay

## Management Actions

- Boat owners will be encouraged to dispose of unwanted bait offshore.
- Designated fish cleaning areas will be provided that will discharge wastewater in an acceptable manner to the sewerage system.
- Provide fish bins at fishing cleaning areas and empty bins daily.

## Monitoring

Action	Frequency	Responsibility
Provide educational material to residents, boat owners, and marina user to promote the benefits of fish waste disposal	Initially, within the Residential Information Kit then, Continually by : <ul style="list-style-type: none"><li>- Printed material</li><li>- Signage</li><li>- Residents Intranet portal</li></ul>	Marina Operator
Fish cleaning areas will be inspected to ensure they are kept clean and in a good working condition.	Daily	Marina Operator
Empty fish bins	Daily	Marina Operator

### 8.1.5 Liquid Waste

#### Issues

The release of liquid waste to the environment can significantly reduce water quality, threaten aquatic life and habitats and threaten human health and safety. Liquid wastes can include used sewerage, oil, unwanted fuels and chemicals, bilge water, contaminated spill control material, used batteries, washing solvents and other hazardous wastes.

#### Objectives

- To minimise pollution through the release of liquid wastes to the environment.

## Relevant Legislation and References

- Environment Protection Act 1970
- EPA Publication 347, Bunding Guidelines, 1992
- Environment Protection (Industrial Waste Resource) Regulations 2009
- Servicing Report, Watsons Pty Ltd (November 2009)

## Management Actions

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- Signage advising residents and visitors of correct liquid waste management will be displayed in prominent locations. Information will also be provided to boat berth license holders and marina users regarding methods to reduce the occurrence of liquid wastes and their correct disposal methods.
- In the event that the existing Werribee South sewerage system or Wyndham Harbour system were not operational for a period greater than 48 hours, effluent could be educated directly from the detention tank into sewerage trucks and disposed of at the Western Treatment Plant
- All liquid wastes (other than sewerage) will be stored on impervious surfaces, roofed and bunded in accordance with EPA Publication 347, Bunding Guidelines, December 1992. Waste loading must be undertaken within bunded areas located on impervious surfaces that drain to a collection sump. These sumps must also be fitted with isolation valves to prevent spillages entering the storm water system.
- Spill equipment will be maintained in high risk areas and harbour staff will be trained in the appropriate use of this equipment. Chemical dispersal agents will not be used unless directed by an authorised officer of the Environment Protection Authority (EPA).
- Storm water entry pits will be marked in a way that informs the public that the drain eventually discharges into Port Phillip Bay. Signage will also be maintained advising the emergency contact details of the Owners Corporation in the case of an incident that has the potential to enter the storm water system.
- Additional education programs will be implemented if waste minimisation strategies are not being adopted.

### **Management Methods**

Action	Frequency	Responsibility
Provide educational material to residents, boat owners, marina operators, and marina users to promote the benefits of appropriate waste disposal.	Initially, within the Residential Information Kit then, Continually by : <ul style="list-style-type: none"> <li>- Printed material</li> <li>- Signage</li> <li>- Residents Intranet portal</li> </ul>	Owners Corporation  Marina Operator where applicable

### **Monitoring**

Action	Frequency	Responsibility
All facilities will be inspected to ensure liquid wastes are being disposed of correctly.	Monthly	Owners Corporation  Marina Operator where applicable
Disposal and storage areas will be inspected to ensure that waste is being handled correctly.	Daily	Owners Corporation  Marina Operator where applicable
Spill containment and clean-up kits will be inspected to ensure that kits are complete and accessible.	Weekly	Marina Operator

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Action	Frequency	Responsibility
Signage will be inspected and maintained to ensure that relevant information is available.	Weekly	Owners Corporation  Marina Operator where applicable
Additional education programs will be implemented, if waste minimisation strategies are not being adopted	As required	Owners Corporation  Marina Operator where applicable

## 8.1.6 Prescribed Waste

### **Issues**

Incorrect disposal of hazardous waste can threaten human health and safety and can have adverse impacts on the environment. Potentially hazardous wastes are generally classified as prescribed waste and must be managed in accordance with the Environment Protection (Industrial Waste Resource) Regulations 2009.

### **Objectives**

- To minimise the generation of and manage hazardous wastes generated within the Harbour so as to control negative environmental impacts and threats to human health and safety.

### **Relevant Legislation and References**

- Dangerous Goods Act 1985
- Dangerous Goods (Storage and Handling) Regulations 2012
- Environment Protection (Industrial Waste Resource) Regulations 2009
- Environment Protection Act 1970
- Australian Standard 1940 - 2004 - The Storage and Handling of Flammable and Combustible Liquids
- EPA Publication 347, Bunding Guidelines, Dec 1992

### **Management Actions**

- All solid and liquid prescribed wastes and used spill equipment will be managed in accordance with the Environment Protection (Industrial Waste Resource) Regulations 2009. Dedicated prescribed waste receptacles will be provided in the Marina Service Area in areas where prescribed wastes are generated and in the vicinity of spill equipment. These will be clearly labeled to avoid mixing incompatible dangerous goods.
- Signage will be displayed on waste receptacles to avoid incorrect disposal of prescribed wastes.
- Staff will be educated and trained in how to identify and manage prescribed wastes to ensure they are managed appropriately.
- Information will be provided to tenants regarding methods to reduce the occurrence of prescribed wastes and the correct methods of disposal. Additional education programs will be implemented if waste minimisation strategies are not being adopted.
- In the event that a spillage occurs in the development, appropriate equipment will be available to prevent spilled material from entering Port Phillip Bay. A person

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trained in the use of such equipment will be available at all times, or will be in immediate contact with the Marina Manager's Office.

## **Management Method**

Action	Frequency	Responsibility
Provide educational material to residents, boat owners, marina operators, and marina users to promote the benefits of appropriate waste disposal.	Initially, within the Residential Information Kit then, Continually by : - Printed material - Signage - Residents Intranet portal	Owners Corporation  Marina Operator

## **Monitoring**

Action	Frequency	Responsibility
All facilities will be inspected to ensure hazardous wastes are being disposed of correctly.	Monthly	Marina Operator
Disposal and storage areas will be inspected to ensure that waste is being handled correctly.	Daily	Marina Operator
Spill containment and clean-up kits will be inspected to ensure that kits are complete and accessible.	Weekly	Marina Operator
Signage will be inspected and maintained to ensure that relevant information is available.	Weekly	Marina Operator
Prescribed Waste receptacles in Marina Service Centre will be inspected to ensure they are in good working order and no leakages have occurred	Daily Sump high level alarm (where applicable)	Marina Operator

## **8.1.7 Burning of Waste**

### **Issues**

The burning of waste can have negative impact on people's health and safety, along with detrimental effecting the environment.

### **Objectives**

- No burning of waste will occur at Wyndham Harbour

### **Relevant Legislation and References**

- Council Local Laws
- Council Planning Scheme
- Environment Protection Act 1970
- SEPP (Air Quality Management) 2001

### **Management Actions**

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Burning of waste within the Wyndham Harbour Development shall be prohibited.

## **Management Methods**

Action	Frequency	Responsibility
Provide educational material to residents, boat owners and marina users to promote the benefits of appropriate waste disposal.	Initially, within the Residential Information Kit then, Continually by : - Printed material - Signage - Residents Intranet portal	Owners Corporation  Marina Operator where applicable

## **8.1.8 Dangerous Goods**

### **Issues**

The improper storage and/or handling of dangerous goods could pose a threat to human safety and health along with having an adverse impact on the environment.

### **Objectives**

- Ensure that all dangerous goods stored at Wyndham Harbour are managed in accordance with all applicable legislative requirements.

### **Relevant Legislation and References**

- Dangerous Goods Act 1985
- Dangerous Goods (Storage and Handling) Regulations 2012
- Environment Protection Act 1970
- Australian Standard 1940 - 2004 - The Storage and Handling of Flammable and Combustible Liquids
- EPA Publication 347, Bunding Guidelines, Dec 1992

### **Management Actions**

All dangerous goods stored at Wyndham Harbour will be managed in accordance with the applicable legislative requirements. As part of the annual audit the storage and handling of dangerous goods will be assessed to ensure they are being managed in accordance with legislative requirements.

### **Management Methods**

Action	Frequency	Responsibility
Provide educational material to residents, boat owners and marina users to promote the benefits of appropriate waste disposal.	Initially, within the Residential Information Kit then, Continually by : - Printed material	Owners Corporation  Marina Operator where applicable



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	<ul style="list-style-type: none"> <li>- Signage</li> <li>- Residents Intranet portal</li> </ul>	
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## Monitoring

Action	Frequency	Responsibility
Inspect prescribed Waste receptacles in Marina Service Centre to ensure they are in good working order and no leakages have occurred.	<ul style="list-style-type: none"> <li>- Inspect Daily.</li> </ul>	Marina Operator

## 8.1.9 Flare Disposal

### Issues

If disposed of incorrectly, out of date, damaged or water logged flares can create public safety risks.

### Objectives

- To encourage the safe disposal of unwanted flares.

### Relevant Legislation and References

- Dangerous Good (Explosives) Regulations 2011

### Management Actions

- Residents, boat berth license holders and marina users will be informed of flare disposal facilities at the closest Police Station.
- Signs prohibiting the disposal of flares in litter bins will be displayed along the central spine of the Marina.

## Monitoring

Action	Frequency	Responsibility
Flare disposal procedures will be clearly signed..	Monthly	Marina Operator

## 8.1.10 Battery Disposal

### Issues

Batteries contain an electrolyte sulphuric acid solution and lead. If incorrectly disposed, batteries can have a detrimental impact on both humans and the environment.

### Objectives

- To encourage the safe disposal of unwanted batteries.

### Relevant Legislation and References

- Environment Protection (Industrial Waste Resource) Regulation 2009
- EPA Publication 347, Bunding Guidelines, Dec 1992

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## Management Actions

- Residents, boat berth license holder, marina users and tenants will be notified of battery disposal facilities within the marina. Batteries will be stored on impervious surfaces, roofed and banded in accordance with EPA Publication 347, Bunding Guidelines, December 1992.

## Monitoring

Action	Frequency	Responsibility
Battery storage areas will be inspected to ensure they are in good working order and to determine the frequency of collection	Weekly	Owners Corporation  Marina Operator where applicable

## 8.1.11 Emergency Management

### Issues

The OEMP is an effective tool for managing operational aspects to protect the environment, however in some instances unexpected incidents can arise that have the potential to significantly impact on the environment. Management of these emergencies is an effective means to minimise the impact of the incident on people and the environment.

### Objectives

- To ensure environmental incidents are managed effectively to minimise impacts on people and the environment.

### Relevant Legislation and References

- Wyndham Harbour Marina Emergency Response Plan
- Site Emergency Plan

## Management Actions

A Marina Emergency Response Plan has been developed by the Marina Manager to identify, prevent and mitigate any environmental impacts that may be associated with emergencies. The induction for new staff will include details of the Marina Emergency Response Plan and where appropriate training will be undertaken.

The Owners Corporation will ensure that adequate resources and equipment are readily available, in the event an accident or emergency situation arises. The Owners Corporation Manager will maintain a record of events and this will include, but not be limited to the following:

- The location of the emergency or incident
- The details (i.e. name and telephone number) of the person reporting the incident
- The estimated time of the incident
- The time at which the Owners Corporation Manager and/or the Marina Manager was made aware of the event/incident;
- The suspected cause of the incident
- The environmental harm and or environmental nuisance caused, threatened, or to be caused by the incident, and

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- The proposed rectification/remediation actions.

All incidents will require a formal investigation by the Owners Corporation. Not more than 14 days following the initial notification of an emergency or incident, the Owners Corporation Manager and/or Marina Manager must provide an Environmental Incident Report to the Owners Corporation, Marina Operator and any relevant responsible authorities documenting the above in addition to:

- Proposed actions to prevent a recurrence of the emergency or incident (e.g. proposed amendments to the OEMP)
- Outcomes of actions taken at the time to prevent or minimise environmental harm and or environmental nuisance, and
- The results of any environmental monitoring performed.

From time to time throughout the year Wyndham Harbour may be utilised by vessels as a Safe Boat Haven, especially in the case of severe weather. The Wyndham Harbour Marina Emergency Response Plan sets out the procedure to manage vessels in this situation should it occur.

## ***Spills and Leaks***

The Marina Manager is responsible for all incidents that have the potential to impact on the Marina and Port Phillip Bay.

All incidents that have the potential to enter the Marina or Port Phillip Bay must be reported to the Marina Manager immediately. The Marina Manager will conduct an initial assessment of the incident and, if safe, will coordinate the control of the spill response by deploying the spill kits in the area and temporarily blocking storm water drains.

If an incident has resulted in a discharge into the Marina or Port Phillip Bay the Marina Operator Manager will notify EPA-Victoria and DELWP Coastal Unit immediately and other emergency services as appropriate. Chemical dispersants will not be used unless directed by an EPA authorised officer.

## ***Fires, Explosions and Gas Leaks***

All fires, explosions and gas leaks within the development must be reported to emergency services immediately.

## **Monitoring**

Action	Frequency	Responsibility
Spill containment and cleanup kits shall be inspected for completeness and accessibility	Weekly	Marina Operator
Spill containment procedure education and practice	Response plan drill annually	Marina Operator
Development of a Marina Emergency Response Plan	Reviewed annually	Marina Operator

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## 8.2 Coastal Infrastructure

### 8.2.1 Breakwaters

#### Issues

If the breakwaters within the development are not monitored and maintained regularly, this could have adverse impacts on the effectiveness of the structures to protect the Marina into the future.

#### Objectives

- To maintain the breakwaters to a high standard
- To reduce the environmental impacts of the breakwaters through on-going maintenance activities.

#### Relevant Legislation and References

- Environment Protection Act 1970
- Coastal Management Act 1995
- Environmental Protection and Biodiversity Conservation Act 1999

#### Management Actions

- Ensure that breakwaters are maintained in a safe and structurally sound condition.
- Undertake a structure integrity inspection annually.
- Install signage on ~~No Access~~ areas.

#### Monitoring

Action	Frequency	Responsibility
Inspect safety signage to ensure it is maintained to an appropriate standard.	Weekly	Marina Operator
Act on all complaints received regarding maintenance and condition of the breakwater.	As received	Marina Operator
Signage maintenance	Weekly	Marina Operator

Refer to Wyndham Harbour Marine Works Maintenance Plan for detailed requirement of breakwater monitoring and maintenance (section 2 and 11)

### 8.2.2 Marina Pontoons

#### Issues

If the marina pontoons within the development are not maintained regularly, this could have an adverse impact on the amenity of the marina and void manufacturer's warranty.

#### Objectives

- To maintain the marina pontoons to a high standard
- To reduce environmental impacts through ongoing maintenance and replacement activities

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## Management Actions

- Ensure the marina pontoons are maintained in a safe and structurally sound condition in accordance with the manufacturer's requirements.
- Undertake inspections regularly to ensure all elements are structurally sound and secure
- Undertake a structural check every five years having regard for the 25 year design life of the system
- Refer to the Wyndham Harbour Marine Works Maintenance Plan (section 10 and 15) for further details on maintenance and operational requirements of the marina pontoons and services.
- Should additional or maintenance piling be required, the Wyndham Harbour Groundwater Protection Management Plan prepared by Coffey Geotechnics, dated 13 July 2015 (and any subsequent revisions), must be referred to ensure the piles do not penetrate clay into the underlying aquifer.

## 8.2.3 Northern Beach Maintenance

### Issues

If the beach areas within the development are not maintained regularly, this could have adverse impacts on the surrounding environment and the amenity of these areas.

### Objectives

- To maintain the beach areas to a high standard
- To reduce the environmental impacts through on-going maintenance activities.

### Relevant Legislation and References

- Environmental Protection Act 1970
- Public Health and Wellbeing Act 2008
- Council Local Laws
- Agreement under section 173 of the Planning and Environment Act 2001 *WEMP Activation Wyndham Harbour*

## Management Actions

- Beach cleaning of the northern beach will be undertaken three times per week between 1 November and 31 March.
- Beach cleaning of the northern beach will be undertaken once per week between 1 April and 31 October.
- Ensure that the foreshore area is maintained to the standard of other foreshore areas under the control of Council.
- Maintain erosion prevention works to an appropriate standard.

### Monitoring

Action	Frequency	Responsibility
Inspect northern beach to ensure the frequency of cleaning undertaken by Owners Corporation is adequate.	Weekly	Owners Corporation

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## 8.2.4 Southern Beach Maintenance

### Issues

If the beach areas within the development are not maintained regularly, this could have adverse impacts on the surrounding environment and the amenity of these areas.

### Objectives

- To ensure Council maintains the beach areas to a high standard

### Relevant Legislation and References

- Environmental Protection Act 1970
- Public Health and Wellbeing Act 2008
- Council Local Laws
- Agreement under section 173 of the Planning and Environment Act 'OEMP Activation Wyndham Harbour'
- Channel Reserve Drainage Maintenance Deed dated 4 December 2012.
- Duncans Road Outfall Drain Report.

### Management Actions

- Beach cleaning of the southern beach will be undertaken (by Council) three times per week between 1 November and 31 March.
- Beach cleaning of the southern beach will be undertaken (by Council) once per week between 1 April and 31 October.
- Maintain erosion prevention works to an appropriate standard (by Council).
- Inspections of the Duncans Road Drain to ensure that at least 90% of the waterway is open at outlet.

### Monitoring

Action	Frequency	Responsibility
Inspect southern beach to ensure the frequency of cleaning undertaken by Council is adequate.	Weekly	Owners Corporation (inspection only)

## 8.2.5 Sand bypass and Coastal Processes

### Issues

Wyndham Harbour has been designed to take advantage of its coastal location on Port Phillip Bay. Sound coastal management practices are therefore required to manage the Marina within the context of the natural systems to minimise environmental impacts.

Coastal processes that may be affected by marina activities include the sand movement around the Marina, impact of wave action on the local environment and the movement of currents surrounding Wyndham Harbour.

Numerical modeling indicates that the development results in only localised changes to the currents and circulation patterns along the foreshore of western Port Phillip between the mouth of the Werribee River and Point Cook. The impact of the development on circulation patterns is localised to an area within 500m of the marina.

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The local net longshore transport regime will result in a build-up of sediments against the exterior of the southern breakwater. Periodic sand-bypassing will be required to preserve the existing longshore sediment transport regime. It is estimated that the sand-bypassing requirements will be approximately 10,000m<sup>3</sup> per year, from southwest to north east. The volume to be transported will depend on antecedent wind/wave conditions. Sand-bypassing will involve the mechanical collection of sediments trapped against the exterior of the southern breakwater, transporting to the discharge location (pumped as a slurry), and returning the sand to the littoral zone. Conceptually, sand-bypassing will involve the mechanical fluidization and collection of sediments trapped against the exterior of the southern breakwater where it meets the foreshore. The bypassed material will be transported via a slurry pipeline and returned to the littoral zone at an appropriate location to the north of the groyne located approximately 200m north of the Marina.

The sand bypass system will replicate the current sediment supply regime to the coast north east of the Marina, and will ensure that the existing supply of sand to the Point Cook Marine Sanctuary is maintained. The pipeline required for the sand bypassing will be installed during construction of the Marina. The timing and frequency of bypassing operations will be determined as a result of on-going beach monitoring, which will form part of the overall beach management program.

More information on Coastal Processes can be found in *Water Technology report: Wyndham Harbour Coastal Processes Report and Sand Management Plan*.

## Objectives

- To minimize the impact of the harbor operation on coastal processes
- To reduce the potential impacts on the Point Cook Ramsar site
- To minimize the effects of the Marina on adjoining beaches.

## Relevant Legislation and References

- Coastal Management Act 1995
- Environmental Protection and Biodiversity Conservation Act 1999
- Victorian Coastal Strategy 2014
- Wyndham Harbour Coastal Processes Report and Sand Management Plan.
- Wyndham Harbour Marine Works Maintenance Plan.

The Development Plan Overlay requires:

- Details of the proposed monitoring of the sand bypassing or dredging operation including a monitoring protocol to ensure that off-site habitats, including those within the Point Cook Ramsar site, are not detrimentally affected by the proposed longshore sediment bypass system or dredging;
- The hours of operation of pumping and the attenuation of noise from any sand bypass and sewerage reticulation pump houses;
- The management of activity and public access in the vicinity of the inlet and outlet for any sand bypass pump.

These items are addressed within the Wyndham Harbour Marine Works Maintenance Plan which must be referenced in addition to this document.

## Management Actions

Refer to the management plan approved by Parks Victoria, Wyndham City Council, and DELWP: Wyndham Harbour Sand and Coastal Processes Management Plan, March 2012.

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- Within 12 months of completion of construction of the main breakwater and central spine, install permanent markers which allow the volume of sand accumulating at the southern breakwater to be accurately measured
- Monitor the volume of sand accumulating at the southern breakwater using permanent markers.
- Sand bypassing will be undertaken at the end of autumn/early winter to ensure that the volume of accreted sand on the southern beach most closely reflects the accretion due solely to the net northerly sand transport. If beach monitoring shows that the beach volume has increased by greater than 2,000m<sup>3</sup> since the previous sand bypass operation, sand bypassing will be undertaken.
- Undertake bypassing at low water to maximise the area available for dewatering the bypassed sand, by infiltration through the existing beach.
- Sand bypass programs will be developed to include operational monitoring of turbidity during works. Local residents will be also be notified of proposed sand by-pass activity
- If turbidity levels are above the acceptable criteria, EPA Victoria will be notified within 21 days of results being received. Preliminary investigations will also be undertaken to ascertain causes and where warranted, action taken to reduce turbidity levels.
- Sand bypassing is most likely to be required following dredging at Werribee River when there is a large volume of sand deposited along the coast to the south of the development. This sand will be transported northwards and will result in a build up against the southern breakwater. The sand bypassing system will transfer this build-up to the north of the northern breakwater.
- Bypassing will be carried out either by the use of a dedicated pump station located on the foreshore. This is considered the most cost effective and minimal impact option for bypassing. An excavator will be used to gather the excess sediment at the southern beach and deposit it into a hopper attached to a slurry pump. A connection to the water will allow slurry to be formed and pumped through the bypass pipe to the north of the Marina. Material will be spread north of the northern groyne using a bobcat or similar earthmoving equipment.
- Return the bypassed material to the littoral zone to the north of the proposed groyne (which will be located approximately 200 metres north of the Marina) having regard to minimize the impact on the nearby Ramsar sites.

Refer to the BMD Constructions Maintenance Manual provided at the completion of construction works for more details on specific methods for use and maintenance of the sand bypass pipeline.

### Monitoring

Action	Frequency	Responsibility
Undertake quarterly monitoring of southern beach width and height. If monitoring shows significant changes in beach volume, undertake detailed survey of the beach to construct a digital terrain map (DTM).	Quarterly	Marina Operator
At the end of the summer season a beach monitoring survey is to be completed. A	Annually (End of Summer)	Marina Operator



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Action	Frequency	Responsibility
DTM of the southern beach will be constructed and compared to the previous DTM.		
If surveying shows the southern beach volume has increased by greater than 2,000m <sup>3</sup> since the previous sand bypass operation, undertake sand bypassing.	As required	Marina Operator
If surveying indicates work is required, undertake mechanical transport of sand from offshore to the beach face to improve the beaches recreational amenity.	Quarterly	Marina Operator
Regional review of coastal processes, including assessment of annual aerial photography runs carried out by DELWP	Annual	Marina Operator

Refer to Wyndham Harbour Marine Works Maintenance Plan (section 4) for detailed requirement of sand by pass equipment suppliers and requirements.

## 8.3 Marina Service Area

### 8.3.1 Boat Maintenance

#### Issues

If not managed appropriately, maintenance and repairs of vessels within the Marina can be a significant source of contamination to the Marina and Port Phillip Bay. As such, boat owners are not permitted to conduct maintenance on their vessels in any areas other than the Marina Service Area. This will ensure that maintenance and repairs will only be conducted by appropriately trained staff and minimise the risk of spills and leaks entering the Marina.

#### Objectives

- To undertake maintenance and repairs of vessels in a manner that does not result in adverse impacts to people's amenity or the water quality of the Marina or Port Phillip Bay.

#### Relevant Legislation and References

- Code of Practice for Antifouling and In-Water Hull Cleaning and Maintenance (ANZECC 2000)
- Environment Protection (Industrial Waste Resource) Regulations 2009
- EPA Victoria Publication 347, Bunding Guidelines, 1992
- EPA Victoria Publication 624, Guidelines for Protecting Victoria's Marinas, 1998
- Pollution of Water by Oils and Noxious Substances Act 1986
- Pollution of Water by Oils and Noxious Substances Regulations 2012

#### Management Actions

The Marina Service Area will be constructed with impermeable surfaces and bunding that captures all wastes and discharges it into collection pits. These pits will be either pumped out by EPA permitted vehicle or discharged directly to sewer in accordance with a Trade Waste Agreement. These pits have high level alarms that alert the operator of any potential overflow

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so that corrective action can be undertaken. All bunding will be in accordance with EPA Publication 347, Bunding Guidelines, December 1992.

Work areas will be available for vessels undergoing major hull and topside maintenance to ensure contaminants are contained and discharged to collection pits. All maintenance will be conducted in accordance with EPA publication 624, EPA Guidelines for Protecting Victoria's Marinas, October 1998 and the Code of Practice for Anti-fouling and In-Water Hull Cleaning and Maintenance (ANZECC 2000).

All wastewater will be managed in accordance with the Protection (Industrial Waste Resource) Regulations 2009 or discharged to trade waste in accordance with the requirements of the relevant Water Authority.

## Monitoring

Action	Frequency	Responsibility
The Marina Service Area will be inspected to ensure it is appropriately maintained.	Weekly	Marina Operator
Random inspections of the Marina will be undertaken to ensure boat maintenance is not being conducted outside of the Marina Service Area	On-going	Marina Operator

## 8.3.2 Engine Repair and Maintenance

### Issues

Outboard engines can release incompletely combusted hydrocarbon pollutants to the surface water and atmosphere through incomplete combustion of lubricating oil. Often, these releases are caused through incorrect petrol to oil ratio mix which can occur during the fuelling process. This problem can be identified through the emission of a bluish-white smoke from an outboard engine and indicates that the oil concentration is too high.

Engines that are properly maintained are less likely to emit high levels of carbon monoxide, hydrocarbons, nitrous oxides and particulate matter to the air and aquatic environment. Waste generated during service and maintenance operations can present public health and environmental risks if this waste is not handled correctly.

### Objectives

- To minimise the generation of incompletely combusted hydrocarbon pollutants to the environment from outboard engine boats.
- To encourage boat owners/operators to maintain their vessels in good repair and to ensure that waste generated during servicing and maintenance is correctly disposed.

### Relevant Legislation and References

- EPA Publication 624, EPA Guidelines for Protecting Victoria's Marinas, October 1998

### Management Actions

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All maintenance will be conducted in accordance with EPA publication 624, EPA Guidelines for Protecting Victoria's Marinas, October 1998 at the Marina Service Area.

### Monitoring

Action	Frequency	Responsibility
Boat maintenance areas will be inspected to ensure they are in good working order.	Weekly	Marina Operator
Waste storage areas in the Marina Service Area will be inspected to ensure that waste is being handled correctly.	Daily	Marina Operator

### 8.3.3 Hull and Topside Painting

#### Issues

Hull painting and topside coating activities may result in the release of liquid solvents and harmful vapours to the environment. Hazardous wastes are often generated from painting activities (especially if solvents and / or heavy metals are contained within the paint materials).

#### Objectives

- To minimise the generation of hazardous waste and to manage the disposal of all hazardous waste so that they are not released to the environment.

#### Relevant Legislation and References

- Code of Practice for Antifouling and In-Water Hull Cleaning and Maintenance (ANZECC 2000)
- EPA Publication 624, EPA Guidelines for Protecting Victoria's Marinas, October 1998

#### Management Actions

The Marina Service Area will be the only area where painting or preparation work for painting will be permitted in the Marina. All spray painting and sanding will be conducted at the Marina Service Area in areas that are designed with adequate air extraction and treatment (eg: filters).

The application of tributyl tin (TBT) based paints will be banned from Wyndham Harbour.

#### Monitoring

Action	Frequency	Responsibility
Work areas in the Marina Service Area will be inspected to ensure they are in good working order.	Weekly	Marina Operator
Random inspections of boat berthing and the Marina Service Area will be undertaken to ensure no painting or preparation work for painting is being conducted.	Ongoing	Marina Operator
Marina boat shop(s) will stock preferred paints.	Ongoing	Marina Operator
Copper levels will be measured at the monitoring station immediately to the	Monthly	Marina Operator

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northeast of the marina and analysed to quantify any impact that marina operations may have on copper levels along the coast. Copper based anti-fouling materials will be banned if copper levels are consistently 0.5ug/L or more above background levels.		
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## 8.3.4 Refuelling

### Issues

The possibility of spills during fuelling operations always exists and they are a common source of pollution in Marina waters. Most fuel dock spills are small and result from overfilling boat fuel tanks so that fuel splashes back at the nozzle onto the deck, squirts out of the boat's air vent line, or drips from the nozzle as it is removed from the boat and returned to the fuel dock. Hydrocarbons in fuel are harmful to juvenile fish, to fish reproduction and genetics and they interfere with the growth and reproduction of bottom dwelling organisms.

### Objectives

- To provide refueling facilities for users and visitors of the development that enables the safe and appropriate refueling of vessels.

### Relevant Legislation and References

- Dangerous Goods Act 1985
- Dangerous Goods (Storage and Handling) Regulations 2012
- Environment Protection Act 1970
- EPA Publication 347, Bunding Guidelines, December 1992
- EPA Publication 8884 Guidelines on the Design, Installation and Management Requirements for Underground Petroleum Storage Systems .
- Pollution of Waters by Oils and Noxious Substances Act 1986
- SEPP (Waters of Victoria) Schedule F6 (Waters of Port Phillip Bay)
- SEPP (Waters of Victoria) 2003
- Australian Standard 1940 - The Storage and Handling of Flammable and Combustible Liquids

### Management Actions

The refuelling of all vessels will only be conducted by trained staff and will only be permitted where fuel is stored in a fixed tank onboard the vessel.

Automatic shutoffs will be installed on all fuel lines and at nozzles to reduce fuel loss. These will be designed to automatically stop fuel pumping if the passage of a high volume of fuel is detected. The shutoff system can also be operated manually when the refueling facilities are closed or during an emergency.

Bunding around refueling areas will be maintained in accordance with EPA Publication 347, Bunding Guidelines, December 1992 to prevent any spills entering the Marina. Underground storage tanks will be managed in accordance with the latest version of EPA Publication 888.4, Guidelines on the Design, Installation and

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Management Requirements for Underground Petroleum Storage Systems.,. Consideration will also be given to employing a floating oil absorbent pontoon surrounding the refueling area within the Marina.

An oil and fuel spill response plan will be developed and spill kits will be maintained in close proximity to the refueling facility. Staff will be regularly trained in their use and the incident response plan. Chemical dispersal agents will not be used unless directed by an authorised officer of the Environment Protection Authority (EPA).

Outboard engine boat owners will be provided information on the environmental and economic benefits of ensuring the correct fuel to oil mix ratio and devices for measuring fuel to oil will be made available at refueling locations.

## Monitoring

Action	Frequency	Responsibility
All fuelling areas will be inspected to ensure they are in good working order and that no leakages have occurred.	Daily	Marina Operator
Educational material will be available to marina users regarding the benefits of engine maintenance.	Ongoing	Marina Operator
Oil and fuel spill containment and clean-up kits will be inspected to ensure that kits are complete and accessible.	Weekly	Marina Operator

## 8.3.5 Boat Safety

### Issues

Operators of powered vessels in Port Phillip Bay and the Marina must have a current recreational boating license.

Speed limits of five knot speed restrictions apply within the Marina and extend a further 500 metres from Marina entrance. Signage will be maintained on the breakwater, including each side of the entrance into the Marina, and marker buoys will also be maintained outside the breakwater to alert boat owners to the speed limit. Navigation aids will be installed and maintained in accordance with a Works Permit issued pursuant to the Port Services (Designated Ports) Regulation 2004.

### Management Actions

The Marina Manager will work together with Marine Safety Victoria and the Local Port Manager (Parks Victoria) to develop and implement appropriate vessel operating and zoning rules and navigation aids.

The Marina Manager will be responsible for ensuring speed limits and safety rules within the Marina are complied with at all times. The Marina Manager must also:

- Report any change in water depth to the Local Port Manager (Parks Victoria) to enable navigation charts to be updated;
- Notify the Local Port Manager of any submerged objects or navigation hazards.

## Monitoring

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Action	Frequency	Responsibility
Check all navigation aids and marker buoys are effective	Daily	Marina Operator
Provide written warnings and penalties to boat owners/drivers found to be speeding within the Marina.	As required	Marina Operator

## 8.3.6 Maintenance Dredging

### Issues

Maintenance dredging is necessary to maintain the depth of the Marina to ensure passage depth is satisfactory for deep keeled craft. However, dredging has the potential for significant environmental impact due to physical disturbance of the seabed. Potential impacts include:

- Increased level of turbidity and sedimentation in the vicinity of the dredge site, which can impact adjacent plant and animal communities;
- Release of contaminants contained in sediments into the water column, such as organic compounds and heavy metals;
- Odour release in the vicinity of the site of dredging;
- Excessive noise caused by dredging activities;
- Alteration of coastal processes due to reshaping of the sea bed; and
- Decreased visual amenity due to sediment plumes caused by dredging activities.

Fine sediments entrained in the water column will also enter the proposed Marina as part of natural tidal exchange mechanisms, however as the ambient sediment concentrations in the bay are typically quite low the resulting siltation rates are expected to be minimal.

Water discharged from the Werribee River during rainfall runoff events is likely to contain elevated sediment loads. This will result in a temporary increase in ambient suspended sediment concentrations in the vicinity of the river mouth. Deposition of sediments in the Marina may result, but again the siltation rates are expected to be minimal due to the transient nature of the runoff events.

The longshore transport of sediments is predominantly to the northeast in summer (in response to prevailing winds from the south-southwest) with periods of sediment transport to the southwest in winter (in response to winds from the north). The breakwaters extend offshore and will intercept the longshore sediment drift, preventing it entering the Marina. Accordingly, sediment supply to the Marina will be extremely limited, and it is anticipated that the need for maintenance dredging will be minimal. Assuming the sand bypassing is effective, it is estimated that maintenance dredging would not be required for at least 10 years, probably much longer.

### Objectives

To minimise the need for maintenance dredging and to incorporate best practice into all planning and operational activities in a manner that results in minimal impact on water quality within the Harbour and Port Phillip Bay.

### Relevant Legislation and References

- Coastal Management Act 1995

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- EPA Publication 691, Guidelines for Dredging, October 2001
- Port Services (Designated Ports) Regulation 2004
- SEPP (Waters of Victoria) Schedule F6 (Waters of Port Phillip Bay)
- SEPP (Waters of Victoria) 2003

## Management Actions

The Wyndham Harbour Marine Works Maintenance Plan includes a section on Maintenance Dredging and Monitoring Program which requires annual hydrographic or multi-beam surveys be conducted to ensure the passage depth is satisfactory for deep keeled craft. Additional assessments will also be carried out if a complaint is received. The Wyndham Harbour Marine Works Maintenance Plan suggests that annual surveys could be extended to a frequency of 2-3 years if corresponding surveys detect no change in bed level.

If inspections or survey results identify that the base of the harbor has changed, then design advice will be sought. Where required, dredging will be conducted in accordance with EPA Publication 691, Guidelines for Dredging, October 2001. Consent under the Coastal Management Act 1995 and a Works Permit in accordance with Port Services (Designated Ports) Regulation 2004 must also be obtained for works within the Harbour.

The Maintenance Dredging Plan will also include information on the physical effects of spoil, trigger levels to activate dredging activities, the measures undertaken to prevent the contamination of sediments within the harbour and the sampling program that will be undertaken to assess chemical contamination prior to dredging. Dredging technology will be optimised to minimise effects on water quality and any noise nuisance. This plan will incorporate the construction management procedures developed during the construction phase of the project.

Monitoring programs will be developed to include sediment core sampling and operational monitoring of turbidity during dredging. Local residents will be also be notified of proposed maintenance dredging and the possible short term effects of dredging, such as discolouration and odour.

Once approved, the maintenance dredging plan and any conditions from the Consent under the Coastal Management Act 1995 and the Works Permit in accordance with Port Services (Designated Ports) Regulation 2004 will be incorporated into the OEMP.

If turbidity levels are above the acceptable criteria, EPA Victoria will be notified within 21 days of results being received. Preliminary investigations will also be undertaken to ascertain causes and where warranted, action taken to reduce turbidity levels.

Any proposal for maintenance dredging will require the submission of a separate permit application under the Coastal Management Act 1995, which shall include details of the approved location for material disposal.

## Monitoring

Action	Frequency	Responsibility
A monitoring program will be established in conjunction with the development of a dredging program.	Ongoing	Marina operator

Refer to the Maintenance Plan (section 3) for details of monitoring and maintenance requirements for any maintenance dredging works required.



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## 8.4 Water Quality

### 8.4.1 Introduction

#### Background

To ensure that the operation of Wyndham Harbour does not have a detrimental impact on the quality of both local groundwater and surface water, a monitoring program of these water bodies has been developed to provide ongoing information about their condition. The purpose of the monitoring program is to gauge the effectiveness of the management measures related to water quality included within this OEMP.

#### Objectives

To undertake monitoring of local groundwater and surface water conditions to ensure that the management action being implemented from the OEMP are being effective in protecting the beneficial uses of the local aquifer and Port Phillip Bay.

### 8.4.2 Surface Water

#### Issues

Maintenance of the water quality within the Marina will be critical to its long term sustainability in addition to protecting waters within Port Phillip Bay. The most efficient and effective approach to maintenance of water quality requires a focus on the highest risks posed to water quality. The risk-based approach to the protection of receiving waters is adopted by Government agencies in guideline and policy documents (e.g. ANZECC 2000, Government of Victoria 2003). The fundamental elements of the risk-based approach are to identify the activities most likely to impact upon the receiving waters, determine the beneficial uses most likely to be impacted by the activities; and determine which indicator is the best for measuring the potential impact.

The activities that have been identified as posing the greatest risk to water quality within the Marina include boating, recreational, maintenance, residential and commercial activities. The impacts of these activities include:

- Leaching of copper from antifouling paints applied to the hulls of vessels moored at the Marina, and spreading to open waters of Port Phillip Bay
- Inputs of polycyclic aromatic hydrocarbons (PAHs), either as a result of a major incident or through an accumulation of minor and routine spills
- Build-up of pollutants (particularly nutrients) due to insufficient flushing of the Marina, potentially leading to algal blooms
- Re-suspension of sediments during maintenance dredging, physically affecting ecosystems, and
- Contamination of storm water runoff with litter, nutrients and sediments.

While the quality of storm water from the site is a key water quality issue there is also a possibility of the development itself being affected by external water quality influences, in particular:

- Higher nutrient content water discharged from the Western Treatment Plant (WTP) to Port Phillip Bay entering the Marina under certain combinations of wind and tide
- Higher nutrient content and turbid freshwater from the Werribee River during significant runoff events entering the Marina under certain combinations of wind and tide, and



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- High turbidity and concentrations and loads of nutrients from the adjacent Duncans Road Drain in both high flow periods and dry weather periods.

Although there is limited scope to improve water quality from the WTP, Duncans Road drain and the Werribee River, the inclusion of both the wetlands and the bio-retention systems within Wyndham Harbour will enable storm water runoff from the site to be treated prior to discharge into the Bay, resulting in a reduction of nutrients and other pollutants entering Port Phillip Bay.

These external influences will also affect the water quality of discharge at the Southern Beach, usually after significant rainfall events. The Werribee Boat Ramp, approximately 1km south of the Southern Beach is also a potential cause of contaminants. As highlighted in Table 1 of Section 4.4, the Duncans Road Drain, Wetlands, Bioswales and Southern Beach fall within different groups responsible. As such, the operation and maintenance performance of each will need to be closely monitored within the Reporting and Community Liaison Committee forums established within this OEMP to ensure the best mitigation of water quality discharge can be achieved. It is also recommended that the discharge of the water quality at the Southern Beach should be monitored in accordance with the EPA's existing baywide water quality monitoring program.

## Objectives

- To maintain water quality for the benefit of existing and future users and for the environment.
- To improve the general level of awareness and understanding in relation to water quality and management thereby improving the capacity to minimise potential impacts.
- To ensure the beneficial uses of Port Phillip Bay are not impacted upon from the activities within the development

## Relevant Legislation and References

- SEPP (Waters of Victoria) Schedule F6 (Waters of Port Phillip Bay)
- SEPP (Waters of Victoria) 2003
- Drainage and Stormwater Management Plan (Pat Condina & Associates)

## Environmental Quality Indicators

Water quality indicators have been developed for the Wetland and bio-retention and the Harbour. Although the wetland is set back from Port Phillip Bay, its discharge will travel a short distance prior to entering the Bay. For this reason, water quality targets are based on the ambient conditions in Port Phillip Bay. Where objectives are supplied by the SEPP (Waters of Victoria) Schedule F6 Waters of Port Phillip Bay, these have been taken as the performance targets. Further to this, due to the close proximity of the bio-retention systems to Port Phillip Bay, the same water quality targets as used for the wetland will be used for the bio-retention systems.

Those indicators that do not have objectives specified within SEPP (Waters of Victoria) Schedule F6 Waters of Port Phillip Bay have been obtained from the Australian Water Quality Guidelines for Fresh and Marine Waters (ANZECC 2000) guidelines or EPA's Port Phillip Bay Water Quality: Long-Term Trends in Nutrient Status and Clarity, 1984-1999 (EPA 2002). The water quality trigger values provided by EPA (2002) are based on sites across Port Phillip Bay, most of which return lower nutrient concentrations than that found close to Wyndham Harbour. Therefore, the performance targets provided in Tables 7 and 8 are based on the medians obtained from EPA's site closest to Wyndham Harbour (Long Reef, EPA 2002).

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*Table 7: Water Quality Objectives for the Wetland and Bio-Retention Systems*

Parameter	Unit	Sampling Frequency	Performance Target for Marine Waters Port Phillip Bay (Median)
Total phosphorus**	µg/l	Monthly	136
Total nitrogen**	µg/l	Monthly	280 (& 60% reduction from wetland inlet to outlet)
Oxides of nitrogen**	µg/l	Monthly	5.0
Ammonium-nitrogen**	µg/l	Monthly	17.7
Chlorophyll-a <sup>#</sup>	µg/l	Monthly	1.5
Dissolved Oxygen <sup>#</sup>	% sat	Monthly	>90% <sup>^</sup>
pH <sup>#</sup>	-	Monthly	Not more that 0.5 from background
Electrical Conductivity <sup>#</sup>	µS/cm	Monthly	Not more that 5% from background
Temperature <sup>#</sup>	°C	Monthly	Not applicable

<sup>#</sup> Performance measure taken from SEPP (WoV) F6, inshore segment

<sup>\*\*</sup> Performance measure based on data from Long Reef site reported in EPA (2002) Port Phillip Bay Water Quality: Long-Term Trends in Nutrient Status and Clarity, 1984-1999. Environment Report. EPA Publication Number 806. EPA Victoria.

<sup>^</sup> measures to be taken 1 m below surface and 1 m above bottom

*Table 8: Water Quality Objectives for the Harbour and Port Phillip Bay*

Parameter	Unit	Sampling Frequency	Performance Target for Marine Waters Port Phillip Bay (Median)
Copper*	µg/l	Monthly	1.3
PAH	-	Monthly	No visible film
Total phosphorus**	µg/l	Monthly	136
Total nitrogen**	µg/l	Monthly	280
Oxides of nitrogen**	µg/l	Monthly	5.0
Ammonium-nitrogen**	µg/l	Monthly	17.7
Chlorophyll-a <sup>#</sup>	µg/l	Fortnightly (November to April)	1.5
Dissolved Oxygen <sup>#</sup>	% sat	Monthly	>90% <sup>^</sup>
Secchi Depth <sup>#</sup>	metres	Monthly	~ 3
Petroleum Hydrocarbons	-	Monthly	No visible film
E.coli <sup>#</sup>	Orgs/100mL	Monthly (November to March at Northern Beach)	42 day geom. Mean: <14 (Aquaculture zones) 42 day geom. Mean: <200 (all other zones) 42 day 80 percentile: <400

<sup>#</sup> Performance measure taken from SEPP (WoV) F6, inshore segment

\* Performance measure based on 95%ile from ANZECC Guidelines 2000

<sup>\*\*</sup> Performance measure based on data from Long Reef site reported in EPA (2002) Port Phillip Bay

Water Quality: Long-Term Trends in Nutrient Status and Clarity, 1984-1999. Environment Report. EPA Publication Number 806. EPA Victoria.

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^ Measures to be taken 1 m below surface and 1 m above bottom

Water quality objectives and sediment quality objectives have been developed for copper and PAHs to accommodate the potential for short-term and long-term impacts. For sediment quality, SEPP (Waters of Victoria) Schedule F6 Waters of Port Phillip Bay does not provide guidelines, however it recommends the use of the low values for all area other than urban. For copper the ISQG-Low is 65 mg/kg (dry weight) and for total PAHs the ISQG-Low is 4000 mg/kg (dry weight).

***Table 9: Water Quality Objectives for the Harbour and Port Phillip Bay during dredging***

Parameter	Unit	Sampling Frequency	Performance Target for Marine sediment during Dredging
Copper <sup>^</sup>	mg/kg dry wt.	Biannual	65
PAH <sup>^</sup>	mg/kg dry wt.	Biannual	4000

<sup>^</sup> Performance measure based on ANZECC 2000 default for marine ecosystems in SE Australia

## **Monitoring Program**

The water quality monitoring program is one of the most important aspects of managing the water quality within the development. The monitoring program has been designed to enable an assessment of water quality against the specified environmental quality indicators.

### Wetlands

Two monitoring locations have been established in relation to the wetlands as indicated in the Figure below. These monitor

- Within the wetland landscape, and
- Marina outfall point from wetland

Biological surveys will be conducted twice yearly in the wetland in accordance with EPA Publication 604.1, Rapid Bio assessment Methodology for Rivers and Streams and methodology agreed with EPA-Victoria. The possibility of working in conjunction with existing monitoring programs will also be considered when developing the monitoring program.

### Foreshore

Monitoring points will be established at each outfall location for the purpose of monitoring the water quality and the operation efficiency of the Bio-Retention systems.

### Harbour

Three monitoring locations will be established within the Marina with another two monitoring locations outside the Marina in Port Phillip Bay. As with the wetland monitoring program the exact location of the monitoring sites has not been confirmed, however they will be representative of the following:

- The centre of the southern half of the Marina;
- The centre of the northern half of the Marina;
- The entrance of the Marina to Port Phillip Bay;

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- Approximately 20 metres down-current from the entrance of the Marina to Port Phillip Bay; and
- A location sufficiently away from the Marina to act as a benchmark for water quality within the Bay.

An additional monitoring location will be established to monitor E.coli between November and March at the Northern Beach. Continuous monitoring equipment will also be installed at one location in the vicinity of the Central Spine to monitor in-situ conductivity, temperature, pH, and dissolved oxygen at two depth intervals. Daily rainfall will also be monitored to enable the collection of reliable information on storm water impacts on the Marina.

Biological surveys will be conducted twice yearly in Port Phillip Bay at six sites in accordance with EPA Publication 677, Guidelines for the Monitoring and Assessment of Coastal Point Source Discharges and methodology agreed with EPA Victoria. The possibility of working in conjunction with existing monitoring programs will also be considered when developing the monitoring program.

Sampling will be conducted under the direction of a laboratory accredited by the National Association of Testing Authorities Australia (NATA) and in accordance with EPA Publication IWRG701, Sampling and Analysis of Waters, Wastewaters, Soils and Waste, June 2009.

All aspects of the water and sediment monitoring programs will be independently reviewed after two years to assess the adequacy of the program and will include the range of parameters, frequency and location of sampling points.

## **Corrective Actions**

If an abnormal monitoring result is received through the monitoring programs it will re-sampled within 24 hours of receipt to confirm the initial result. If the monitoring result is confirmed, both Wyndham City Council and EPA Victoria will be formally notified within 48 hours of the second sample result being received.

In addition an initial investigation will be conducted within 24 hours of the abnormal result to identify whether it is related to a specific incident within the Marina. Additional investigations will be conducted in accordance with guidance issued by Wyndham City Council and EPA Victoria as required.

A statement will be provided within 48 hours to the EPA and Council explaining the reason the objective has not been met and any measures taken, or to be taken to correct the problem. In the event that monitoring of copper concentrations exceeds the water quality or sediment objective, copper-based anti-fouling coatings will be banned from use at the Marina Service Area.

## **8.4.3 Bio-Retention Systems**

### **Issues**

Activities within the development impacting adversely on operation of the bio-retention systems resulting in decreased water quality in the Marina and Port Phillip Bay.

### **Objectives**

- To maintain water quality for the benefit of existing and future users and for the environment.

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## Relevant Legislation and References

- Coastal Management Act 1995
- SEPP (Waters of Victoria) Schedule F6 (Waters of Port Phillip Bay)
- SEPP (Waters of Victoria) 2003
- Wyndham City Council, Planning Permit Conditions . Wyndham Harbour
- Environment Protection Act 1970

## Management Actions

- Monthly monitoring and maintenance of all new planting within the system for the first 6 months from planting to ensure vegetation is healthy and establishing well. If plants do not meet this criteria, ensure that they are replaced and monitoring on a regular basis thereafter.
- Initially monthly monitoring for any erosion along the system (first 6 months) should be undertaken. If identified, ensure that these areas are repaired immediately to prevent further erosion and subsequent silt entering the Marina. Ongoing erosion monitoring should occur every 6 months and after extreme rain events.
- Access for maintenance of bio-retention systems is to be provided via light vehicle access only along the Bay Trail. All vehicles are restricted to the Bay Trail paved pathway and must not cross into the adjoining landscaped areas.

## Monitoring

Action	Frequency	Responsibility
Undertake inspections of the Bioswales to assess the performance / condition of the Bioswale	Every 2 months for the first 2 years then every 6 months thereafter	Owners Corporation
Inspect overflow pits and sub-surface drainage pipes for faults or blockages	Weekly and after extreme rain events	Owners Corporation
Monitor for sediment and litter build up along the system and remove as required.	Quarterly (or after extreme rain event)	Owners Corporation
Monitor for scouring at all inlet points and ensure faults are repaired as soon as practicable.	Every 6 months and after extreme rain events	Owners Corporation
A schedule of all maintenance works is to be kept in a register to be available for inspection by Council if requested	Within a week of any maintenance works being undertaken	Owners Corporation

Refer to Maintenance Plan (section 7 and 8) for detailed requirement of bio-retention swale monitoring and maintenance.

### 8.4.4 Duncans Road Drain

#### Issues

If the Duncans Road Drain adjacent to the development is not maintained and kept in a safe and structurally sound condition, it could lead to adverse impacts on local residents (i.e. during flood events).

#### Objectives

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- To maintain Duncans Road Drain pipeline abutting Wyndham Harbour to a high standard
- To reduce the environmental impacts of Duncans Road Drain through on-going maintenance activities.

## Relevant Legislation and References

- Environment Protection Act 1970
- Council Local Laws
- *'Duncans Road Drain Outfall'* Memo from Water Technology 20/9/2013
- *'Maintenance Deed Channel Reserve Drainage Maintenance'*, Wyndham Harbour (4<sup>th</sup> December 2012)

## Management Actions

- Ensure that the drain is maintained in a safe and structurally sound condition in accordance with the Maintenance Deed Channel Reserve Drainage Maintenance (December 2012).
- Inspection of t

## Monitoring

Action	Frequency	Responsibility
Inspect asset jointly with SRW to ensure it is maintained to an appropriate standard.	Annually (May)	Owners Corporation
Inspect inlet grate of Duncans Road Drain to ensure it is free from obstacles and clean if required.	Weekly and after rain events	Owners Corporation
Act on all complaints received regarding maintenance and condition of the Harbour siphon and inlet grate.	As received	Owners Corporation

\* Wyndham Harbour is only responsible for the asset, not water quality inside the pipe.

## 8.4.5 Groundwater

### Issues

Wyndham Harbour has the potential to affect the beneficial use of the Deutgam aquifer by allowing saline water to more easily migrate into the aquifer as a result of seawater intrusion. Although the foreshore of the Stage 2 Marina Works will be extended with a clay liner it is important to monitor groundwater to ensure salinity is not impacting on the beneficial uses of groundwater.

The Coffey Geotechnics; Groundwater Protection Management Plan dated April 2008 and supplementary advice dated December 2014 (GPMP), provides more information on the requirements, obligations and monitoring programs required. The requirements expressed in the approved GPMP must be complied with during operations. The GPMP may be amended from time to time, subject to approval from relevant authorities, in response to monitoring results etc.

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## Objectives

- To maintain TDS levels in the Deutgam aquifer.
- To maintain existing groundwater quality for the protection of environmental values associated with the Harbour.
- To improve the general level of awareness and understanding in relation to groundwater quality and management thereby improving the capacity to minimise potential impacts.
- To maintain groundwater for the benefit of existing and future users and for the environment

## Relevant Legislation and References

- *Groundwater Protection Management Plan, Wyndham Harbour Development, Werribee South* by Coffey;
- *Works Methodology Report, Wyndham Harbour Development, Werribee South* by Coffey;

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## **Management Actions**

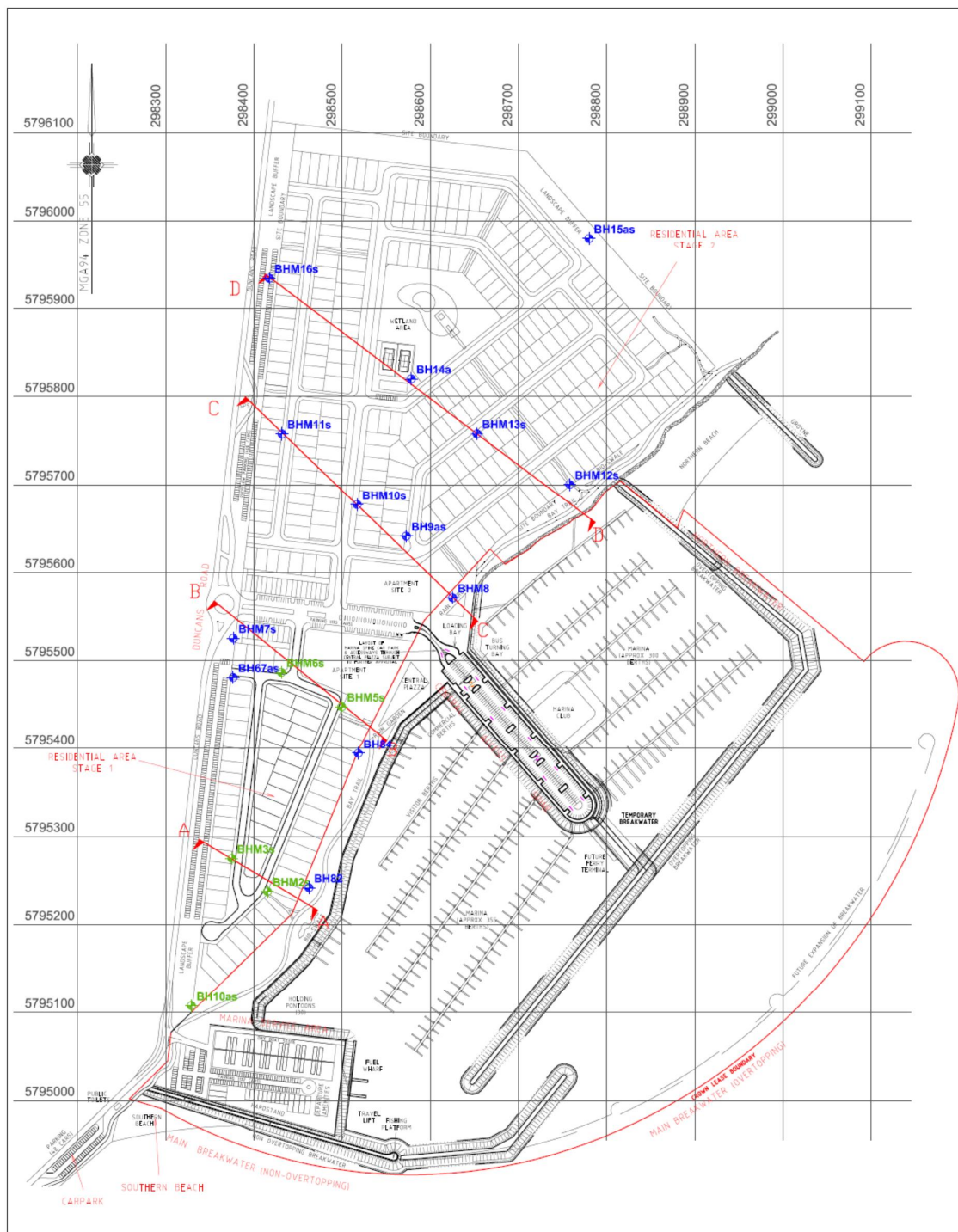
### ***Environmental Quality Indicators***

A groundwater monitoring program has been designed by Coffey® to specifically monitor the impacts of salinity from the harbour on groundwater quality. The SEPP (Groundwaters of Victoria) 1997 classifies groundwater into segments based on the background levels of Total Dissolved Solids (TDS). Coffey® have advised that the TDS values fall in the range between 1800mg/L and 3600mg/l which would classify the aquifer as segment B (1,001 - 3,500mg/L).

Groundwater monitoring commenced prior to the commencement of the dredging works in November 2014. The Figure below indicates the locations of the boreholes that allow will allow assessment of any changes in TDS levels progressively with distance from the coast.



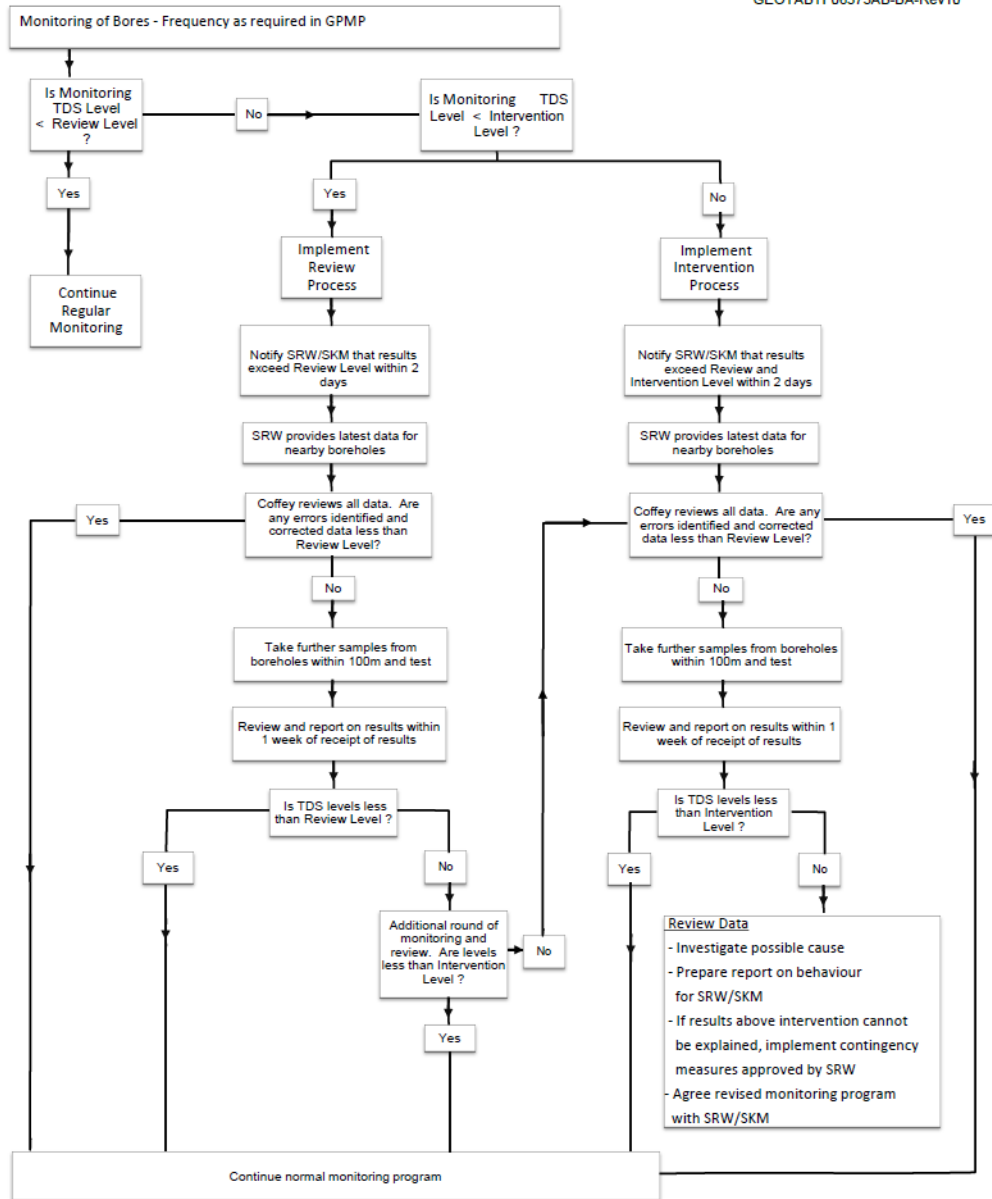
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The following flow chart extracted from the current GPMP shows the process for monitoring, review and intervention required for the protection of the aquifer.

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Appendix A  
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## 8.4.6 Monitoring

Monitoring of the groundwater bores and follow up actions are to be conducted in accordance with the GPMP, which may be amended from time to time subject to relevant approvals. Unless stated otherwise in the GPMP, monitoring will be conducted as follows:

Action	Frequency	Responsibility
Borehole salinity monitoring. From 2 months after dredging to 1 year after dredging:	Monthly	Marina Operator
Borehole salinity monitoring. From 1 year after dredging for next 4 years:	6 monthly	Marina Operator

Recommended ground water monitoring criteria:

Section	Bore No.	Current (Jan 2012) Water Level RL AHD (m)	Max. Measured TDS (mg/L)*	Current TDS (mg/L)	Review TDS Level (mg/L)*	Intervention TDS Level (mg/L)*
AA'	BHM1	0.5** (12/10/11)	13000	7700** (12/10/11)	15000	NA
	BHM2	0.24	2400	2000	4400	NA
	BHM3	0.55	2300	1900** (12/10/11)	2400	2600
BB'	BHM4	0.58** (16/12/10)	35000	3500** (16/12/10)	NA	NA
	BHM5	0.52	2400	2300** (23/05/11)	2900	NA
	BHM6	0.61	2200	2000	2300	2500
	BHM7	0.76	2400	1900	2500	2700
CC'	BHM8	0.42	33000	3100	35000	NA
	BH9a	0.8** (23/05/11)	2800	2700** (23/05/11)	2900	3200
	BHM10	1.22** (23/05/11)	2900	2500** (16/12/10)	3000	3200
	BHM11	1.25	2900	2200	3000	3200
DD'	BH13a	0.42	12000	5200	14000	NA
	BHM13	0.73	3800	3000	3900	4100
	BH14a	0.83	3800	3300	3900	4100
	BHM16	1.46	5400	4800** (11/06/09)	5500	5700
OTHER BORES	BH10a	0.3** (15/03/10)	3000	1700** (15/03/10)	3500	NA
	BH67a	0.69** (16/12/10)	3000	2600** (16/12/10)	3100	3300
	BH15a	0.08** (28/02/09)	2400	2400** (28/02/09)	2500	2700

### Onsite Monitoring

All groundwater sampling will be conducted in accordance with EPA Publication 699, Groundwater Sampling Guidelines, April 2000 and analysed by a NATA accredited laboratory.

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Analysis reports will be forwarded to Southern Rural Water within one week of monitoring results being received. The data will then be independently assessed and forwarded to SRW for review.

## Offsite Monitoring

In addition to the on-site boreholes, ongoing monitoring by SRW of the offsite boreholes (59531, 59533, 59536, 59537, 14571, 14572 and 14573) needs to be undertaken to allow an assessment of the regional effects on salinity measurement of the onsite bores.

## **Review**

The annual monitoring program will be independently reviewed after three years to assess the adequacy of the program and will include the range of parameters, frequency and location of groundwater bores.

Analysis reports will be forwarded to Southern Rural Water within 1 week of monitoring results being received. The data will then be independently assessed and forwarded to SRW for review.

## **Threshold levels**

Borehole	Review Level	Intervention Level
For boreholes > 100m from shoreline	Target plus 100mg/L	Target plus 300mg/L
For boreholes >50m and <100m from shoreline	Target plus 500mg/L	
For boreholes < 100m from shoreline	Target plus 2000mg/L	

If threshold levels are reached (review or intervention) then SRW will be notified within 48 hours of the monitoring result being received. In addition detailed independent investigation shall be conducted to determine the extent of increased TDS, including an assessment of the regional database to determine if regional influences are contributing. All bores within 100 metres of the original elevated result would also be re-sampled with the results and recommendations provided to SRW within one week of the results being received.

If the subsequent round of testing confirms that the intervention level has been exceeded and the trend is not observed in the nearby monitoring bores away from the Marina, and cannot be explained by excessive regional drawdown, or other relevant factors, then investigation must occur to discover potential reasons for the exceedance, including inspection of the Marina floor with divers.

## **Contingency Measures**

An injection well system will be installed in the subdivision road reserves. The purpose of these injection wells is to pump fresh water back into the aquifer in the event of an intervention level exceedance. The injection system is proposed to be implemented when required in the following manner:

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- Isolate the extent of the elevated TDS levels
- Identify the possible sources of high salinity infiltration
- Commission the use of the injection wells. Works should only be conducted under the appropriate expert supervision.
- The injections wells closest to the exceedance would commence injection into the aquifer. This would include all injection wells up to half way between the next monitoring bore not showing any exceedance.
- Ongoing monitoring is required during operation of the injection wells, and inflow rates can be modified to suit the requirements.
- If reason for exceedance cannot be determined then a report must be provided by the appropriate expert supervision, providing explanation and parameters of the event, and proposals must be agreed with Southern Rural Water.

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## 8.5 Management of General Public Areas

### 8.5.1 Entertainment Areas

#### Issues

Music can engender noise conflicts in a mixed use environment, especially late at night when background noise levels are low. Public address systems can also cause annoyance to residents if used inappropriately.

#### Objectives

- To ensure music noise levels are in compliance with SEPP (Control of Music Noise from Public Premises) No-N2.
- To ensure public address systems are in compliance with EPA Publication 1254, Noise Control Guidelines, Oct 2008
- Acoustics Review, Burton Acoustic Group (July 2007)

#### Relevant Legislation and References

- EPA Publication 1254, Noise Control Guidelines, Oct 2008
- SEPP (Control of Noise from Industry, Commerce and Trade. No . N1
- SEPP (Control of Music Noise from Public Premises) No-N2.
- Council Local Laws
- Planning Permit WYP3729/10 (and subsequent amendments) . includes endorsed documents referencing the control of noise from retail areas.

#### Environmental Quality Indicators

The SEPP (Control of Music Noise from Public Premises) No-N2 is a Regulation under the Environment Protection Act 1970 and provides criteria for the emission of music noise levels and is based on an external measurement location (see table 10 below). During the night period, the criteria is a margin of plus 8 dB between the L90 background and the L10 music level as measured in the octave bands from 63 to 4k Hz centre frequencies. Based on the background noise levels, the noise limits for music noise levels under SEPP N-2 are as follows:

*Table 10 - Noise Limits for Music Levels*

CENTRE OCTAVE BAND FREQUENCY (Hz)						
63	125	250	500	1k	2k	4k
Noise Limits (dBL10)						
51	46	37	31	31	28	21

Although public address systems will not be used regularly at Wyndham Harbour it can cause annoyance to residents if used inappropriately. Any public address system will be established in accordance with EPA Publication 1254 Noise Control Guidelines . Public Address System.

#### Management Actions

No external music will be permitted at the Marina Centre, restaurants and other on-site facilities after 11:00pm, unless special permission is gained by the Owners Corporation. Complaints received in relation to music noise will be recorded and actioned as required to ensure compliance with SEPP N-2.

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Unless otherwise permitted by the Owners Corporation, public address systems will be established and maintained so that the noise intrusion is less than 5dB(A) above background at any affected residences or noise sensitive areas in accordance with EPA Publication 1254, Noise Control Guidelines (July 1992) . Public Address System.

## Monitoring

Action	Frequency	Responsibility
Random assessments of entertainment areas will be conducted of noise levels to determine compliance with SEPP N-2 or more frequently if complaints are received.	As required	Owners Corporation
Public address system will be established and maintained in accordance with EPA Publication 1254	As required	Owners Corporation

## 8.5.2 Marina Centre (Temporary)

### Issues

As part of the staged development, the Marina Centre (Temporary), will be located in the commercial floorspace on the ground floor of Marina Quays Apartments.

The Marina Centre (Temporary) consists of two functions related to the operations and amenity of the Marina, these are:

1. Marina managers office (and offices of other related personnel of the Marina Operator and the Coastguard);
2. Lounge area and amenities for the exclusive use of berth licensees (and sub-licensees).

### Objectives

To clearly identify the access, management and maintenance arrangements of the Marina Centre (Temporary).

To ensure effective operations of the Marina in a clean, safe and secure environment.

### Relevant Legislation and References

- Permit WYP2365-08.57 (and subsequent amendments).
- Permit WYP3729-10 (and subsequent amendments).

### Management Actions

The Marina Centre (Temporary) is the responsibility of the Marina Operator.

The Marina Managers Office, will be open to the public for marina business during specified hours as displayed on the door and website. Outside these hours, the office will be securely locked however, the Marina Manager will be contactable on mobile for emergencies (which is to be displayed in signage).

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The lounge and amenities area is for the exclusive and private use of berth licensees (and sub-licensees), as part of the facilities on offer at Wyndham Harbour Marina. These facilities will be available 24 hours a day. During closure of the Manager's Office, the lounge and amenities can be accessed by berth holders by way of their security fob (also programmed to enable their access onto the Marina).

Cleaning of the Marina Centre (Temporary), will be by a contract issued by the Marina Operator. Any urgent requirements for cleaning will be conducted by the Marina Operator, or a special visit arranged by a professional contractor.

Maintenance of the facilities will be the responsibility of the Marina Operator. These will occur in accordance with the requirements of the Lease obligations for the tenancy. Where any rectification is required by the Landlord, the Marina Operator will promptly issue notification to the Landlord (and/or its agent), to ensure that the required works are undertaken in a suitable timeframe.

## 8.5.3 Interim Landscaping of the Central Access Spine

### Issues

As part of the staged development, the Central Access Spine will have an interim landscaping solution.

The following items are also proposed within the interim landscaping and will be subject to further approval:

- Fish Cleaning Station
- Trolley Bay
- Pumphouse (to house pump for the marina sewer pump out and communications hub for the security infrastructure)

Provided as supporting amenity for the users of the marina.

### Objectives

To clearly identify the access, management and maintenance arrangements of the interim landscaping to the Central Access Spine.

To ensure effective operations of the Marina in a clean, safe and secure environment.

### Relevant Legislation and References

- Permit WYP2365-08.57 (and subsequent amendments).
- Any subsequent permit approvals related to the fish cleaning station, trolley bay, and pumphouse.

### Management Actions

All elements of central access spine are the responsibility of the Marina Operator.

As part of its day to day operations of the marina, the Marina Operator will ensure:

- Regular rubbish removal from bins provided by a professional contractor.
- That the pumphouse is secure at all times.
- Trolleys are returned to the designated trolley bay.



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- Visitors to the marina who wish to clean and scale fish do so at the dedicated location which will include signage to address the appropriate waste management (as described in Section 8.1.4).

In addition, regular maintenance of the soft landscape will occur to ensure that the marina remains clean, safe and presentable.

## 8.5.4 Visitor Berths

### Issues

Without an appropriate management system in place, the requirement to provide visitor berths for public use may not be available.

### Objectives

- To ensure there is an effective management system to provide visitor berths available to the public for use.
- To ensure the provision of visitor berths encourages visitors to the marina.

### Management Actions

- A total of 20 marina berths will be available for the public use with a maximum of 4 hours usage to be provided free of charge
- All visitor berths to be clearly signed.
- All visitors to the marina are to contact the marina manager prior to arriving to provide details of their craft for security and insurance purposes.
- Any usage of the visitor berths beyond the 4 hour limit will attract an overnight berth charge.

## 8.5.5 Noise

### Issues

Noise generated from plant and equipment such as air conditioning plant, refrigeration, exhaust systems and maintenance vehicles and the like has the potential to impact on residents, visitors and fauna.

### Objectives

- To minimise noise resulting from day to day operation of the marina by complying with the State Environment Protection Policy N-1 "Control of Noise from Commerce, Industry and Trade" (SEPP N-1)
- To protect noise sensitive locations, defined as being within 10 metres of a residence.

### Relevant Legislation and References

- Council Local Laws
- SEPP (Control of Noise from Commerce Industry and Trade) No. N-1
- Acoustics Review, Burton Acoustic Group (July 2007)
- Conditions of Planning Permits issued by Wyndham Council for Wyndham Harbour which relate to commercial and residential noise control.

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## Management Actions

Unless permitted by the Responsible Authority the following requirements must be achieved:

- Day Period: Noise generated between the hours of 7am and 6pm Monday to Friday and 9am and 6pm weekends & Public Holidays will not exceed the noise limit of 50 dB(A) dB(A)LEQ
- Evening Period: Noise generated between the hours of 6pm and 11pm Monday to Friday will not exceed the noise limit of 48 dB(A) dB(A)LEQ
- Night Period: Noise generated between the hours of 11pm and 7am Monday to Friday will not exceed the noise limit of 41 dB(A) dB(A)LEQ.
- Maintenance and operational activities in proximity to residential areas (i.e. road cleaning, landscape maintenance, sand by-pass) will be undertaken during hours specified in the Environment Protection (Residential Noise) Regulation 2008.
- All harbor activities must comply with SEPP N1.

## Monitoring

Action	Frequency	Responsibility
Undertake noise and/or vibration monitoring at affected premises (with consent) as soon as practicable following receipt of complaint. Monitoring will include: <ul style="list-style-type: none"><li>- Monitoring of equipment to ensure it is not operated to cause any unnecessary noise</li><li>- Identification of any unnecessary, extraneous noises</li></ul>	As required	Owners Corporation  Marina Operator

## 8.5.6 Traffic and Parking Management

### Issues

Appropriate traffic and parking management is necessary to ensure the safety of residents and visitors to Wyndham Harbour (vehicular and pedestrian).

### Objectives

- Maintain a safe environment for pedestrians and cyclists.
- Ensure the appropriate carparking is provided for all users and visitors to Wyndham Harbour.
- Avoid congestion.
- Ensure parking is appropriately managed during events.

### Relevant Legislation and References

- Traffic Management Plan (2008) and subsequent supplementary reports.
- Traffic and Parking Management Plan (Central Piazza / Marina Spine)
- Traffic and Parking Management Plan (Overflow Parking)

### Management Actions

- Traffic and Parking will be managed in accordance with the *Traffic and Parking Management Plan for Wyndham Harbour* (Ratio), the *Traffic and Parking Management Plan – Central Piazza / Marina Spine* and the *Traffic and Parking Management Plan – Overflow Parking*

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- The Traffic and Parking Management Plan as required by the Wyndham Harbour overall Planning Permit WYP 2365/08, will also address events at the site to manage access and traffic management to the two overflow parking areas adjacent to Duncans Road. During such events, the management and control of parking will be undertaken by the Owners Corporation in consultation with Council Local Law officers.
- Further detail of the maintenance requirements of the pavements and footpaths on the Central Spine is provide in the Maintenance Plan (section 9)

## 8.5.7 General Maintenance

### Issues

Maintenance of public areas and infrastructure is critical to the safety, visual amenity and long term sustainability of the development. Opportunities exist to reduce the environmental footprint of the development through the adoption of measures to:

- Reduce water and energy consumption
- Encourage water re-use
- Encourage renewable energy use
- Reduce the use of raw materials
- Reduce waste going to landfill
- Encourage recycling
- Reduce contaminants entering the Marina
- Encourage the use of environmentally friendly products.

### Objectives

- To maintain the development's public facilities and areas to a high standard
- To reduce the environmental impacts of on-going maintenance activities.

### Relevant Legislation and References

- Council Local Laws
- Environment Protection (Residential Noise) Regulations 2008
- Environment Protection Act 1970
- Planning Permit WYP3729/10 (and subsequent amendments)
- Planning Permit WYP 2365/08 (and subsequent amendments)
- *Transport Management Plan* for Wyndham Harbour development (Ratio Consultants)
- *Lease of Wyndham Harbour Werribee South* executed 16<sup>th</sup> November 2009
- *Traffic and Parking Management Plan* (Ratio Consultants)
- Wyndham Harbour Marine Works Maintenance Plan.

### Management Actions

#### **Lighting**

- Fluorescent lights, including compact fluorescents will be fitted where feasible.
- Broken street lights will be reported to Powercor for immediate replacement or repair.

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## **Street furniture**

- Seating will be inspected regularly to ensure that seats are clean and in good condition.
- All signage will be maintained in a good condition.
- Unauthorised posters and graffiti will be removed as soon as practicable from trees, street furniture and public infrastructure.

## **Pedestrian Paths**

- Pedestrian paths will be maintained and kept free of obstacles at all times.
- Paths under repair will be signed as such and an alternative temporary pedestrian path provided.

## **Public Amenities**

- Public amenities are included / planned for:
  - Central Piazza North - public toilets (within the Amenities Building).
  - Marina Service Area - public toilets
- Public amenities including toilets and showers will be cleaned regularly and kept in good working condition by the responsible party as noted in Section 4.4; Table 1.
- Biodegradable cleaning agents will be used when cleaning public amenities.

## **Recycling Facilities**

- Recycling receptacles for glass, plastic and aluminium will be provided within Marina Square. The receptacles will be placed in prominent locations, clearly labeled and weather/animal proof.
- Public recycling receptacles will be emptied at least once every week or as agreed with Council.
- The contents of the receptacles will be collected by or transported to an approved recycling depot.
- Litterbins will be provided in the Marina Square and wetlands area. Bins will be weather/animal proof.
- Litterbins will be emptied three times per week between 1 November and 31 March and once per week between 1 April and 31 October.

## **General**

- Any graffiti on the site which is visible to the public must be promptly removed and the site kept free of graffiti at all times to the satisfaction of Council.
- Wyndham Harbour must be operated and maintained in accordance with the Maintenance Plan for the site. The maintenance plan must document risk management identification and treatment.

## **Monitoring**

Action	Frequency	Responsibility
Inspect all seating to ensure they are clean and in good condition.	Weekly	Owners Corporation  Marina Operator where applicable

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Action	Frequency	Responsibility
Inspect boat wash facilities to ensure they are in good working order.	Weekly	Marina Operator
Inspect all lights in common areas to ensure bulbs are working.	Monthly	Owners Corporation  Marina Operator where applicable
Inspect all litterbins and recycling facilities to ensure the frequency of emptying is adequate.	Fortnightly	Owners Corporation  Marina Operator where applicable
Walk all pedestrian paths to ensure they are free of obstacles.	Weekly	Owners Corporation  Marina Operator where applicable
Act on all complaints received regarding maintenance and condition of the Marina and its facilities.	As received	Marina Operator
Inspect safety signage to ensure it is maintained to an appropriate standard.	Weekly	Owners Corporation  Marina Operator where applicable
Inspect toilets and showers to ensure they are maintained to an appropriate standard.	Daily	Marina Operator
Inspect taps to ensure they are not leaking	Weekly	Owners Corporation  Marina Operator where applicable

## 8.6 Retail and Food Outlets

### Issues

Maintenance of shops and restaurants is critical to the safety, visual amenity and long-term sustainability of the development. Opportunities exist to reduce the environmental footprint through the adoption of measures to reduce waste generation and water and energy consumption during retail operations.

Every business that sells food in Victoria must be registered with the local Council Health Department.

### Objectives

- To ensure all shop and restaurant owners maintain their businesses in an ecologically sustainable manner.
- To ensure all food businesses comply with the Food Act 1984.

### Relevant Legislation and References

- Council Local Laws
- Food Act 1984

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- Conditions of Planning Permits issued by Wyndham Council for Wyndham Harbour relating to commercial use and management.

## Management Actions

- Food businesses must be registered with the Wyndham City Council Health Department.
- Areas outside shops will be kept free of litter.
- Waste material will be disposed of appropriately.
- Suppliers will be encouraged to take packaging back after delivery of goods.
- All waste will be disposed of in proper waste receptacles with wind / wildlife proof covers.
- Recycling facilities will be provided.
- Retail personnel will be trained in waste management/recycling and appropriate storage of chemicals
- Spill clean-up material will be kept in an accessible place where it is clearly labeled and ready for use.
- Shops and restaurants owners and staff will use biodegradable cleaning products
- Delivery times for food and retail outlets shall be restricted as set out in relevant Planning Permit conditions.
- Larger vehicles entering the site are to use the designated loading zone provided within the central piazza.

## Monitoring

Action	Frequency	Responsibility
Inspect all retail areas, including storage and disposal areas to ensure that waste is being handled correctly.	Weekly	Owners Corporation
Additional education programs will be implemented, if environmental management strategies are not being adopted.	As required	Owners Corporation
Wyndham Harbour boat shop(s) will stock environmentally friendly products such as biodegradable cleaning products.	Ongoing	Marina Operator
Evidence of the annual food safety audit must be displayed at the premises.	Ongoing	Owners Corporation

## 8.7 Flora and Fauna Management

### Issues

Landscaped areas including all common property and foreshore areas contribute significant amenity and play an important role in the operation of the development's water sensitive urban design features. Landscaped areas provide public open space in addition to shade and shelter. Common landscaped areas are located throughout the development in addition to a vegetated buffer between the development area and surrounding area. Ongoing maintenance is required to ensure the establishment and continued protection of these areas.

### Objectives

- To encourage biodiversity within the development where possible.
- To incorporate environmental values into landscaping programs.

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## Relevant Legislation and References

- Environment Protection Biodiversity Conservation Act 1999
- Flora and Fauna Guarantee Act 1988
- Catchment and Land Protection Act 1994
- Planning Permit WYP2365/08 (and subsequent amendments)
- Wyndham Harbour Marine Works Maintenance Plan

## Management Actions

The following management actions are to be implemented to manage the Flora and Fauna within the development:

- A landscape maintenance program has been prepared and implemented by the Owners Corporation. The landscape maintenance program includes the maintenance and protection of the foreshore reserve which will incorporate maintenance measures to increase the quality of the habitat for the Orange Bellied Parrot.
- Landscape maintenance of the foreshore and central spine is detailed within the Wyndham Harbour Marine Works Maintenance Plan and will be approved by Council and DELWP prior to implementation.
- If replacement planting is required on the foreshore reserve, planting will be undertaken using the same species identified in the plans approved under the planning permit.
- Seaweed build up will be monitored and removed as required.
- All common landscaped areas will be inspected and maintained. Plants in poor health will be tended to or be replaced with similar species.
- Weeds will be controlled.
- Local Flora and Fauna programs will be developed and implemented to improve residents' understanding of local fauna and flora.
- Signs in the vicinity of the Marina, the foreshore, the open space and entry and exit points to the site, are to be installed and provide advice about the values of the Berm Grassy Shrubland and the neighbouring Ramsar site, and advice on ensuring those values are not compromised by disturbance of wildlife from boating and other recreational activities. The information on the signs will be able to be read from a distance of 20 metres.
- Participation in community based projects that encourage the establishment and protection of local floral diversity and environmental quality will be promoted.
- A central register of local flora species planted within the development will be prepared and maintained.

## Management Methods

Action	Frequency	Responsibility
Weed eradication program to all landscaping in public areas	Monthly	Owners Corporation
Mulching program to all landscaping in public areas	Annual	Owners Corporation
Local flora and fauna educational program including interpretative information board, signage and facts sheets	Initially, within the Residential Information Kit then, Continually by : - Printed material	Owners Corporation

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	<ul style="list-style-type: none"> <li>- Signage</li> <li>- Residents Intranet portal</li> <li>- Referral to other agencies</li> </ul>	
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## Monitoring

Action	Frequency	Responsibility
Residential landscape maintenance compliance	Monthly Inspection and issue of rectification notices	Owners Corporation
Common landscaped areas will be inspected. Plants in poor health will be removed and replaced	Weekly	Owners Corporation
A weed eradication program will be undertaken at least three times per year.	Three times per year	Owners Corporation
A central register will be maintained of local flora species planted and updated with any new species detected.	Ongoing	Owners Corporation
Wyndham Harbour will be monitored for unrestrained domestic cats	Ongoing	Owners Corporation
Wyndham Harbour will be monitored for unrestrained dogs in public areas	Ongoing	Owners Corporation

## 8.8 Ramsar Site Protection

### Issues

The operation of the development has the potential to impact on off-site habitats including those within neighbouring Ramsar sites such as Point Cook.

### Objectives

- To minimize the impact of the operation of the development on neighbouring Ramsar sites.

### Relevant Legislation and References

- Victorian Biodiversity Strategy 1997
- Environment Protection and Biodiversity Protection Act 1999
- EPBC Approval (2004/1331)

### Management Actions

The following management actions are to be implemented to manage the Ramsar Site Protection requirements of the development:

- Include specific information in the proposed residents' and marina users' information kits about the values of the Point Cook Ramsar area and advice on ensuring those values are not compromised by disturbance of wildlife from boating



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and other recreational activities. This information has been provided to all owners prior to settlement of each lot.

- Outside of private properties dogs will not be permitted to be unrestrained at any time on the site.
- Signs in the vicinity of the Marina, the foreshore, the open space and entry and exit points to the site will be installed which provide advice about the values of the neighbouring Ramsar site and advice on ensuring those values are not compromised by disturbance of wildlife from boating and other recreational activities. The information signs will be able to be read from a distance of 20 metres.
- The Marina Operator will provide information related to the ecological environment of Wyndham Harbour (such as when the sand bypass system is activated), to the contracting party responsible for the Point Cook Ramsar site (as provided under the National Framework and Guidance for Describing the Ecological Character of Australian Ramsar Wetlands), as and when requested.

## Monitoring

Action	Frequency	Responsibility
A visual inspection program will be established to monitor off-site habitats, including those within Ramsar sites, to ensure these sites are not detrimentally affected by the development. This will be undertaken by comparing conditions to those prior to development.	6 monthly	Owners Corporation

## 8.10 Residential Guidelines and Requirements

As part of a property purchase at Wyndham Harbour, the Owners Corporation will provide all resident with a Residents Information Kit. The Residents Information Kit will be regularly updated and available online at the Residents Intranet.

The Residents Information Kit will provide a link to the Council website that provides details regarding recycling programs, community facilities/programs and pet management. The Residents Information Kit will also provide important information on:

- ***Boating Activities (as set out in the Marina Rules applied by the Marina Operator)***
  - Fuel waste and oil disposal
  - Engine maintenance and repair
  - Boating cleaning
  - Boat painting
  - Bilge water management
  - Flare management
  - Battery management
  - Fish waste
  - Exotic species
  - Sewage disposal (pump outs)
- ***Flora and Fauna***
  - EPBC protected species and vegetation community

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- Watering regimes
- No go fishing zones
- Preferred plant species
- **Home Activities**
  - Energy consumption/greenhouse gas reductions
  - Water consumption
  - Waste reduction opportunities
- **Garage Activities**
  - Use of fertilisers, pesticides and herbicides
  - Car maintenance
  - Hazardous wastes

The Residents Information Kit provides a range of information to the residence on the ways that they can contribute to the long term sustainability of Wyndham Harbour and the local marine environment.

## 8.11 Air Quality

### Issues

Air quality impacts on residents, businesses and agriculture in the area surrounding the Wyndham Harbour Marina development site have been assessed according to the legislative requirements relevant in Victoria for assessing air pollutants.

### Objectives

Mitigation measures likely to be to minimise the environmental impact on air quality largely caused by on site construction activity, activities of the nearby agricultural community, exhausts.

### Relevant Legislation and References

- SEPP (Ambient Air )and
- SEPP (Air Quality Management).
- National Environment Protection Council (NEPC) has set

### Management Actions

- Provided adequate dust suppression measures are implemented at the site, via:
  - using a fine water spray if there are strong winds capable of lifting soil stores and dust on site, or have been observed by the site
  - due care to be taken during loading and unloading soils
  - use of water on unsealed roads
  - maintenance of sealed roads
  - minimize any exposed areas of soil
  - maintain vegetation density
  - ensure the above items are implemented by third party contractors operating on the site.

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Complaints regarding air quality will be raised to the Owners Corporation who will assess the source and implement the actions above, and commence the required incident report. Where the source is external, the Owners Corporation will notify them of the complaint and follow through with relevant Authority, in addition to completing the required incident report.

## 8.12 Odour

### Issues

The three major odour sources that could potentially affect the amenity of residents at Wyndham Harbour development are:

- ~ Spreading of manure as a source of fertiliser on nearby market gardens;
- ~ Impact of odour emissions from the nearby Western Treatment Plant; and
- ~ Impact of odour from the excavation of anaerobic bay sediments

Caution should be applied in considering the response to these potentially odorous industries by a new community which has likely no experience with the local history of odour impact and has limited sensory response to these types/character of odours

### Objectives

To reduce impacts and manage complaints related to odour.

### Relevant Legislation and References

- SEPP (Ambient Air )and
- SEPP (Air Quality Management).
- URS Odour Impact Study for Wyndham Cove (2005)

### Management Actions

As the Wyndham Harbour community expands, it is likely that odour complaints may increase, particularly if community members have no experience with the area and types/characters of odours. As such it is important that complaints are monitored and logged carefully with feedback to the relevant management of the external sources through the Community Liaison Committee.

The URS Odour Impact Study for Wyndham Cove (2005), provides an outline for pre-development odour levels and a guide of appropriate levels for reference.

Complaints regarding air quality will be raised to the Owners Corporation who will assess the source and implement the actions above, and commence the required incident report. Where the source is external, the Owners Corporation will notify them of the complaint and follow through with relevant Authority, in addition to completing the required incident report.

## 8.13 Impacts of Agricultural Activities and Western Treatment Plant

There are a number of uses near to Wyndham Harbour that may have impacts on the impacts on the Wyndham Harbour environment, specially:

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- Dust
- Noise
- Air quality
- Odour
- Water quality.

Measurement of these items have been incorporated within this report, however to ensure appropriate communication, cooperation and management of these issues, the Owners Corporation, as manager of this OEMP should make reasonable efforts to include a representative from these communities on the Community Liaison Committee.

Once established the Community Liaison Committee will also form protocols to address environmental impacts caused by external parties. This will be an extension of the protocols highlighted in Section 9.2, Non Conformance and Corrective and Preventative Action within this OEMP.

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## 9. CHECKING AND CORRECTIVE ACTION

### 9.1 Monitoring and Measurement

Monitoring and measuring procedures will be developed in accordance with the requirements of the OEMP detailed under the specific Implementation Plans.

A person or contractor possessing the appropriate experience and qualifications will undertake all monitoring and measuring procedures.

All instruments and devices used for the measurement and monitoring of any parameter under the condition of the OEMP must be calibrated in accordance with relevant Standards and appropriately operated and maintained.

### 9.2 Non Conformance and Corrective and Preventative Action

All non-conformances relating to environmental activities and processes identified during monitoring processes will be identified and reported. The Owners Corporation will establish reporting procedures to document non-conformances and these will be included as an appendices in the OEMP to the satisfaction of Council.

If required, it is responsibility of the Owners Corporation to obtain the services of an appropriately qualified expert to provide advice as to the extent of remedial action required and measures for preventative actions to be implemented to address the impacts associated with an environmental incident.

Non-conformance reports are to be submitted to the Owners Corporation and will document the non-conformance and approve remedial action so that the impact of the non-conformance is minimised.

Corrective Action Requests are to be completed by the Owners Corporation and implemented by the Owners Corporation Manager.

Once the corrective action has been addressed, the Owners Corporation Manager will document the action taken and return the document to the Owners Corporation Committee.

#### **Complaints**

On receipt of a complaint the Owners Corporation Manager / Marina Manager will investigate the details of the complaint.

The Owners Corporation / Marina Manager will record:

- The date and time of the complaint
- The name, address, telephone number of the complainant
- The nature of the complaint (written description), and
- The response action taken to-date.

These details will be recorded on a Complaint Form.

Environmental complaints from regulatory authorities or incidents threatening legal action will be reported immediately to Owners Corporation.

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The Owners Corporation will correspond with the Complainant advising actions taken and the results of corrective or preventative actions. All complaints will be addressed without delay and a written response will be sent to the complainant within 7 days of the complaint being received. Complaints which take longer than 7 days to resolve will generate further written correspondence until a resolution is achieved. Where possible, the Owners Corporation will seek acknowledgment from the complainant that the issue has been resolved to the satisfaction of all parties.

All environmental incidents will be required to be investigated and reported. Complaints related to external sources, such as the Western Treatment Plant or agricultural practices, would be investigated as soon as practicable by the Owners Corporation to identify a likely source and then forwarded to EPA Victoria. The Owners Corporation will maintain a register of all environmental incidents or non-compliance and the register will be reviewed monthly to ensure that the actions relating to environmental issues are effectively implemented and closed-out.

If the complaint is not confirmed, the Owners Corporation Manager will contact the originator of the complaint to determine the course of action to resolve the issue.

## 9.3 Records

The Owners Corporation Manager and Marina Manager will provide the Owners Corporation with a written report at the end of every month. The report will be written under the headings of the Implementation Plans included in the OEMP.

Under each heading the report will detail the key activities undertaken during the period since the last report. The report will also detail the results of any inspections or monitoring of environmental safeguards undertaken. This will include details such as who undertook the monitoring, where the monitoring was done, when the monitoring was done and as necessary and how the monitoring was carried out.

The report will detail any corrective actions taken during the period since the last report.

All of the aforementioned headings will be included in the report even if nothing has occurred during the period since the last report. In this case the words "NO CHANGE" will be written under the heading.

Environmental records will be maintained for the OEMP. The records will be classified into two categories:

### ***Environmental Management Systems Records***

- Audit and training records
- Consultation / meeting records
- Corrective and preventative action, and
- Equipment maintenance

### ***Environmental Conformance Records***

- Completed checklists
- Inspection reports
- Non-conformance reports
- Environmental incident reports
- Permits, approvals

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- Monitoring program results, and
- Other Statutory reporting requirements.

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## 10. TRAINING

Training is part of a continual improvement process and will include:

- Environmental Management inductions of the OEMP for all new staff, contractors and lessees / commercial operators and refresher courses, where necessary
- Training for environmental management auditors, and
- Training in technical issues.

Training will be initiated by:

- The commencement of a new employee
- Changes in the OEMP
- In response to preventative action, and
- Appointment of new auditors.

Training processes will inform employees, contractors and lessees / commercial operators of the importance of conforming to the environmental policy and procedures documented within the OEMP. The roles and responsibilities of individuals will be clearly defined in addition to the consequences of departure from specified operating procedures.

All project staff will be responsible for environmental performance and compliance with the OEMP. As such, the Owners Corporation will prepare an OEMP training program. The Owners Corporation / Marina Operator will be responsible for ensuring environmental training and awareness programs are provided to the parties listed above.

The Owners Corporation will maintain a record of all training undertaken for all parties, detailing the type and purpose of the training. Copies of training records will be provided to relevant regulatory authorities on request.

The following will be detailed during the environmental management inductions of this OEMP:

- Environmental policy requirements
- The objectives of the OEMP
- The requirements and benefits of good environmental practices
- Contractual requirements
- Responsibilities of staff
- Management structure and definition of roles
- Records maintenance; and
- All elements of the Implementation Plans contained in the OEMP.



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## Operations Environment Management Plan

### CONDITIONS MATRIX

5<sup>th</sup> October, 2015

Council Planning Permits, Coastal Management Act Consent and Environment Protection and Biodiversity Conservation Act Consent documents for the Wyndham Harbour development, prescribes actions and responsibilities to be included within the OEMP. These actions and responsibilities are stipulated in the following table. Only those approval documents and conditions relating to the operation of Wyndham Harbour have been included in this table.

Approval documentation may be amended from time to time, so current versions should be referred to and checked with Council.

Planning Permit WYP2365/08.54 (Amended) 12 September 2014		Relevant section of OEMP
Cond. No	Action	
20	Within six (6) months of the commencement of any works in Stage 2, an assessment of the impact of water from the Duncans Road drain outfall upon the development, including modeling of the plume from the outfall, must be completed and must include proposed measures for the ongoing testing and management of potential impacts of the plume on the southern beach and marina. The management measures must be approved by the relevant authorities and the Operations Environment Management Plan (OEMP) endorsed under the Development Plan must be amended to include details of the management measures accordingly.	8.4.3
44	Prior to the commencement of the approved uses on the site, an Environmental Management Plan . Operations (OEMP) must be submitted for approval to the satisfaction of Council and the Department of Sustainability and Environment and Parks Victoria. When approved, the Plan will be endorsed and form part of this permit. The endorsed Plan must not be altered or modified (for any reason) except with the prior written consent of the Responsible Authority. The OEMP must address the day to day operation requirements of the various elements of the project including those requirements specifically listed in the Development Plan Overlay . Schedule 9 and the following:	OEMP
(a)	Water quality monitoring and action program for waters within and adjacent to the marina	8.4
(b)	Water quality monitoring and action program for groundwater (Groundwater Protection Management Plan)	8.4.4
(c)	Details of the sand bypass system including infrastructure, monitoring, trigger levels and method in accordance with an approved Sand Management Plan to ensure no aggregate loss of the northerly sand movement along the coast.	8.2.5
(d)	Environmental Management	5.0

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(e)	Public Area maintenance obligations	<b>6.1</b>
(f)	Maintenance of all bio retention systems	<b>4.4</b>
(g)	Maintenance dredging	<b>8.3.6</b>
(h)	General management measures	<b>8.5.4</b>
(i)	Audit and Review of the OEMP. This must include consultation with Wyndham City Council and other relevant authority or agency, as required;	<b>6.0</b>
(j)	A requirement that the owners corporation/marina operator is responsible for maintenance dredging and monitoring within the harbour;	<b>4.4</b>
(k)	The Sand and Coastal Processes Management Plan approved as part of the Wyndham Harbour Development Plan which must include details of the sand bypassing pipeline, monitoring of the harbour and a method of removing accreting sediment and quarterly monitoring of the sand bypassing system.	<b>8.2.5</b>
	The OEMP may be updated incrementally prior to the commencement of each approved use at the discretion of the Responsible Authority.	<b>6.0</b>
	The OEMP must be complied with at all times and implemented to the satisfaction of the Responsible Authority.	<b>2.0</b>
46	The approved Operations Environment Management Plan must state to the satisfaction of the Responsible Authority that the Wyndham Harbour Owners Corporation will be responsible for the ongoing maintenance of bioretention systems throughout the Harbour Estate. The OEMP must state that the maintenance of these systems must be undertaken in a manner that ensures that Council assets are protected.	<b>4.4</b>
47	The approved Operations Environment Management Plan must state to the satisfaction of the Responsible Authority that the Wyndham Harbour Owners Corporation/marina operator is responsible for ongoing maintenance dredging.	<b>5.0</b>
48	All works and operations on the subject land must at all times comply with the approved Operations Environment Management Plan and Construction Environment Management Plan, including the Borrow Pit Environmental Management Plan.	<b>OEMP</b>

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<b>Coastal Management Act Consent (Amended) 23 June 2008</b>		
<b>Cond. No</b>	<b>Action</b>	
5	This consent is for capital dredging works only. Any proposal for maintenance dredging will require the submission of a separate application under the Coastal Management Act 1995.	<b>8.3.6</b>
23	Sand which accumulates at the southern breakwater is to be closely monitored and sand bypassing initiated when volumes exceeds 2000 cubic metres. Bypassed material is to be returned to the littoral zone to the north of the proposed northern groyne. Monitoring of sand movement and initiating of sand bypassing must be carried out in accordance with the Wyndham Harbour Coastal Processes, Appendix B Sand and Coastal Processes Management Plan, dated July 2010.	<b>8.2.5</b>
24	Sand bypassing activities must conform with EPBC Act requirements for the protection of Point Cook Marine Sanctuary and RAMSAR values.	<b>8.2.5</b>
25	Sand bypassing activities must not interfere with the existing, longshore, sediment transport regime.	<b>8.2.5</b>
26	Sand bypassing is to be undertaken at low water and during winter months.	<b>8.2.5</b>
27	Ongoing monitoring must be conducted along the shoreline to detect any changes resulting from the marina breakwaters. Monitoring results must be reported to the Committee of Management at agreed intervals.	<b>8.2.5</b>
28	Management and maintenance of the sand bypassing system is to be the responsibility of the lessee and successors in title.	<b>8.2.5</b>
29	Any variation in the above sand bypassing conditions will require the approval of the Group Manager, Public Land Management, Port Phillip Region.	<b>8.2.5</b>
30	Groundwater protection and management regimes must conform with the provisions of the Groundwater Protection Management Plan included in Volume 3 of Wyndham Harvour Supplementary Technical Reports, dated 2008 and any requirements of Southern Rural Water in relation to monitoring, reporting and mitigation strategies for exceedences	<b>8.4.5</b>
33	The marine water quality monitoring program must be approved by DSE prior to commencement of monitoring. The program must include baseline water quality monitoring, monitoring during construction works and ongoing monitoring whilst the harbour is in use.	<b>8.4.6</b>
34	Water quality protection and monitoring measures must meet the requirements of the SEPP Schedule F6.	<b>8.4.6</b>
35	Water quality monitoring generally must be conducted in accordance with section 7 of the OEMP included in Volume 3 of Wyndham Harbour Supplementary Technical Reports, dated April 2008.	<b>8.0</b>

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37	Stormwater management must be in accordance with conditions for approval of the development issued pursuant to the EPBC Act.	8.4.2
47	Maintenance and repair of vessels in the harbour is to comply with the provisions of the <i>Code of Practice for In-Water Hull Cleaning and Maintenance</i> (ANZECC 2000).	8.3.2
48	The ratio of pump out facilities to vessels in the harbour is to comply with the provisions of AS4997 - Guidelines for the Design of Maritime Structures.	8.1.12
<b>EPBC Act Approval</b> <i>Issued: 29 October 2006</i> <i>Amended: 26 July 2010</i> <i>Amended 31 October 2013</i>		
<b>Cond. No</b>	<b>Action</b>	

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1	The sand bypass system must ensure that longshore drift continues to provide sand to the Point Cook Ramsar area. The sand bypass system must have the capacity to transport up to 20,000 cubic metres of sand per annum.	<b>8.2.5</b>
2	In order to reduce impacts on the Point Cook Ramsar area, the person taking the action must undertake the following activities:	
(a)	Within 12 months of completion of construction of the main breakwater and central spine, install permanent markers which allow the volume of sand accumulating at the southern breakwater to be accurately measured;	<b>8.2.5</b>
(b)	monitor the markers and initiate sand bypassing as required in accordance with the Sand and Coastal Processes Management Plan dated March 2012; and	<b>8.2.5</b>
(d)	undertake bypassing at low water to maximise the area available for dewatering the bypassed sand, by infiltration through the existing beach.	<b>8.2.5</b>
3	The person taking the action must include specific information in the proposed residents' and marina users' information kits about the values of the Point Cook Ramsar area and advice on ensuring those values are not compromised by disturbance of wildlife from boating and other recreational activities. This information must be provided to all owners on settlement of sale of each lot.	<b>8.8</b>
4	Within 1 month of the commencement of operations of the marina, the person taking the action must erect signs in the vicinity of the marina, the foreshore, the open space and entry and exit points to the site which provide advice about the values of the Point Cook Ramsar area and advice on ensuring those values are not compromised by disturbance of wildlife from boating and other recreational activities. The information on the signs must be able to be read from a distance of 20 metres.	<b>8.8</b>
7	The person taking the action must submit a Water Management Strategy (WMS) for the Minister's approval to address on-site stormwater management. The WMS must include but not be limited to: ~ a monitoring program designed to demonstrate the extent to which the above environmental performance standards have been achieved, and measures proposed to be taken should these not be achieved.	<b>8.4.6</b>