



Point Grey

Point Grey Development Company Pty Ltd

Environmental Impact Report

JBS&G 66009 | 130,462

30 July 2024





We acknowledge the Traditional Custodians of Country throughout Australia and their connections to land, sea and community.

We pay respect to Elders past and present and in the spirit of reconciliation, we commit to working together for our shared future.

Caring for Country The Journey of JBS&G
Artist: Patrick Caruso, Eastern Arrernte

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Abbreviations

Term	Definition
ACP	Activity Centre Precinct
ANZECC	Australia and New Zealand Environment and Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
CAMBA	China-Australia Migratory Birds Agreement
CAR	Compliance Assessment Report
CEMP	Construction Environmental Management Plan
DBCA	Department of Biodiversity Conservation and Attractions
DCCEEW	Department of Climate Change Energy the Environment and Water
DEC	Department of Environment Conservation (now DBCA)
DEWHA	Department of Environment Water Heritage and the Arts (now DCCEEW)
DWER	Department of Water and Environment Regulation
EIA	Environmental Impact Assessment
EPA	Environmental Protection Authority
EPBC	<i>Environmental Protection and Biodiversity Conservation Act 1999</i>
FMP	Foreshore Management Plan
ha	hectares
JAMBA	Japan-Australia Migratory Birds Agreement
LSP	Local Structure Plan
mAHD	metres Australian Height Datum
MNES	Matters of National Environmental Significance
MS	Ministerial Statement
OEPA	Office of the Environmental Protection Authority (now DWER)
ODP	Outline Development Plan
PER	Public Environmental Review
PRS	Peel Region Scheme
ROS	Regional Open Space
TPS	Town Planning Scheme
UDIA	Urban Development Institute of Australia
WAPC	Western Australian Planning Commission

Executive Summary

This Environmental Impact Report (report) has been developed to support the Local Structure Plan (LSP) for the Point Grey development (the Project) that is required to be submitted to the Shire of Murray and Western Australian Planning Commission (WAPC), following Amendment 314.

Amendment 314 effectively removed the potential for the 300-berth inland marina and associated 2.5km dredged channel through the Peel Inlet/Harvey Estuary to the Dawesville Channel as allowable uses. The marina and associated activity precinct has been replaced with a more traditional neighbourhood centre, together with coastal parklands that lead to the foreshore.

During the assessment of Amendment 314, the WAPC Statutory Planning Committee resolved the following:

Advise the Shire that the Point Grey Structure Plan requires amendments, limited to those required, to align it with:

- a. *The State Planning Framework including, but not limited to, policy on planning for school sites, bushfire planning and coastal processes; and*
- b. *Subject to the Minister granting final approval to Amendment No. 314, the changes to LPS 4 resulting from Amendment No. 314; and*
- c. *That the amendments to the Point Grey Structure Plan should not provide for additional dwelling yields or density beyond that considered in the current approved structure plan.*

Amendment 314 was gazetted in July 2020.

The LSP has been amended in accordance with the above resolution and will be lodged with the Shire of Murray in July 2024. The amended LSP will be assessed and determined by the WAPC.

This report outlines all State and Commonwealth legislative environmental approvals for the Project.

The Project has been through a comprehensive and rigorous environmental impact assessment by State and Commonwealth environmental regulatory authorities over many years. Both agencies were satisfied that any potential significant environmental impacts could be effectively managed through their respective environmental impact assessments and issuing of approvals under the *Environmental Protection Act 1986* (EP Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

These primary State and Commonwealth environmental approvals as they relate to the marina and residential development are listed in **Table 1-1: Point Grey Development Approval Details (State and Commonwealth)**.

Table 1-1: Point Grey Development Approval Details (State and Commonwealth)

	Proposal Approval Details	
	State	Commonwealth
Point Grey Residential Development	Shire of Murray Town Planning Scheme No. 4 Amendment No. 104 (Point Grey) <i>This approval required any application for a marina to be referred to the Environmental Protection Authority.</i>	Point Grey Urban Residential Development – Terrestrial Component (EPBC 2011/5825)
Point Grey Marina Development	Ministerial Statement 906 & Ministerial Statement 1082 (s.46 amendment)	Point Grey Marina Project, Western Australia (EPBC 2010/5515)

The environmental studies undertaken in support of the Project's environmental impact assessment are summarised in this report along with additional studies or management plans required to be implemented to satisfy conditions of the various approvals. It must be noted this report presents only a summary of the extensive technical environmental studies to support the attainment of the abovementioned approvals. Further supporting evidence of the environmental impact assessment of this Project are contained in these voluminous assessment reports.

This report showcases the Point Grey development's ability to align with environmental approval conditions, ensuring comprehensive management of key environmental factors. Detailed assessments have been conducted to safeguard local flora and fauna, with mitigation measures in place to protect sensitive habitats and biodiversity hotspots. Social surroundings have been carefully considered through extensive community consultation, fostering inclusive decision making and addressing community needs. The development aims to achieve sustainable development while safeguarding Western Australia's natural and social environments.

1. Introduction

1.1 Background

Point Grey Development Company Pty Ltd (the Proponent), a wholly owned subsidiary of Tian An Australia Ltd, is proposing to develop the Point Grey Peninsular. The subject land is approximately 20 km west of the Pinjarra Townsite and 40 km southeast of the Mandurah City Centre.

The combined landholdings at Point Grey total over 500 ha. Only 270 ha of this land is zoned Urban under the Peel Region Scheme (PRS). Of this portion of Urban zoned land, Point Grey Development Company Pty Ltd is the landowner of approximately 205 ha, with Plunkett Properties Pty Ltd being the owner of the balance of the area. The remainder of the subject land is zoned Rural and reserved Regional Open Space.

The Proponent intends to develop the abovementioned land into a residential development including:

- approximately 2,650 dwellings;
- formal and informal parklands;
- a traditional neighbourhood centre, consisting of:
 - retail floorspace;
 - commercial floorspace (eg. health/medical centre, child care centre, office, civic facility, gym);
 - a tourism hotel/resort (comprising 150 rooms, conference facility, restaurant, and spa); and
 - food and beverage outlets.
- regional playground and parklands;
- an indigenous cultural education/learning centre; and
- access to the foreshore (including jetty access).

The development of the Project includes a number of key environmental impacts that require ongoing management. The key environmental receptor in proximity to the Point Grey site is the Peel-Harvey Estuarine System, a subsidiary of the Peel-Yalgorup wetland system (a wetland protected under the Ramsar Convention).

The proposed development is adjacent to the Peel-Harvey estuary, and is largely cleared of native vegetation, except for fringing remnant vegetation along the foreshore. The site is bound to the west by the Harvey Estuary, to the north and east by the Peel Inlet, and to the south by agricultural land. The peninsula has been historically used for grazing.

Prior to 2021, the Project vision contained a marina and associated navigation channel across the Harvey Estuary. The Project was originally assessed and approved under the *Environmental Protection Act 1986* (EP Act) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to likely impact of the following environmental factors:

- State Assessment (EP Act)
 - Flora and Vegetation
 - Terrestrial Fauna
 - Marine Environmental Quality
 - Marine Fauna
- Commonwealth Assessment (EPBC Act)
 - Impacts on Wetlands of International Significance: The Peel- Harvey Estuarine System (Peel-Yalgorup System – Ramsar No. 482)

- Listed Migratory Species
- Listed Threatened Species and Communities

In 2021 there was an amendment to the local planning scheme following recommendation from the WAPC. This Amendment 314 removed potential for the development of a marina at Point Grey.

The Proponent is no longer proposing to construct a marina or conduct any dredging. The Proponent seeks now to only construct a residential estate with a traditional neighbourhood centre, parklands, and access to the foreshore on the western side of the Point Grey peninsula. Please see **Section 2.3 Legislative Context** for further information regarding the environmental approvals.

1.2 Scope of Work

The environmental impacts associated with the Project have been extensively assessed and re-assessed by both the State and Commonwealth agencies over a twenty-year period.

As such, a plethora of environmental studies, monitoring, and management plans have been developed in consultation with key stakeholders and submitted in support of these approvals processes. This report aims to summarise the potential environmental impacts associated with the project in the context of the environmental factors for both State and Commonwealth. This report aims to describe the following:

- Project description
- Overview of the legislative context related to the project
- Potential environmental impacts from construction and operation of the project, supporting studies and management measures
- Additional Studies and Management Plans required prior to commencement

2. Project Description

2.1 Foreshore Parkland Development Area (previously a marina)

2.1.1 Onshore Components

Visitor Attractions and Amenities

The foreshore parkland development area will include visitor attractions and amenities. These include items such as a visitor kiosk, park structures, furniture/bbq's, and an alfresco area.

Car Parks and Public Infrastructure

The foreshore parkland development area will include car parking facilities closer to the water. There will also be other public infrastructure allowing visitors to access the jetty from the village centre. A maximum of 4.3 ha of vegetation loss is expected to occur within the foreshore area in accordance with existing approvals.

2.1.2 Offshore Components

Jetty

Construction of two jetties is proposed within the foreshore parkland development area that extend into the Harvey Estuary.

2.1.3 Approved Activities

The Point Grey development is currently approved for a marina and associated navigational channel across the Harvey Estuary. In 2021 there was an amendment to the local planning scheme following the recommendation from the WAPC. The amendment removed potential for the development of a marina at Point Grey. The Proponent is no longer proposing to construct a marina or conduct any dredging. The Proponent seeks now to only construct a residential estate with a traditional neighbourhood centre and parklands with access to the foreshore on the western side of the Point Grey peninsula. Please see **Section 2.3 Legislative Context** for further information regarding the environmental approvals.

Table 2-1: Originally Approved Disturbance Footprint for the Construction of Point Grey Marina describes the approved development footprint for the construction of the onshore and offshore components of the originally approved marina, with commentary on whether particular elements are removed following the changes to the original Proposal (removal of marina and associated dredging).

Table 2-1: Originally Approved Disturbance Footprint for the Construction of Point Grey Marina

Key Aspect	Description	Status Following Proposal Amendment
Onshore Marina		
Marina and water body area	9.8 ha	No longer being proposed
Excavation works	Approximately 660,000 m ³ of spoil. The maximum depth of marina will be -3 m AHD. Excavation works will occur over two stages	No longer being proposed
Internal jetties (see recreational jetties below)	4-6	No longer being proposed
Boat pens	Approximately 300	No longer being proposed
Area of potential terrestrial disturbance from construction dewatering (reduction in groundwater by 25cm or greater)	112 ha (of which the majority is cleared farming land)	No longer being proposed
Marina Entrance Channel		
Channel dimensions	Approximately 100 m long and 120 m wide	No longer being proposed
Excavation works	Approximately 15,000 m ³ of spoil. The maximum depth of the marina entrance, channel will be -3.5 mAHD	No longer being proposed
Public Beach, Public Car Parking and Boat Ramps		
Area of foreshore disturbance	Not more than 4.3 ha	Not more than 4.3 ha
Number of public boat ramps (inside marina)	4	No longer being proposed
Recreational jetties	Nil	2 recreational jetties (within Estuary)
Navigation Channel and Groynes		
Navigation channel dimensions	Approximately 2.5 km long (Point Grey to Dawesville Channel) and 50 m wide (approximately 10 m wide sloping batters and a 30 m base)	No longer being proposed
Volume of material to be dredged	120,000 m ³ of dredge spoil will be removed (95,000 m ³ removed via dredging and 25,000 m ³ via a land-based excavator). The navigation channel will be dredged to a maximum depth of -3.5 mAHD	No longer being proposed
Area of disturbance to Harvey Estuary bed (including groynes)	Approximately 13.5 ha (0.28% of the Peel Inlet/Harvey Estuary)	No longer being proposed

2.2 Point Grey Residential Development

Point Grey Development Company Ltd proposes to develop for residential purposes the 'Urban' zone at Point Grey. The general principles of development for Point Grey have been defined as follows:

- The PRS Regional Open Space (ROS) and Rural zone (aside from a developed foreshore area) is proposed to be retained as a vegetated link surrounding the perimeter of the site;
- Additional open space areas will be provided adjacent to the ROS zone to widen the foreshore reserve;
- Vegetation and landform retention is proposed along the centre ridge line of the site to assist with maintenance of ecological corridors, and to reduce the visibility of the development from off-site locations (particularly from the Dawesville area to the west of the site);
- Higher density residential precincts are proposed around the village centre with a gradation of density extending outwards from this area.

The urban development area will consist of a medium to high density housing with a total development footprint of 261 ha. The 261 ha will comprise of the following land-use zoning:

- 205 ha of Urban zoned land;
- 48.67 ha of regional open space;
- 7.33 ha of rural zoned land.

The northern portion of the Point Grey peninsular was historically used for cattle grazing, which has resulted in significant clearing within the 'Urban' zoned area and portions of the eastern foreshore resulting in stands of trees across grazing paddocks with no native understory vegetation.

Urban residential development will be undertaken on Lots 138, 139, 672 and 1132 in accordance with the State Government land use zoning (Peel Harvey Scheme and Shire of Murray Local Planning Scheme No. 4).

2.3 Legislative Context

2.3.1 State Planning Approvals

Over the past 20 years the northern portion of the Point Grey peninsular has been identified for urban development, including an onshore marina, in all strategic planning studies undertaken for both the Peel and Metropolitan regions. The site's setting and location has been recognised and considered foremost in the decision to nominate Point Grey as an urban development area, at local and State Government levels.

Prior to 2021, all zoning and environmental approvals were in place for the urban development component of the Project. In 2021 there was an amendment to the local planning scheme following a recommendation from the WAPC. The amendment removed potential for the development of a marina at Point Grey. The Proponent is no longer proposing to construct a marina or conduct any dredging. The Proponent seeks now to only construct a residential estate with a traditional neighbourhood centre and parklands with access to the foreshore on the western side of the Point Grey peninsula.

2.3.2 State Assessment

2.3.2.1 Marina and Navigation Channel

An Environmental Impact Assessment (EIA) is required to be completed in accordance with Part IV of the EP Act if a proposal is likely to have significant impacts to the environment.

The Point Grey Marina project was referred to the Office of the Environmental Protection Authority (OEPA, now the Department of Water and Environmental Regulation (DWER)) under Section 38 of the EP Act on 19 August 2008. The EPA assigned the proposal a Public Environmental Review (PER) level of assessment on 15 September 2008 with a six-week public review period (EPA Assessment No. 1751). A PER level of assessment

is applied to proposals of local or regional significance that can raise a number of environmental factors, some of which are considered to be complex and require detailed assessment to determine whether they can be managed (EPA 2011a).

The Point Grey Marina was approved by the State Minister for the Environment in August 2012 by issuing Ministerial Statement 906 (MS 906) after extensive consultation with the community and relevant decision-making authorities, including the OEPA, (now DWER), Department of Fisheries (now Department of Primary Industries and Regional Development) and the Department of Environment and Conservation (DEC, now Department of Biodiversity, Conservation and Attractions (DBCA)) (RPS 2011).

On 7 December 2016, a request to extend the time limit of authorisation for substantial commencement of operations was submitted to DWER EPA Services by completing a Section 46 (s46) application. The EPA issued a report in April 2017 in response to the Proponent's evidence as to whether there had been any decline in the environmental health of the Peel-Harvey Estuary since 2012. The EPA concluded that the time extension requested by the Proponent did not raise any new environmental issues and the potential environmental impacts could be managed under the existing environmental conditions outlined in MS 906. Formal approval for an extension of time limit for substantial commencement was provided on 21 September 2018 with the EPA granting Ministerial Statement 1082 (MS 1082) with the following condition:

"The proposal shall not commence implementation of the proposal after 1 August 2022, and any commencement, prior to this date, must be substantial."

In 2021 there was an amendment to the local planning scheme following a recommendation from the WAPC. The amendment removed potential for the development of a marina at Point Grey. The Proponent is no longer proposing to construct a marina or conduct any dredging. The Proponent seeks now to only construct a residential estate with a traditional neighbourhood centre and parklands with access to the foreshore on the western side of the Point Grey peninsula.

A Compliance Assessment Report (CAR) was completed in February 2024 by JBS&G. There were no major non-conformances aside from no substantial commencement of the project before 1 August 2022. A corrective action regarding this compliance aspect is to submit an application to amend the ministerial conditions associated with substantially commencing construction (see below paragraph for further information).

The Proponent is currently in the process of applying for a Section 45C and Section 46 amendment to proposal and associated ministerial conditions. This application aims to remove construction of a marina from the approval and any associated approval conditions (eg. removal of any dredge monitoring conditions as there is no longer any dredging being proposed). This application also seeks to extend the timeframe to substantially commence construction (under Ministerial Statement 1082).

2.3.2.2 Residential

The current 'Urban' zoned portion of the project comprises approximately 271 hectares (ha). Of this land, Point Grey Development Company Pty Ltd is the landowner of the northern portion which encompasses an area of approximately 205 ha, with Plunkett Properties Pty Ltd being the owner of the balance of the area (approximately 66 ha) to the south.

In January 1997, the Shire of Murray resolved to initiate Amendment No. 104 to its Town Planning Scheme (TPS) No. 4, following the submission by TS Plunkett Pty Ltd of an Outline Development Plan (ODP) for a large landholding (approximately 1,159 ha) at Point Grey. The TPS zoning was proposed to be changed from 'Rural' to 'Special Development'. In March 2003, the Western Australian Planning Commission (WAPC), through the Peel Region Scheme (PRS), rezoned approximately the northern third of the Point Grey site to 'Urban Deferred'. The WAPC refused to rezone the remainder of the site, citing difficulties of access and servicing as reasons for its decision.

Following initiation, the Shire of Murray referred TPS No. 4 Amendment No. 104 (Point Grey) to the EPA in January 1997 for assessment under Section 48A of the Environmental Protection Act 1986 (the EP Act).

The issues identified by the EPA which were to be addressed in the Environmental Review included:

- Protection of the System 6 areas, conservation reserves and remnant vegetation
- Protection of rare flora and fauna
- Protection of waterbirds and habitats gazetted under international agreements such as Ramsar, China – Australia Migratory Bird Agreement (CAMBA) and Japan – Australia Migratory Bird Agreement (JAMBA)
- Construction and operation of the marina and sailing club in a way that minimises impacts on the water quality and physical stability of the Peel Inlet and Harvey Estuary
- Protection of wetlands
- Provision of foreshore buffers
- Management of water supply development to avoid environmental impacts
- Minimisation of nutrient exports from the site and compliance with phosphorus export targets set by the EPA
- Management of nitrogen exports from the development to the ocean, in light of the findings of the Southern Metropolitan Coastal Waters Study (DEP, 1996)
- Stormwater management practices and design criteria
- Management of odours from the sewage treatment plant and the Peel Inlet–Harvey Estuary System
- Control of noise and dust during construction
- Impacts on Aboriginal heritage sites and values
- Control of mosquito breeding
- Risk and hazards posed by water and wastewater treatment plants

TPS Amendment No. 104 was approved by the Minister for the Environment in July 1999 and was subject to ten Ministerial Conditions (outlined in Ministerial Statement 519). A requirement of these conditions was that they were to be met to the satisfaction of the EPA and/or the Shire of Murray either before or during the implementation of the proposal.

2.3.3 Commonwealth Assessment

2.3.3.1 Marina and Navigation Channel

The marina component of the Project was referred to the Department of the Environment, Water, Heritage and the Arts (DEWHA, now DCCEEW) for assessment under the Commonwealth EPBC Act in May 2010. In June 2010 a delegate of the Federal Minister for the Environment advised the proposal was considered to be a ‘controlled action’ requiring assessment by the Minister, due to the following MNES:

- Wetlands of international significance
- Listed threatened species and communities
- Listed migratory species

The Commonwealth assessed the marina proposal in accordance with the Bilateral Agreement between the Western Australian and Commonwealth Governments. Therefore, the marina was also assessed at the level of Public Environmental Review (PER) by the Commonwealth.

Formal approval was granted 28 June 2014, with a delegate of the Federal Minister issuing EPBC approval for the Point Grey Marina Project, Western Australia (EPBC 2010/5515). Condition 14 of EPBC 2010/5515 required the project to be substantially commenced by 28 June 2019.

On 28 November 2018 the Proponent formally requested under Section 145D (4) of the EPBC Act an extension of the period of approval for EPBC 2010/5515. Formal approval was received on 15 March 2019 granting an extension of the period of approval until 31 December 2057.

2.3.3.2 Residential

The residential component of the Project was referred to DEWHA, (now DCCEEW) in January 2011. In March 2011 a delegate of the Federal Minister for the Environment advised the proposal was considered to be a 'controlled action' requiring assessment by the Minister, due to the following MNES:

- Wetlands of international significance;
- Listed threatened species and communities;
- Listed migratory species.

The environmental impact assessment involved extensive negotiations with the Commonwealth, in particular around black cockatoo offsets, waterbirds and foreshore separation distances, specifically along the eastern foreshore. Due to their complexity, these issues took over 10 months to resolve.

Formal approval was granted 24 April 2012, with a delegate of the Federal Minister issuing EPBC approval for the Point Grey Urban Residential Development – Terrestrial Component, Western Australia (EPBC 2011/5825).

On 28 November 2018 the Proponent formally requested under Section 145D (4) of the EPBC Act an extension of the period of approval for EPBC 2011/5825. Formal approval was received on 15 March 2019 granting an extension of the period of approval until 31 December 2041.

2.3.4 Relevant Guidelines, Standards, and Policies

The Project has been assessed in accordance with the following legislation:

- *Aboriginal Heritage Act 1972*
- Aboriginal Heritage Regulations 1974
- *Bush Fires Act 1954*
- *Conservation and Land Management Act 1984*
- Conservation and Land Management Regulations 2002
- *Environment Protection and Biodiversity Conservation Act 1999*
- *Environmental Protection Act 1986*
- Environmental Protection Regulations 1987
- *Fish Resources Management Act 1994*
- *Land Administration Act 1997*
- *Marine Act 1982*
- Occupational Safety and Health Act 1984
- *Planning and Development Act 2005*
- *Pollution of Waters by Oil and Noxious Substances Act 1987*
- *Rights in Water and Irrigation Act 1914*

- *Shipping and Pilotage Act 1976*
- *Waterways Conservation Act 1976*
- *Wildlife Conservation Act 1950*
- Development Control Policy 1.8. Canal estates and artificial waterway developments (WAPC 2012)
- Environment Protection and Biodiversity Conservation Regulations 2000
- EPA: Environmental Protection of Native Vegetation in Western Australia Position Statement No. 2 (EPA 2000a)
- EPA: Terrestrial Biological Surveys as an Element of Biodiversity Protection Position Statement No. 3 (EPA 2002a)
- EPA: Environmental Protection of Wetlands Position Statement No. 4 (EPA 2004a)
- Environmental Offsets No. 9 (EPA 2006a)
- EPA Environmental Assessment Guidelines No. 3 Protection of Benthic Primary Producer Habitats in Western Australia's Marine Environment (EPA 2009b)
- Guidance Statement No. 18: Prevention of Air Quality Impacts from Land Development Sites (EPA 2000b)
- Guidance Statement No. 19: Environmental Offsets – Biodiversity (EPA 2008b)
- Guidance Statement No. 33: Environmental Guidelines for Planning and Development (EPA 2008c)
- Guidance Statement No. 51: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia (EPA 2004c)
- Guidance Statement No. 56: Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia (EPA 2004d)
- Environmental Protection (Peel Inlet- Harvey Estuary) Policy (EPA 1992a)
- Water Quality Improvement Plan for the Peel Inlet – Harvey Estuary System – Phosphorous Management (EPA, 2008d)
- Intergovernmental Panel for Climate Change (2007)
- Acid Sulfate Soils Guideline Series Identification and Investigation of Acid Sulfate Soils and Acidic Landscapes (DEC 2009a)
- DRAFT Treatment and Management of Soils and Water in Acid Sulfate Soil Landscapes (DEC 2009b)
- National Assessment Guidelines for Dredging (CA 2009)
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018)
- Acid Sulphate Soils Guidelines (DER 2015)
- National Acid Sulphate Soils Guidance (Simpson et al. 2018)
- Planning Bulletin No. 64: Acid Sulfate Soils (WAPC 2009a)
- Statement of Planning Policy 2.1 (Peel-Harvey Coastal Plain Catchment) (WAPC 1992a)
- Statement of Planning Policy 2.6 State Planning Policy (WAPC 2006a)
- National Water Quality Management Strategy No. 4: Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC & ARMCANZ, 2000)

- Environmental Protection (Peel Inlet – Harvey Estuary) Policy 1992
- Water Quality Improvement Plan for the Rivers and Estuary of the Peel-Harvey System – Phosphorous Management (EPA 2008d)
- Statement of Planning Policy 2.1 (Peel-Harvey Coastal Plain Catchment) (WAPC 1992)
- Statewide Policy No. 19 – Hydrogeological Reporting Associated with a Groundwater Well Licence (DoW 2009a)
- Wetlands Position Statement (WRC 2001a)

Please see **Section 2.3.5 Summary of Applicable Environmental Legislation** and **Table 2-2: Summary of Applicable Environmental Legislation and Approvals** for a summary and status of environmental approvals.

2.3.5 Summary of Applicable Environmental Legislation

Table 2-2: Summary of Applicable Environmental Legislation and Approvals

Legislative Title	Regulations and/or Guidelines	Authority	Licenses / Management Plans	Status of License / Management Plan
State				
Aboriginal Heritage Act 1972	Aboriginal Heritage Regulations 1974	Department of Parks Lands and Heritage	Section 18 Application (consent to disturb a heritage site)	Approved Ref: 25-11862
Bush Fires Act 1954	Bush Fires Regulations 1954	Department of Water and Environment Regulation	Bushfire Management Plan	In Progress
Environmental Protection Act 1986	<ul style="list-style-type: none"> • Environmental Protection Regulations 1987 • Environmental Protection (Noise) Regulations 1997 • Environmental Protection (Controlled Waste) Regulations 2004 • Environmental Protection (Unauthorised Discharge) Regulations 2004 	Department of Water and Environment Regulation	Part IV Approval	Approved – amendment in progress (MS906 and MS1082)
			Part V Approval – Native Vegetation Clearing Permit	In Progress
Rights in Water and Irrigation Act 1914	Rights in Water and Irrigation Regulations 2000	Department of Water and Environment Regulation	5C Licence to Take Water 26D Licence to Construct/ Alter Well	To be applied during construction.
Commonwealth				
Environment Protection and Biodiversity Conservation Act 1999	Environment Protection and Biodiversity Conservation Regulations 2000	Department of Climate Change Energy the Environment and Water	EPBC Approval	Approved Marina: EPBC 2010/5515 Terrestrial: EPBC 2011/5825

3. Potential Environmental Impacts, Supporting Studies, and Management Measures

Potential environmental impacts arising from construction and operation of the Project is described below in **Table 3-1: Environmental Impact Assessment Summary for Point Grey**. The corresponding technical survey, study, or management plan (in addition to proposed management measures) is described in the table. These surveys, studies or management plans were submitted typically as an appendix in support of the State and Commonwealth approvals for the project.

It should be noted that technical reports, studies, and management plans were drafted to the effect of the development of a marina. As a result of removing the marina component from the proposed development, many of these management reports have become redundant. Please see **Table 3-1: Environmental Impact Assessment Summary for Point Grey** for a summary of the redundant environmental impacts and associated studies and management plans.

Table 3-1: Environmental Impact Assessment Summary for Point Grey

Environmental Factor	Environmental Objective	Potential Impact/s	Relevant Studies or Plans	Status of Studies or Plans	Management Measures	
Residential Project						
Peel-Yalgorup Ramsar Wetland	<ul style="list-style-type: none"> To maintain and enhance the integrity, functions and values of the Point Grey foreshore. To minimise and mitigate disturbance of the remnant vegetation. To prevent adverse impacts on estuarine processes. 	<ul style="list-style-type: none"> Deterioration in water quality. Edge effects, including weed infestation. Substantial and measurable change in the hydrological regime of the wetland. Introduction of invasive species that is harmful to the ecological character of the wetland being established in the wetland. 	<p>Point Grey Climate Change Vulnerability Assessment Report</p> <hr/> <p>Local Water Management Strategy and Addendum (Emerge, 2024)</p> <hr/> <p>Upper Leederville Aquifer Groundwater Bore Abstraction Assessment</p> <hr/> <p>Nutrient and Irrigation Management Plan</p> <hr/> <p>Waterbird Monitoring at Point Grey: October 2007 to October 2009</p>	<p>Complete</p> <hr/> <p>Complete</p> <hr/> <p>Complete</p> <hr/> <p>Complete</p> <hr/> <p>Complete</p>	<p>*LWMS Addendum has been prepared to support the amended LSP</p>	<ul style="list-style-type: none"> Foreshore Conservation Management Plan – objective of preventing disturbance to foreshore vegetation and fauna habitats. Waterbird Management Plan – includes management measures relating to the management of the impacts on waterbirds after the construction phase and limiting public access to sensitive waterbird / migratory conservation areas. Construction Environmental Management Plan (CEMP) will protect existing native vegetation in POS areas adjacent to the areas being proposed to be cleared during excavation and earthworks. The CEMP will ensure minimisation of clearing and vegetation disturbance, the protection of the foreshore reservation and the control of dust and noise and Management of waterbirds. Foreshore Rehabilitation - Rehabilitate 21.74 ha of foreshore and a further 8.83 ha of Peel Inlet foreshore immediately south of the ODP adjacent to Carrabungup Road.
Terrestrial fauna Declared rare fauna: <ul style="list-style-type: none"> Forest Red-tailed Black Cockatoo Baudin’s Cockatoo Carnaby’s Cockatoo Peregrine Falcon Southern Brown Bandicoot Carpet Python 	To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.	<ul style="list-style-type: none"> Habitat fragmentation. Fauna injuries during construction activities. Changes in abundance of feral species. 	<p>Vertebrate Assessment of the Point Grey Area (Ninox Wildlife Consultants, 1996)</p> <hr/> <p>Level 1 Point Grey Fauna Survey Report (Fauna Values of the Point Grey Area)</p> <hr/> <p>Level 2 Point Grey Fauna Survey (conducted from 2nd – 7th November 2009))</p> <hr/> <p>Fauna Risk Assessment and Management Strategy (RPS, 2011)</p> <hr/> <p>Graceful Sun Moth Survey Report (RPS, 2010)</p> <hr/> <p>Subterranean Fauna Assessment Report (Bennelongia Environmental Consultants, 2009)</p>	<p>Complete</p> <hr/> <p>Complete</p> <hr/> <p>Complete</p> <hr/> <p>Complete</p> <hr/> <p>Complete</p> <hr/> <p>Complete</p>	<ul style="list-style-type: none"> Foreshore Management Plan- objective of preventing disturbance to foreshore vegetation and fauna habitats. Installation of nesting boxes / hollow logs in the POS / ROS area. Waterbird Management Plan – includes management measures relating to the management of the impacts on waterbirds after the construction phase and limiting public access to sensitive waterbird / migratory conservation areas. Fauna linkage corridor, particularly in a north-south direction. Retention of fauna habitat. Access restrictions to areas of fauna habitat. Access controls to foreshore area. Personnel education on fauna and habitat values. Construction management measures to reduce impact to fauna and waterbirds during construction adjacent to foreshore. Monitoring to be undertaken during construction. Future resident/community education/awareness (signage) on fauna conservation values of site and adjacent estuary. Community Education -an education program will be targeted towards all Point Grey residents and marina berth lessees to ensure they have a sound understanding of the regional significance that Point Grey has in terms of fauna habitats. The habitat areas of limestone outcrop which are located along the foreshore margins of the site and could suit the rare Carpet Python will be excluded from development. 	
Flora and vegetation	To protect flora and vegetation so that biological diversity and ecological integrity are maintained.	<ul style="list-style-type: none"> Loss of flora and vegetation due to clearing. Degradation of Tuart Woodland and forest. Disturbance to flora and vegetation due to alterations in surface hydrology. Introduction and/or spread of weeds. 	<p>Level 2 Vegetation and Flora Survey (RPS, 2009)</p> <hr/> <p>Point Grey Fire Management Plan (FirePlan WA,2009)</p> <hr/> <p>Bushfire Management Plan</p>	<p>Complete</p> <hr/> <p>Complete</p> <hr/> <p>In Progress</p>	<p>*being prepared to support the amended LSP</p>	<ul style="list-style-type: none"> Foreshore Management Plan- objective of preventing disturbance to foreshore vegetation and fauna habitats. Minimise clearing. Promote the use of local native flora species in landscaping works. Replanting of a minimum 1100 trees consisting of Marri (<i>C. calophylla</i>) and Tuart (<i>E. gomphocephala</i>) and Jarrah (<i>E. marginata</i>) within the ODP POS areas/road reserves or within an area immediately adjacent to the development. On-site retention of and protection within POS and ROS of approximately 91 ha of potential Back-cockatoo foraging and roosting habitat (which includes 345 breeding and foraging trees). Many of the tall Eucalypt trees present at the site will be retained within the proposed ridgeline open space area. In addition POS location will be selected to allow retention of <i>Eucalyptus gomphocephala</i> (Tuart) where possible. There is presently no regeneration of Eucalypts within the site due to grazing by stock. Protection of Eucalypt stands within POS in addition to supplementary planting in these areas will allow groves of trees to be protected in the long-term. A large area of remnant vegetation in good condition in the north of the site is proposed for retention within the ROS for the purpose of conservation.

Environmental Factor	Environmental Objective	Potential Impact/s	Relevant Studies or Plans	Status of Studies or Plans	Management Measures
Estuarine Water Quality	No net increase in nitrogen export to the Peel–Harvey Estuary as a result of development within the amendment area and that export of nitrogen and phosphorus complies with the Peel – Harvey EPP.	<ul style="list-style-type: none"> • A substantial and measurable change in the water quality of the wetland. • Fragmentation of Ecological Communities. • Changes to wetlands hydrology. 	Local Water Management Strategy and (RPS 2011) and Addendum (Emerge, 2024).	Complete	<ul style="list-style-type: none"> • Implement the Local Water Management Strategy. • Retention of all stormwater generated on site for all events up to and including the 100 ARI event where possible in vegetated drainage infiltration areas. • Urban fertiliser management through household educational programs and the provision of water wise landscaping packages that encourage the use of native plant species for all homeowners. • Connection to reticulated sewerage through proposed on-site Membrane Bioreactor Water Recycling Treatment Plant. • Soil amendment to be applied to residential lawns, gardens and drainage infiltration areas. • Best practice drainage design that incorporates water sensitive urban design. • Waterways protection, erosion control and revegetation.
			See Marine Environmental Quality factor in	<i>*LWMS Addendum has been prepared to support the amended LSP</i>	
Table 3-2.					
			Nutrient and Irrigation Management Plan (Bowman Bishaw Gorman, 2000)	Complete	
Estuarine vegetation and fauna habitat	To maintain the abundance, diversity, geographic distribution and productivity of flora at the species and ecosystem levels through the avoidance or management of adverse impacts and through improvement in knowledge.	<ul style="list-style-type: none"> • Loss of fauna habitat. • Habitat fragmentation. Loss of vegetation communities. • Disturbance of fauna in nearby areas from light, noise and human disturbance. • Obstructions to fauna movements (e.g. construction materials, roads). 	Foreshore Management Plan (RPS, 2011).	Drafted – to be updated and submitted for approval.	<ul style="list-style-type: none"> • Implement the Foreshore Management Plan (requires updating and submission for approval). • Minimise clearing. • Promote the use of local native flora species in landscaping works.
			Public Open Space Strategy	Not yet developed	
Point Grey Foreshore (previously a marina and navigation project)					
Terrestrial flora and vegetation	<ul style="list-style-type: none"> • To protect flora and vegetation so that biological diversity and ecological integrity are maintained through avoidance and management of adverse impacts and improvement of knowledge. • To ensure that aesthetic values are considered, and measures are adopted to reduce visual impacts on the landscape to as low as reasonably practicable. 	<ul style="list-style-type: none"> • Clearing of native vegetation. • Clearing of protected flora. • Fragmentation of Ecological Communities. • Changes to wetlands hydrology. • Introduction and spreading of weeds leading to weed infestation. • Dust emission and deposition leading to reduced photosynthesis and increase incidence of plant pests and diseases. 	Environmental Offset Strategy Point Grey Marina (RPS, 2011).	Complete – to be updated.	<ul style="list-style-type: none"> • Point Grey Environmental Offset Strategy will be updated and implemented. • Purchase of off-site private land to offset the clearing of 9.37 ha of Black Cockatoo habitat associated with the project. The offset area must contain native vegetation, in Good to Excellent Condition. • Transfer of 10.6 ha of foreshore vegetation zoned as rural to the State of WA for conservation and recreational purposes. • Rehabilitation of 4.76 ha of Point Grey Foreshore across the three sites containing FCT 21C, FCT 24 and FCT 25 vegetation units. Rehabilitation will be undertaken in accordance with the Construction Environmental Management Plan (CEMP). • Staged approach for vegetation clearing. • Prior to vegetation clearing, boundary markers will be used to delineate the approved area to prevent unauthorised clearing which can lead to further habitat loss. • Conservation areas will be clearly delineated post development of the marina through the implementation of fencing and hard edge treatments to restrict access resulting in the prevention of negative impacts on the retained vegetation. Preventing access to the conservation areas will help reduce the spread of weeds and feral animals as well. • Compliance against conditions related to flora and vegetation in EPBC 2010/5515 and associated management plans will be conducted annually by an independent auditor and compliance report will be published on the Proponent website and remain on the website for at least 12 months. • Any incident or non-compliances relating to flora and vegetation will be reported to DCCEEW within 2 business days from the event. The incident report will include any corrective action and investigation carried out and timing and method of remedial actions that will be undertaken. • Where possible revegetation will be undertaken to minimise visual impacts.
			Vegetation Management Plan (Tranen 2011a)	Complete	
			Level 2 Flora and Vegetation Survey (RPS 2011c)	Complete	

Environmental Factor	Environmental Objective	Potential Impact/s	Relevant Studies or Plans	Status of Studies or Plans	Management Measures
			Visual landscape study, Prepared by Richard Hammond (Richard Hammond, 2007)	Complete	
Terrestrial fauna and waterbird	<ul style="list-style-type: none"> To maintain the health of waterbirds at the individual, species and ecosystem level. To maintain abundance, diversity and geographic distribution of fauna and associated ecosystem through the avoidance or management of adverse impacts and improvement of knowledge. Minimise impacts of feral animals on native fauna population. Minimise impacts to local terrestrial fauna population. Protect terrestrial fauna consistent with the provisions of the EPBC Act. 	<ul style="list-style-type: none"> Habitat clearing and fragmentation. Fauna death and injury. Indirect effects on adjacent habitats. Increase in fauna incident due to use of heavy machinery and other vehicles during clearing activities and construction activities. Disturbance of fauna in nearby areas due to construction activities. Night lighting disturbing fauna. Direct predation due to introduction of feral animals. Competition for resources with feral animals. Transmission of diseases and micro-organisms by feral animals and mosquitoes. Direct impact of 7.06 ha of vegetation including foreshore riparian vegetation, roosting and foraging sites for waterbird and potential habitat for black cockatoos. Potential impacts to Graceful Sun Moth. 	<p>Subterranean Fauna Assessment in at Point Grey (Bennelongia 2009a)</p> <hr/> <p>Level 2 Fauna Assessment of Remnant Vegetation (Bamford 2010b)</p> <hr/> <p>Waterbird Monitoring at Point Grey, October 2007 to October 2009 (Bamford 2010a)</p> <hr/> <p>Point Grey Waterbird Management Plan (Bowman Bishaw Gorman 1999a)</p> <hr/> <p>Waterbirds of the Point Grey Area, Review of Management of Potential Disturbance (Bamford 2010b)</p> <hr/> <p>Fauna Risk Assessment and Management Strategy. The report summarises the following searches (RPS 2011d):</p> <ul style="list-style-type: none"> Ninox (1996) on Fauna of the Point Grey Area. Graceful Sun Moth Survey (RPS 2010a) 	<p>Complete</p> <hr/> <p>Complete</p> <hr/> <p>Complete</p> <hr/> <p>Complete</p> <hr/> <p>Complete</p>	<ul style="list-style-type: none"> The Foreshore Management Plan will be implemented as required. Implementation of an educational program to ensure that residents are aware of the regional significance in terms of fauna habitats. Landscape permeability will be maintained to allow fauna to move through the site, such as developing habitat in public open spaces, streetscapes and gardens. Access to foreshore areas will be controlled so that disturbance of roosting and foraging waterbirds are minimised. Enforcement of buffers and reserves will be implemented to allow fauna to co-exist with the development. Pathways within the foreshore reserve will be well delineated and fenced to encourage people to stay on the pathway. Waterbird monitoring will be undertaken in accordance with the waterbird monitoring plan dated April 2010. Construction activities will be scheduled out of peak waterbird migration periods. Intensive clearing will be prioritised during non-breeding period (mid-summer to late autumn). Staged clearing will be undertaken. Vegetation likely to support conservation significant species will be cleared lastly or overnight to allow tree dwelling animals to escape overnight into surrounding bushland. Timing of clearing will be prioritised for the period mid-summer to late autumn which coincides to non-breeding season. Suitable tree hollows will be retained when trees are felled, and section of the tree will be relocated within vegetated portions of the POS or ROS. Installation of nesting boxes/hollow logs in the rehabilitation areas.
Marine Environmental Quality	<ul style="list-style-type: none"> To ensure that emissions do not adversely affect environmental values, or the health, welfare and amenity of people and land uses by meeting statutory requirements and acceptable standards. Maintaining structure and functions of estuarine ecosystems. 	Potential for algal blooms due to increased nutrient washout into the water.	Nutrient and Irrigation Management Plan (Bowman Bishaw Gorman 2000a).	Complete	<p>General</p> <ul style="list-style-type: none"> A community liaison register will be maintained appropriately throughout the life cycle.
Shoreline and Estuary Landform	Maintain the integrity, ecological functions and environmental values of the soil, landform, seabed, and estuary.	Potential long-term impacts relating to climate change and sea levels on the foreshore and surrounding developments.	<p>Point Grey Climate Change Vulnerability Assessment (m and p rogers and associates, 2010a).</p> <hr/> <p>Point Grey Project: Coastal Processes Assessment (APASA 2010).</p> <hr/> <p>Foreshore Management Plan</p>	<p>Complete</p> <hr/> <p>Complete</p> <hr/> <p>Drafted – to be updated and submitted for approval.</p>	<ul style="list-style-type: none"> Development and implementation of a whole foreshore adaptive management strategy in consultation with the Shire of Murray and Department of Transport will be undertaken. The strategy will include the following: <ul style="list-style-type: none"> Beach profiling monitoring program to measure the shoreline movement along the western foreshore. Shoreline surveys will be conducted twice annually to account for seasonal variations. Analysis of the beach monitoring results to identify the regions of sediment accretion or erosion. Identification of volumes of sand from accretion regions for transport and placement in regions of sediment erosion. Management of seagrass wrack.
Noise and vibration	Manage noise to ensure compliance with the Environment Protection (Noise) Regulations 1997.	Noise impacts generated from construction activities affecting nearby residential areas and fauna.	Construction Environmental Management Plan	Drafted– to be updated and submitted for approval.	<ul style="list-style-type: none"> Implement noise and vibration management measures as stated in Table 29 of CEMP and Table 22 of the FMP.

Environmental Factor	Environmental Objective	Potential Impact/s	Relevant Studies or Plans	Status of Studies or Plans	Management Measures
		<ul style="list-style-type: none"> • Temporary behavioural change in fauna due to noise and vibration from construction activities. • Ongoing operational noise impacts upon local residents. 	Foreshore Management Plan	Drafted– to be updated and submitted for approval.	<ul style="list-style-type: none"> • Implement contingency measures as outlined in Table 29 of FMP and Table 36 of CEMP. • Fill out the Environmental Incident Form and Complaints register as required for any incident raised (Appendix 1 of CEMP and FMP). • Noise suppression devices will be maintained in good condition on all operational machinery. • Equipment will be switched off when not in use. • Activities will be scheduled to minimise the likelihood of noise nuisance. • Dedicated transport routes will be used. <p>Event reports and actions will be raised for all noise related complaints received.</p>
Mosquitoes	Minimise impacts related to public health and amenity resulting from mosquitoes breeding.	Carrier of diseases.	<p>Mosquito monitoring program (2010)</p> <hr/> <p>Mosquito Management Plan</p> <hr/> <p>Foreshore Management Plan</p>	<p>Complete</p> <hr/> <p>Complete– to be updated and submitted for approval.</p> <hr/> <p>Drafted– to be updated and submitted for approval.</p>	<ul style="list-style-type: none"> • Fill out the Environmental Incident Form and Complaints register as required for any incident raised regarding mosquitoes (Appendix 1 of CEMP and FMP). • Management of mosquitoes must be undertaken in accordance with Table 17 of the FMP. • Contingency actions will be implemented as per Table 29 of FMP.
Air Quality	To ensure that emissions do not adversely affect environmental values, or the health, welfare and amenity of the people and land uses by meeting statutory requirements and acceptable standards.	<ul style="list-style-type: none"> • Dust emission generated from construction activities potentially impacting surrounding fauna and flora. • Dust generation from vehicular movement on unsealed roads. • Transfer of soil to stockpile. • Wind erosion of stockpiled materials. • Minor levels of exhaust emissions generated from the construction equipment and vehicles. • Dust generated from exposed surfaces such as cleared land and construction sites. 	<p>Construction Environmental Management Plan</p> <hr/> <p>Foreshore Management Plan</p>	<p>Drafted– to be updated and submitted for approval.</p> <hr/> <p>Drafted– to be updated and submitted for approval.</p>	<ul style="list-style-type: none"> • Manage dust emissions as per Table 27 of CEMP and Table 21 of FMP. • Fill out the Environmental Incident Form and Complaints register as required for any incident raised (Appendix 1 of CEMP and FMP). • Implement dust mitigation contingency actions as per Table 29 of FMP and Table 36 of CEMP. • Undertake dust inspections as required in accordance with the inspection sheets in Appendix 1 of the FMP and CEMP. • Minimise disturbance or open area at any one time to limit exposure of open areas to wind erosion. • Minimise width and length of internal roads. • Restrict vehicles movements to defined roads and operational areas of the development and define no go buffer areas to limit access to non-operational areas. • No disturbance allowed to non-operational areas. • All vehicles leaving the site must have covered loads. • Stop operations if weather conditions deteriorate until the weather improve. • Maintain surface of haul road in good conditions and grade whenever required.
Hydrocarbon, sewage, and domestic waste	To ensure that emissions do not adversely affect environmental values, or the health, welfare and amenity of the people and land uses by meeting statutory requirements and acceptable standards.	<ul style="list-style-type: none"> • Contamination of local soil, groundwater, or surface water. • Poor disposal of domestic waste. • Uncontrolled release of waste from Project area may result in localised pollution within the Foreshore Management Zone. • Inadequate storage of waste may attract feral animals to the work area and adjacent FMZ. • Ongoing pollution: oil spills, sullage dumping, bilge water, sewage, litter. 	Construction Environmental Management Plan	Drafted– to be updated and submitted for approval.	<ul style="list-style-type: none"> • Hydrocarbon and hazardous material handling and storage to be managed as per Table 23 of CEMP. • Fill out the Environmental Incident Form and Complaints register as required for any incident raised (Appendix 1 of CEMP and FMP). • Conduct spill management, contractor demobilization management and waste management inspection as part of the internal environmental inspection and audit. Inspection form is provided in Appendix 1 of the CEMP and FMP. • All personnel must be trained in spill response management. • Domestic Waste and sewage must be managed as per Table 33 of the CEMP and Table 27 of the Foreshore Management Plan. • Proper storage of dangerous goods in accordance with Dangerous Goods Storage Legislation and ensure that fuel storage tanks comply with the Australian Standard 1940:2004 <i>The Storage and Handling of Flammable and Combustible Liquids</i>. • Solid waste will be properly disposed as required by a licensed contractor or the Shire of Murray. • Public facilities such as toilets will be sewerer to the surrounding urban development. • Garbage disposal will be incorporated to the existing Shire of Murray’s waste and recycling collection system.

Environmental Factor	Environmental Objective	Potential Impact/s	Relevant Studies or Plans	Status of Studies or Plans	Management Measures
Aboriginal Heritage	<ul style="list-style-type: none"> To ensure that sites of aboriginal significance are appropriately managed. To ensure that changes to the biophysical environment do not adversely affect historical and cultural associations and comply with relevant heritage legislation. 	<ul style="list-style-type: none"> Point grey marina is within the Aboriginal Heritage site 17212 – Point Grey Camping Area. Excavation activities has the potential to unearth artefacts or other items of cultural significance. Potential loss or damage to unidentified artefacts, remains and sites of aboriginal significance. Unrecorded artefacts may be uncovered during construction of marina. 	Construction Environmental Management Plan	Drafted– to be updated and submitted for approval.	<ul style="list-style-type: none"> Ongoing consultation with Aboriginal community representatives and elders. No identified significant sites will be disturbed without approval under section 18 of the <i>Aboriginal Heritage Act 1972</i>. All personnel working on the premises will be adequately trained to raise awareness. Personnel will be prohibited from entering the Foreshore Management Zone and therefore reducing the likelihood of affecting any aboriginal sites within the FMZ. Prior to ground disturbance activities, all relevant approvals will be obtained for disturbance to heritage sites. Ensure management measures outlined in Table 25 of CEMP is implemented whenever required to ensure that unauthorised disturbance to any aboriginal sites is not undertaken. Ensure contingency measures are implemented as defined under Table 36 of CEMP and Table 29 of the FMP. Any incident must be reported as per Appendix 1 of CEMP and FMP.

Table 3-2: Redundant Environmental Impacts for Point Grey (following removal of marina)

Redundant Environmental Factor	Redundant Environmental Objective	Redundant Potential Impact/s	Relevant Studies or Plans	Status of Studies or Plans
Marine Environmental Quality	<ul style="list-style-type: none"> To ensure that emissions do not adversely affect environmental values, or the health, welfare and amenity of people and land uses by meeting statutory requirements and acceptable standards. Maintaining structure and functions of estuarine ecosystems. Minimising risks and harm to the environment resulting from elevated turbidity levels associated with the dredging program and to protect the recreational and aesthetic value of water quality. Ensuring that estuary sediments do not comprise of significant metal/metalloid contaminants and have negligible acid volatile sulfur content. minimise exposure of Potential Acid Sulfate Soil material and therefore generation of ASS during dredging, disposal and land reclamation operations. 	<ul style="list-style-type: none"> Increased turbidity due to dredging activities and groyne construction. Reduced water quality in the marina. Poor disposal of spoils leading to ASS contamination during Capital works and monitoring activities. Increase in heavy metal concentration. Loss of marine fauna. Loss of visual amenity. Acid corrosion of concrete structures such as bridges, piles, pylons, drainage pipes. 	Flushing and Water Quality Modelling Draft 2 (APASA 2010a).	No longer required
			Dredge and Spoil Disposal Management and Monitoring Plan (RPS 2011g)	No longer required
			Point Grey Sediment Dispersion (APASA 2011a)	No longer required
			Channel and Marina Management Monitoring Plan (BMT 2019a)	No longer required
			Report of Geotechnical Investigation for Proposed Boating Channel for Point Grey (Douglas 2009a)	No longer required
Marine fauna and Benthic Primary Producers Habitat	<ul style="list-style-type: none"> To maintain the abundance, diversity, geographic distribution and productivity of fauna at species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge. To protect specially protected fauna. Management of fisheries and aquaculture to maintain the quality of seafood for human consumption and ensure production is not compromised. To ensure that the value of commercial and recreational fisheries within the Peel Inlet-Harvey Estuary is considered and measures are adopted to reduce impacts to the fisheries to as low as reasonably practicable. To minimise direct loss and disturbance to estuarine habitat during dredging and dredge disposal activities. To minimise indirect impacts to estuarine habitat through turbidity and increase boating traffic. To minimise impacts to the amenity of the area caused by the potential accumulation of seagrass wrack. 	<ul style="list-style-type: none"> Loss of BPPH as a direct consequence of the channel dredging and groyne construction and maintenance dredging operations. Impacts on seagrass due to increased sedimentation rates. Interruption of fish and crustacean breeding activities due to turbidity within or adjacent to the area of dredging and construction affecting sustainability. Impacts to marine species from changes in marine water quality associated with dredging such as the mobilization of sediment bound contaminants, nutrients and lowering of dissolved oxygen levels. Increased pressure on fish stocks from recreational fisheries, due to an increase in boat-based recreational fishing, made more accessible by marina boat ramps. Short term impact to fish and crab number. Temporary cessation of commercial fishing in the areas of work. Presence of navigation channel will remove a small area of fishable water. Dredging of the access channel will result in the loss of a small area of benthic habitat reducing habitat for fishes in the area. Increased pressure on Peel Inlet-Harvey Estuary System fish stocks from increasing numbers of recreational fishery. Elevated levels of turbidity affecting the fishes. Physical injury to cetaceans due to vessel strike. The presence of the two groynes protecting the marina entrance channel may lead to the accumulation of seagrass wrack from the adjacent Harvey Estuary. Offensive odor arising from the decay of the seagrass. 	Dredge and Spoil Disposal Management and Monitoring Plan (RPS 2011g)	No longer required
			Acid Sulfate Soils and Dewatering Management Strategy for Point Grey Marina Development (RPS 2011f)	No longer required
			Point Grey Flushing and Water Quality Modelling, Draft 2 (APASA 2010a).	No longer required
Shoreline and Estuary Landform	Maintain the integrity, ecological functions and environmental values of the soil, landform, seabed, and estuary.	<ul style="list-style-type: none"> Construction of the marina and entrance channel will create a modification of the natural estuary bed and shoreline and is therefore likely to influence local coastal processes. Alteration in the magnitude and direction of longshore sediment transport due to the construction of rock groynes which can lead to an alteration of the western foreshore beach alignment. Dredging of the channel for boating access has the potential to result in an altered estuary bed. Disturbance of Potential ASS during dredging activities. 	Point Grey Sediment Dispersion Modelling (APASA 2011a).	No longer required
Hydrocarbon, sewage, and domestic waste	To ensure that emissions do not adversely affect environmental values, or the health, welfare and amenity of the people and land uses by meeting statutory requirements and acceptable standards.	Sewerage and waste discharge from boats.	Nil	Nil

4. Environmental Management

4.1 Management Plans Required to Satisfy Legislative Approvals

The management plans described in **Table 4-1: Environmental Management Plans to Support Legislative Approvals** are required to be submitted to fulfil conditions of project approvals for State, Commonwealth, and the local Shire.

A summary of the purpose of each management plan, corresponding environmental factors each plan addresses, and specific management measures is provided **Table 4-2: Additional Management Plans Required**. It should be noted there are common management plan requirements for both the State and Commonwealth in relation to waterbirds, urban water management (UWMP) and the foreshore buffer. Consultation will occur with the State and Commonwealth requesting single management plans (i.e. for waterbirds, UWMP and the foreshore buffer) be prepared and submitted to the State and Commonwealth for approval which addresses collectively their respective management requirements (as opposed to having separate State and Commonwealth management plans).

Table 4-1: Environmental Management Plans to Support Legislative Approvals

Management Plan (A-Z)	Status	Requirement
Access Road Management Plan	Submitted with PER	Condition 2.6 of the Shire of Murray Local Planning Scheme No. 4, Schedule 7 –Special Development Zone.
Acid Sulfate Soils & Dewatering Management Strategy	Submitted with PER	Condition 3 of EPBC 2010/5515
Bushfire Management Plan	In progress	Western Australian Planning Commission, State Planning Policy 3.7, Planning In Bushfire Prone Areas, December 2015 Condition 2.8 of the Shire of Murray Local Planning Scheme No. 4, Schedule 7 –Special Development Zone
Capital Dredging & Spoil Disposal Management Plan	No longer required Refer to Table 2-1	Condition 1 of EPBC 2010/5515
Channel and Marina Management Monitoring Plan	No longer required Refer to Table 2-1	Condition 8 of MS 906
Construction Management Plan	Not yet developed	Condition 2.6 of Shire of Murray Local Planning Scheme No. 4, Schedule 7 – Special Development Zone
Construction Environmental Management Plan	Drafted	Condition 2.6 of the Shire of Murray Local Planning Scheme No. 4, Schedule 7 – Special Development Zone Condition 12 of EPBC 2011/5825 Condition 6 of EPBC 2010/5515
Environmental Offset Strategy Point Grey Marina	Drafted	Condition 7-2-3 of MS 906 Condition 5 (b) of EPBC 2010/5515 Condition 10 (c) of EPBC 2011/5825
Fisheries Management Plan	No longer required Refer to Table 2-1	Commitment to submit a Fisheries Management Plan was made in the PER report

Management Plan (A-Z)	Status	Requirement
Foreshore Management Plan	Drafted	Condition 2.3 of the Shire of Murray Local Planning Scheme No. 4, Schedule 7 – Special Development Zone Condition 7 of EPBC 2010/5515 Condition 9 of EPBC 2011/5825 Condition 6-5 of MS 519
Groundwater Management Plan	Not yet developed	Condition 14 (b) of EPBC 2011/5825
Local Water Management Strategy	Approved by DWER (Addendum prepared as part of amended LSP)	Condition 2.2 of the Shire of Murray Local Planning Scheme No. 4, Schedule 7 – Special Development Zone Condition 13 of EPBC 2011/5825
Maintenance Dredging & Spoil Disposal Management Plan	No longer required Refer to Table 2-1	Condition 4 of EPBC 2010/5515
Mosquito Management Plan	Submitted with PER	Condition 2.5 of the Shire of Murray Local Planning Scheme No. 4, Schedule 7 – Special Development Zone
Vegetation Management Plan	Drafted	Committed to in the PER document
Water Quality Management Plan	Drafted	WAPC development Control Policy No. 1.8 Canal Estates and Artificial Waterway Development
Waterbird Management Plan	Drafted	Condition 2.4 of the Shire of Murray Local Planning Scheme No. 4, Schedule 7 – Special Development Zone Condition 15 of EPBC 2011/5825 Condition 2 of MS 519

Table 4-2: Additional Management Plans Required

Management Plan (A-Z)	Key Environmental Factor/s Addressed	Purpose
Access Road Management Plan	<p>The Management Plan will be developed to address the following:</p> <ul style="list-style-type: none"> - Maintenance of the existing drainage functions of the Robert Bay wetland. - Road design, construction, and engineering. - Surface water management. 	<p>The aim of this report is to satisfy the requirement to submit an Access Road Management Plan to the Shire of Murray as per condition 2.7 in the Shire of Murray Local Planning Scheme No. 4, Schedule 7 – Special Development Zone.</p> <p>An Access Road Construction Management plan was prepared and issued to Shire of Murray in 2011 and approved by Council 27 April 2011 to support the proposed ODP.</p>
Bushfire Management Plan	Vegetation surrounding the area are prone to bushfire.	<p>The aim of the report is to satisfy the requirement of submitting a Bushfire Management Plan to the Shire of Murray, DPLH and DFES.</p> <p>The Bushfire Management Plan will be submitted as part of the LSP amendment application.</p>
Construction Environmental Management Plan*	<p><u>Wetlands of International Significance</u></p> <p>Point Grey Marina is located on the western edge of the Point Grey peninsula, which separates the Harvey Estuary from the Peel Inlet in the Shire of Murray. These waterbodies form part of the Peel Yalgorup wetland system, a wetland protected under the Ramsar conventions as a wetland system of international importance for migratory birds.</p> <p><u>Listed Migratory Species</u></p> <p>Seven species of Listed Migratory Species were observed within the proposed Point Grey Marina area during the target waterbirds surveys. However, no roosting habitats, i.e., prominent headlands or limestone outcrops within or immediately adjacent to the Stage 1, Phase 1 project area were found. The closest roosting site was recorded at the northern Regional Open Space (ROS) headland approximately 500 m north of the construction site.</p>	<p>The implementation of the CEMP will help to mitigate potential impacts against the Peel-Yalgorup estuary wetlands, listed migratory species and listed threatened species during construction works.</p> <ul style="list-style-type: none"> • The Construction Environmental Management Plan will be implemented as required. Key conditions include: <ul style="list-style-type: none"> ○ Staging of clearing of habitat ○ Exclusion periods for construction ○ Implementation of the weed management strategy ○ Mitigation and management measures will be implemented to address potential impacts for listed migratory species and threatened species ○ Mitigation and management measures for lighting, dust, noise and smoke ○ Contingency measures ○ Roles and responsibilities including timeframes for implementation and reporting ○ Any fauna incidents will be reported

Management Plan (A-Z)	Key Environmental Factor/s Addressed	Purpose
	<p><u>Listed threatened species and communities</u></p> <p>Even though three listed threatened species were identified as may occur in stage 1 phase 1 of the project area, further studies indicated that the project area does not contain any critical habitats for protected species or populations.</p>	
<p>Environmental Impact Report (this report)</p>	<p><u>State Assessment</u></p> <ul style="list-style-type: none"> • Flora and Vegetation. • Terrestrial Fauna. • Marine Environmental Quality. • Marine Fauna. <p><u>Commonwealth Assessment</u></p> <ul style="list-style-type: none"> • Impacts on Wetlands of International Significance: The Peel Inlet Harvey Estuary System (Ramsar). • Listed Migratory Species. • Listed Threatened Species and Communities. 	<p>The aim of the report is to support the amendment to the LPS for the Point Grey land that is required to be submitted to the Shire of Murray following Amendment 314, as recommended by the WAPC.</p>
<p>Foreshore Management Plan*</p>	<p><u>Wetlands of International Significance</u></p> <p>Point Grey Marina is located on the western edge of the Point Grey peninsula, which separates the Harvey Estuary from the Peel Inlet in the Shire of Murray. These waterbodies form part of the Peel Yalgorup wetland system, a wetland protected under the Ramsar conventions as a wetland system of international importance for migratory birds.</p> <p><u>Listed Migratory Species</u></p> <p>Seven species of Listed Migratory Species were observed within the proposed Point Grey Marina area during the target waterbirds surveys. However, no roosting habitats, i.e., prominent headlands or limestone outcrops within or immediately adjacent to the Stage 1, Phase 1 project area were found. The closest roosting site was recorded at the northern Regional Open Space (ROS) headland approximately 500 m north of the construction site.</p>	<p>The implementation of the FMP will help to mitigate potential impacts against the Peel-Yalgorup estuary wetlands, listed migratory species and listed threatened species and help to ensure the protection of the Foreshore Management Zone during Stage 1, Phase 1 Earthworks.</p> <p>The Foreshore Management Plan (FMP) will be implemented as required. Key conditions include:</p> <ul style="list-style-type: none"> ○ Vegetation and plant disease management ○ Vegetation environmental reporting requirements ○ Incidents will be managed ○ Flora inspections will be conducted ○ Dust management measures will be implemented

Management Plan (A-Z)	Key Environmental Factor/s Addressed	Purpose
	<p>Listed threatened species and communities</p> <p>Even though three listed threatened species were identified as may occur in stage 1 phase 1 of the project area, further studies indicated that the project area does not contain any critical habitats for protected species or populations.</p>	
Groundwater Management Plan	<p>Groundwater quality and quantity impacts.</p> <p>Impacts of groundwater drawdown to Lake McLarty, Lake Mealup and Reserve 4990.</p>	The aim of the plan is to ensure long term water needs for the development and ensure that nearby lakes and wetlands are not impacted due to drawdown.
Mosquito Management Plan	The Mosquito Management Plan will be developed on advice from the DBCA to adequately identify mosquito nuisance, public health risks, and management strategies.	The aim of this report is to satisfy the requirement to submit a Mosquito Management Plan to the Shire of Murray as per condition 2.5 in the Shire of Murray Local Planning Scheme No. 4, Schedule 7 – Special Development Zone.
Waterbird Management Plan	Listed Migratory Species and birds that are part of the ecological character of the Peel-Yalgorup Wetlands.	The aim of the WMP is to ensure that the waterbird monitoring program is implemented and no decline in waterbird abundance or habitat values attributable to the development is observed.

*A preliminary draft of these Management Plans was submitted to decision making authorities. These plans are currently under revision taking into consideration the comments received.

4.2 Predicted Outcomes

The commitments made to mitigate environmental impacts as described in **Table 3-1: Environmental Impact Assessment Summary for Point Grey** will further reduce potential environmental impacts arising from the implementation of the project and will help to achieve the outcomes stated in **Table 4-3: Predicted Outcomes** below.

Table 4-3: Predicted Outcomes

Predicted Outcome	Description
Environmental Data	<ul style="list-style-type: none"> Long term monitoring plans will provide quality data to better understand the behaviour of the ecosystem. All data will be provided to State Government Agencies.
Rehabilitation	<ul style="list-style-type: none"> Rehabilitation of at least 4.7 ha of Point Grey Foreshore. Revegetation of the foreshore buffer zone. Installation of nesting boxes for Black Cockatoos. Planting of 1100 native trees (eg. tuart, marri, and jarrah).
Conservation	<ul style="list-style-type: none"> Conservation of foreshore and wetlands within proximity of the development. Transfer of 10.6 ha of foreshore vegetation zoned as rural to the State of Western Australia for conservation and recreational purposes. Protection of vegetation via monitoring and management. Salvage of hollow limbs and trunks of trees.
Offsets	<ul style="list-style-type: none"> Provision of funds to DWER to acquire a property with at least 60 ha of foraging habitat within 50km of the project area and a property with at least 300 ha of foraging habitat for black cockatoos. Provision of funds to DPaW to acquire a property with at least 22 ha of foraging and breeding habitat for black cockatoos.
Ongoing Environmental Management	<ul style="list-style-type: none"> Weed and feral animal control programs. Bushfire management. Waterbird management and monitoring.

5. Conclusion

The potential environmental impacts arising from implementation of the Project, proposed management, and contingency measures have been outlined in this report.

The suite of investigative studies conducted to date and detailed engineering studies currently underway will ensure the development exceeds predicted environmental outcomes. All environmental management plans have been developed in accordance with the technical studies conducted to date and in consultation with regulatory authorities.

In summary, the following key environmental principles underpin the development:

1. The Point Grey site has been historically cleared and used as a cattle farm, which will cease. The majority of the development is focused within the existing historically cleared areas.
2. The development will include a comprehensive native vegetation revegetation program with a focus on the foreshore areas and in areas along the central ridgeline.
3. The developer / landowner will be transferring 14.8 ha of privately owned (“rural” zoned) remnant foreshore vegetation back to the State.
4. Waterbird monitoring and management will be implemented.
5. Any site works are underpinned by the following environmental conditions (are to be prepared and implemented to the satisfaction of the State and/or Commonwealth):
 - a) Vegetation Impact Monitoring Program.
 - b) Foreshore Management Plan.
 - c) Construction Environmental Management Plan.
 - d) Local Water Management Strategy.
6. Offsite environmental offsets will ensure no “net-loss” of environmental values.
7. Feral fox, rabbit, and cat control will occur within Point Grey.

There will also be a significant medium/long term monitoring program(s) which will address:

- Estuarine water and sediment quality.
- Waterbirds.
- Stormwater treatment (surface water run off).
- Revegetation works.
- Black cockatoo nesting boxes.

Point Grey Development Company Pty Ltd is committed to minimise, mitigate and offset environmental impacts that cannot be practicably avoided.

The removal of the marina and associated navigational channel and replacement with a more traditional neighbourhood centre, parklands and foreshore access has removed a significant number of environmentally sensitive disturbances to the land than previous approvals allowed.

It will be ensured that over the course of the project, potential impacts associated with the reduced form of development associated with this LSP amendment will be managed through the management plans and consultation with relevant authorities will be undertaken.

6. Limitations

Scope of services

This report (“the report”) has been prepared by JBS&G in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and JBS&G. In some circumstances, a range of factors such as time, budget, access and/or site disturbance constraints may have limited the scope of services. This report is strictly limited to the matters stated in it and is not to be read as extending, by implication, to any other matter in connection with the matters addressed in it.

Reliance on data

In preparing the report, JBS&G has relied upon data and other information provided by the Client and other individuals and organisations, most of which are referred to in the report (“the data”). Except as otherwise expressly stated in the report, JBS&G has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report (“conclusions”) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. JBS&G has also not attempted to determine whether any material matter has been omitted from the data. JBS&G will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to JBS&G. The making of any assumption does not imply that JBS&G has made any enquiry to verify the correctness of that assumption.

The report is based on conditions encountered and information received at the time of preparation of this report or the time that site investigations were carried out. JBS&G disclaims responsibility for any changes that may have occurred after this time. This report and any legal issues arising from it are governed by and construed in accordance with the law as at the date of this report.

Environmental conclusions

Within the limitations imposed by the scope of services, the preparation of this report has been undertaken and performed in a professional manner, in accordance with generally accepted environmental consulting practices. No other warranty, whether express or implied, is made, including to any third parties, and no liability will be accepted for use or interpretation of this report by any third party.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

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1	H. Gavin	A. Winzer	A. Winzer		30 July 2024



Adelaide

Kaurna Country | 100 Hutt St,
Adelaide, SA 5000
T: 08 8431 7113

Brisbane

Turrbal/Yuggera Country | Level 37,
123 Eagle Street, Brisbane, QLD 4000
T: 07 3211 5350

Bunbury

Wardandi Country | 177 Spencer
Street Bunbury, WA 6230
T: 08 9792 4797

Canberra

Ngunnawal Country | Level 1, The Realm
18 National Circuit Barton, ACT 2600
T: 02 6198 3278

Darwin

Larrakia Country | Suite G1, Level 1,
48-50 Smith Street, Darwin NT 0800
T: 08 8943 0600

Hobart

Muwununa/Nuenon Country | L2, 137
Liverpool Street, Hobart TAS 7000
T: 03 6208 3700

Melbourne

Wurundjeri Country | Level 19,
31 Queen Street, Melbourne VIC 3000
T: 03 9642 0599

Newcastle

Awabakal/Worimi Country | 61 / 63
Parry Street Newcastle West, NSW 2302
T: 02 8245 0300

Perth

Whadjuk Country | Allendale Square,
Level 9, 77 St Georges Terrace, WA 6000
T: 08 9380 3100

Sydney

Gadigal Country | Level 1,
50 Margaret Street, Sydney, NSW 2000
T: 02 8245 0300

Wollongong

Dharawal Country | Suite 1A, 280 - 286
Keira Street, Wollongong, NSW 2500
T: 02 4225 2647