

**STOCKLAND RESIDENTIAL
AND
WATERWAYS DEVELOPMENT**

POINT LONSDALE

ASSESSMENT

under

ENVIRONMENT EFFECTS ACT 1978

Minister for Planning

January 2009

LIST OF ACRONYMS

AH Act	<i>Aboriginal Heritage Act 2006 (Vic)</i>
ASS	Acid Sulfate Soil
AVW	Atlas of Victorian Wildlife
AHD	Australian Height Datum
ARI	Average Recurrence Interval of rainfall events
Bonn Convention	Convention on the Conservation of Migratory Species of Wild Animals
CAMBA	China – Australia Migratory Birds Agreement
C&LP Act	<i>Catchment and Land Protection Act 1994 (Vic)</i>
CA Act	<i>Coastal Management Act 1995 (Vic)</i>
CEMP	Construction Environmental Management Plan
CHMP	Cultural Heritage Management Plan, under <i>Aboriginal Heritage Act 2006 (Vic)</i>
DEWHA	Commonwealth Department of the Environment, Water, Heritage and the Arts
DPCD	Victorian Department of Planning and Community Development
DSE	Victorian Department of Sustainability and Environment
ESD	Ecologically sustainable development
EVC	Ecological Vegetation Class
EES	Environment Effects Statement
EMF	Environmental Management Framework
EMP	Environmental Management Plan
EMS	Environmental Management System
EP Act	<i>Environment Protection Act 1970 (Vic)</i>
EPA	Victorian Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
FFG Act	<i>Flora and Fauna Guarantee Act 1988 (Vic)</i>
ha	hectares
hha	habitat hectares
IPCC	Intergovernmental Panel on Climate Change
JAMBA	Japan – Australia Migratory Birds Agreement
km	kilometres
LPPF	Local Planning Policy Framework
m, m3	metres, cubic metres
NVMF	Victoria's Native Vegetation Management Framework
NVOMP	Native Vegetation Offset Management Plan
OBP	Orange-bellied Parrot
P&E Act	<i>Planning and Environment Act 1987</i>
PEMP	Project Environmental Management Plan

SEPPs	State Environment Protection Policies
Ramsar Convention	Convention on Wetlands of International Importance (1971)
SPPF	State Planning Policy Framework
SRWD	Stockland Residential Waterways Development
TDS	Total Dissolved Solids
VCS	Victorian Coastal Strategy
VMP	Vegetation Management Plan
VQA	Vegetation Quality Assessment
WSUD	Water Sensitive Urban Design

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1 Introduction

1.1 Purpose of this Document

This document is the assessment of environmental effects (Assessment) under the *Environment Effects Act 1978* (EE Act) for the proposed Stockland Residential and Waterways Development (SRWD) at Point Lonsdale. It provides the Minister for Planning's evaluation, findings and advice to statutory decision-makers on environmental effects of the SRWD project. These decision-makers include Greater Geelong City Council, the Minister for Planning under the *Planning and Environment Act 1987* (P&E Act), and the Minister for Environment and Climate Change under the *Coastal Management Act 1995*. Other approvals required before the development can proceed include consents to excavate or disturb Aboriginal archaeological sites under the *Aboriginal Heritage Act 2006* and consent to disturb heritage sites under the *Heritage Act 1995*.

This Assessment is also provided to the Commonwealth Minister for the Environment, Heritage and the Arts, as part of the accredited assessment process under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), to inform the decision whether to approve the project under that Act.

1.2 Project Description

Stockland Development Pty Ltd (Stockland) proposes to create a residential and waterways development on a site of 194.6 hectares (ha) at Point Lonsdale, on the Bellarine Peninsula, approximately 30 km from Geelong. The site is located within the Greater Geelong municipality, but close to the municipal boundary with the Borough of Queenscliffe (BoQ).

The project is a revised version of a proposal which was first advanced in May 2006. At that time, in the absence of a structure plan for Point Lonsdale, the then Minister for Planning declined to authorise an amendment under the Greater Geelong Planning Scheme to rezone land beyond the existing urban settlement boundary. The project would also complete the residential/waterways development which commenced with the Lonsdale Lakes estate in the 1980s. The latter estate abuts the south-eastern side of the SRWD.

The project is located on the Bellarine Highway at the entrance of the BoQ and the existing Point Lonsdale township. The site is bound on the north by the former Bellarine Railway (now known as the Bellarine Rail Trail). It has approximately 1.5km of frontage to the Bellarine Highway and Shell Road and adjoins Swan Bay via Lakers Cutting at its eastern boundary. Lake Victoria is located to the south of the site and is connected to the site by an overflow structure.

The proposed SRWD development includes a residential subdivision of approximately 600 lots with integrated waterways, a retirement village, an aged care facility, a multi-purpose community centre, a convenience shop, public open space and habitat land protected for conservation purposes. The project's key elements are described below¹:

¹ A detailed description of the project is provided in Chapter 6 (Proposed Development) of the SRWD EES.

- | | |
|---|---|
| Residential and commercial development
(51.75 ha) | <ul style="list-style-type: none"> • 598 residential dwellings comprising detached dwellings, apartments and town houses on land to the south of the Bellarine Highway; • A retirement village with approximately 170 units providing a range of living and care options on the south side of the Bellarine Highway; • An aged care facility adjoining the retirement village at the north-east corner of the site; • A community hub including; local neighbourhood convenience store and recreation facilities at the northern part of the site adjacent to the retirement village. |
| Rural land
(51.35 ha) | <ul style="list-style-type: none"> • A rural lot along the side of the Bellarine Highway retained to preserve the existing character of the western approach into the township. |
| Waterways
(17.89 ha) | <ul style="list-style-type: none"> • A tidally flushed waterway system integrated within the residential development and connected to Swan Bay via an inlet known as Lakers Cutting; • A major wetland in the western portion of the site to manage water quality of the waterway system. |
| Conservation reserve
(56.03 ha) | <ul style="list-style-type: none"> • A conservation reserve comprising Moonah and brackish sedge land retained to protect significant native vegetation and fauna habitat; |
| Open spaces
(13.75 ha) | <ul style="list-style-type: none"> • A large local park surrounding the central lake and 2 small local parks (13.75 ha); and • A network of over 20 km of walking paths and bicycle trails. |

1.3 Environmental Setting

The site is in a low lying coastal area, part being below sea level, and some of which is subject to occasional inundation by stormwater or seawater. Surface and ground water currently drains through the site and discharges into Lakers Cutting and then Swan Bay. During wet periods, overland flow from Lake Victoria drains through the site. The proposed SRWD waterways and lakes would maintain this hydrological connectivity.

The site is located on Quaternary age coastal sand deposits that formed landscape of swamp and older dune deposits, the former underlying about two thirds of the proposed development area. However, the landscape has been highly modified by past land uses including quarrying of shell grit, construction of road and railway track embankments and construction of on-site lakes forming part of the adjoining Lonsdale Lakes residential development. The shell grit extraction, which occurred from the 1950s until 1987, left extensive shallow pits which are now seasonally inundated. These ephemeral water bodies are partially linked to Lake Victoria, Lakers Cutting and to the adjoining on-site lakes by man-made channels.

The SRWD would require excavation of parts of both the dune areas and the swamps to create the waterway/lake system and provide required fill for the residential development.

The site was originally cleared for dairy farming in the mid 1800s. Since the cessation of dairy farming and grit extraction, extensive regeneration of native vegetation has occurred. The site currently contains saline wetlands, several vegetation communities and various significant flora species. Significant vegetation communities include Coastal Saltmarsh, Coastal Moonah Woodland, Coastal Alkaline Scrub, Coast Tea-Tree and Coastal Flats Tussock Grassland. This vegetation provides habitat for woodland and waterbird species, including migratory species protected under international treaties

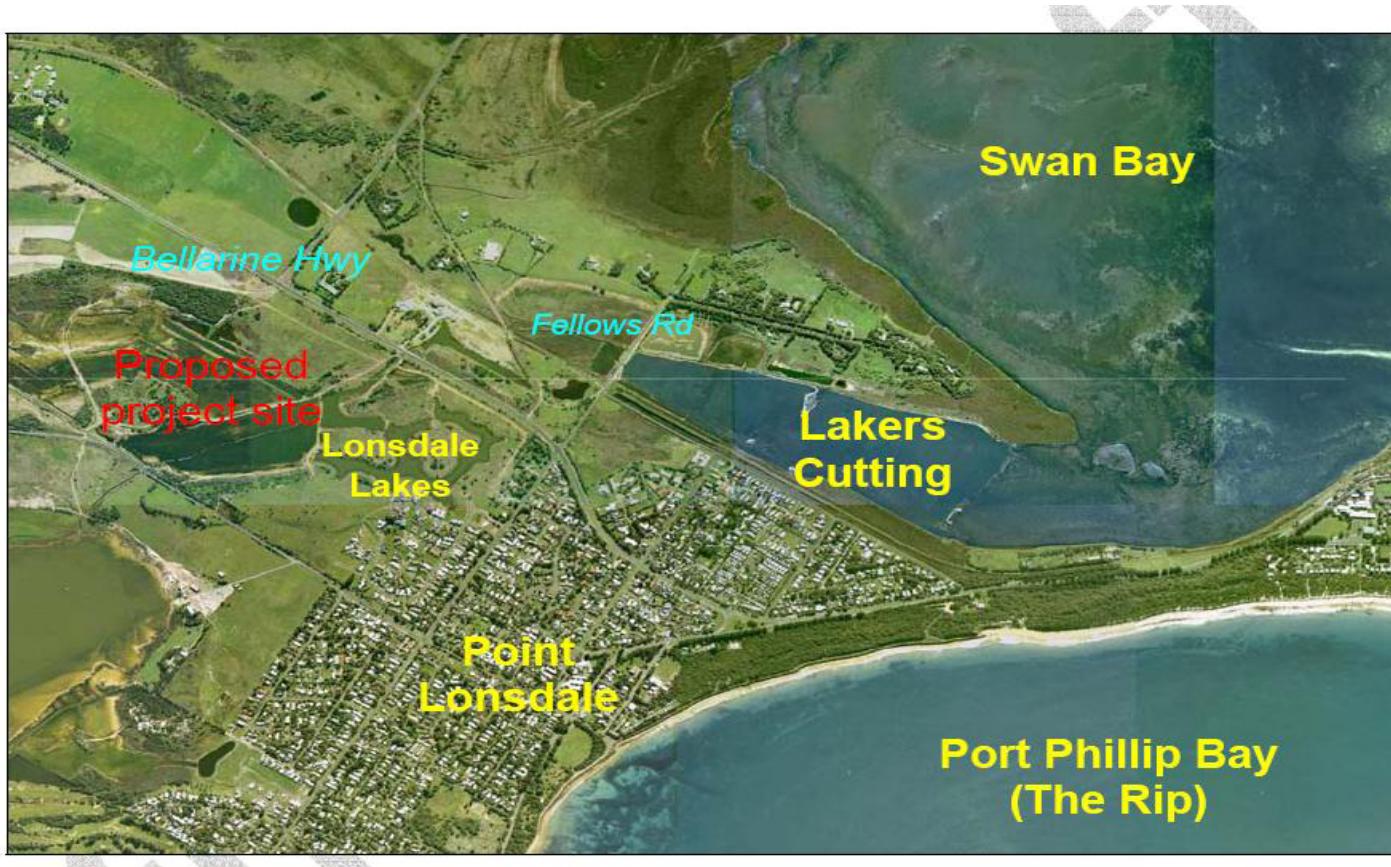


Figure 1. Location of the proposed Residential and Waterways Development site

The site is located within the Swan Bay catchment area. As indicated above, the site drains into Lakers Cutting, which is an artificial, tidal lagoon directly connected to the southern end of Swan Bay. The Bellarine Highway, Fellows Road and Murray Road physically separate Lakers Cutting from the proposed project. The waters of Lakers Cutting are connected to the SRWD development site via a culvert under Fellows Road. Stockland proposes to widen this culvert as part of the development. The current drainage system of the current site includes shallow man made ponds/wetlands which are filled by surface and groundwater as well as overflow from Lake Victoria during wetter periods

Swan Bay forms part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar wetland area (Swan Bay) as well as the Port Phillip Heads Marine National Park. While Lake Victoria has important wetland values it is not included in the Ramsar-listed wetland area. Lake Victoria dominates the topography and hydrology of the surrounding area by virtue of its size (about 2km across at its widest). It currently acts as the main receiving water body for runoff from the surrounding lands, which are predominantly used for agriculture.

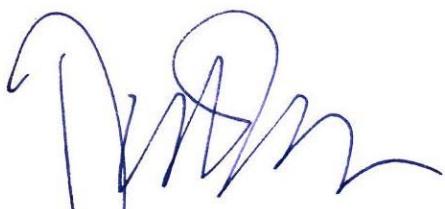
Species of State, National and International significance that have been observed at Lake Victoria and Swan Bay include the Orange-bellied Parrot (OBP) and Hooded Plover; waterbirds of State significance including the Whiskered Tern, Little Tern, Fairy Tern, Caspian Tern, Pacific Gull, Royal Spoonbill, Little Egret, and Great Egret. Given the surrounding area includes important wetlands that support a variety of migratory and threatened species, the site itself does currently provide an ecological link between Lake Victoria and Swan Bay environments.

1.4 Structure of this Assessment

Section 2 of this Assessment outlines both the Environment Effects Statement (EES) process and statutory approvals required for the SRWD proposal.

The core part of this Assessment is found in Section 3, which provides an integrated assessment of the environmental effects of the proposal within the context of applicable legislation and policy. To assist this assessment, Section 3 initially presents a set of evaluation objectives that reflect the key considerations arising from relevant legislation and policy. Further detail on applicable legislation and policy can be found in the Appendices.

Section 4 provides a response to the key recommendations of the Inquiry.

A handwritten signature in blue ink, appearing to read "JM".

JUSTIN MADDEN MLC
Minister for Planning

2 EES Process and Statutory Approvals

2.1 EES Process

The Victorian Minister for Planning determined under the EE Act on 24 September 2003 that an EES was required for the SRWD. Draft Assessment Guidelines for the EES were exhibited for public comment from 28 November until 22 December 2003. The Minister for Planning issued the Assessment Guidelines in February 2004. Subsequently, Stockland amended their proposal to exclude an initially proposed golf course and sewerage treatment facility. This necessitated a revision of the Assessment Guidelines. Revised EES Assessment Guidelines were then issued in February 2005.

Due to the release of the Coastal Spaces Policy, the former Minister for Planning decided in April 2006 not to authorise a Planning Scheme Amendment to the Greater Geelong Planning Scheme associated with the original Stockland residential proposal. In November 2006, Stockland amended its proposal in response to this decision. The revised proposal has the proposed development entirely within the existing residential zone. The EES Assessment Guidelines reflecting this further change to the proposal were issued in December 2006.

The EES for SRWD was prepared by Stockland and its consultants. On 29 October 2007 the Minister for Planning authorised the exhibition of the EES together with Amendment C150 and Planning Permit Application (No.673/2007) associated with the proposal. The documents were exhibited from 29 November 2007 until 29 January 2008. A total of 227 public submissions were received.

On 2 May 2008, the Minister for Planning appointed four members under section 9(1) of the EE Act to conduct an Inquiry into the environmental effects of the SRWD proposal. The Inquiry was conducted using Terms of Reference approved and issued by the Minister for Planning. The four inquiry members were also appointed as a Panel under Sections 153 and 155 of the P&E Act to consider Amendment C150, planning permit application PP673/2007 and associated submissions made in response.

Following a Directions Hearing held on 22 May 2008, the “Inquiry Panel” conducted a Public Hearing from 23 June until 1 August 2008. It subsequently provided its report to the Minister for Planning in October 2008.

The final step of the EES process is for the Minister for Planning to make an Assessment of the environmental effects of the SRWD under the EE Act and provide it to statutory decision-makers under Victorian and Commonwealth law. These decision-makers must consider the Assessment before deciding whether to allow the proposal to proceed or not.

2.2 Statutory approvals

The project requires the following approvals under Victorian law:

- *Planning and Environment Act 1987* authorisation for land use;
- *Coastal Management Act 1995* consent for works on coastal Crown land;
- *Aboriginal Heritage Act 2006* consent to excavate or disturb Aboriginal archaeological sites; and
- *Heritage Act 1995* consent to disturb heritage sites.

Amendment C150 to the Greater Geelong Planning Scheme and Planning Permit Application (No.673/2007) were exhibited with the EES.

The project also needs Commonwealth Government approval under the EPBC Act. The Australian Government accredited the EES process in October 2003 as the required assessment process under the EPBC Act to assess the matters relevant to that Government's decision whether to approve the project under this Act.

2.2.1 Planning and Environment Act 1987

To facilitate the proposed development, Stockland has sought an amendment to the Greater Geelong Planning Scheme together with a planning permit, under Section 96A of the P&E Act. This will rezone some land (36 ha) currently zoned for farming. The majority of the site (81.53 ha) - i.e. the SRWD land fronting Bellarine Highway Road to the north and Shell Road to the south - is already zoned Residential 1 (R1Z).

On 27 October 2007, the Minister for Planning authorised the City of Greater Geelong (CoGG) under section 8A(3) of the P&E Act to prepare Amendment C150 to the Greater Geelong Planning Scheme to facilitate the SWRD. On 29 November 2007, the CoGG exhibited Amendment C150 together with the Planning Permit application 673/2007 and draft Section 173 agreements to be made under the P&E Act.

Amendment 150 would apply a Development Plan Overlay (DPO) over the project site to ensure that the SRWD is planned and developed in an integrated and comprehensive manner, addressing key issues including native vegetation protection, stormwater management, open space linkages, flood protection, urban design, traffic issues and movement linkages. It would also allow the creation of a rural lot to be used as a dwelling.

Amendment C150, planning permit application PP673/2007 and the two Section 173 agreements provide for:

- Introduction of a Development Plan Overlay (DPO) over the site, with a new Schedule that relates to the 'Point Lonsdale Residential and Waterways Project'. The overlay requires the preparation of a Development Plan identifying the requirements for the future use, subdivision and development of the land. Amendment C150 also includes a minimum subdivision area in the Schedule to the Farming Zone of 35 hectares for the rural lot within the SRWD, and allows the use of this lot for a dwelling.
- Planning Permit 673/2007 would allow:
 - Subdivision of land within the R1Z and DPO
 - Two lot subdivision in the Farming Zone
 - Works (to facilitate the subdivision of land) in the Residential 1 Zone, Farming Zone, Rural Conservation Zone, Business 4 Zone, Public Use Zone 4, Environmental Significance Overlay 2, Heritage Overlay, Land Subject to Inundation Overlay and Public Acquisition Overlay 3.
 - Removal of native vegetation under Clause 52.17
 - Creation of access to a road in a Road 1 Zone.
- Two proposed S173 agreements between Council and the proponent will facilitate the provision of infrastructure and the transfer of open space and conservation land to council.

The evaluation of Amendment C150 and the planning permit application will need to be in the context of the State Planning Policy Framework (SPPF) and Local Planning Policy

Framework (LPPF) within the Greater Geelong Planning Scheme. Clause 11.02 of the SPPF sets an overall goal of integrating environmental, social and economic factors in the interests of net community benefit and sustainable development.

2.2.2 Coastal Management Act 1995

Under section 37 of the *Coastal Management Act 1995* (CM Act), the use or development of coastal Crown land requires the consent of the Minister for Environment and Climate Change. This is needed for the works connecting the SRWD's waterways to the inlet of the existing tidal water body known as Lakers Cutting. In considering an application for consent, the Minister must have regard to the relevant strategies and action plans related to sustainable use of coastal land, including the Victorian Coastal Strategy.

2.2.3 Aboriginal Heritage Act 2006

A Cultural Heritage Management Plan (CHMP) is required for the project under Section 49 of the *Aboriginal Heritage Act 2006* (AH Act), since the works are subject to an EES. Stockland will need to prepare such a plan for the SRWD to be approved by the relevant registered Aboriginal party(ies) (RAP) or in the absence of a RAP, Aboriginal Affairs Victoria.

2.2.4 Heritage Act 1995

The *Heritage Act 1995* provides for the protection, conservation and registration of places and objects of cultural heritage significant in Victoria. The Act also provides for protection of archaeological sites and archaeological relics in the survey area. Consent to under Section 129(1) to uncover, excavate or damage an archaeological relic(s) is required for the SRWD.

2.2.5 Environment Protection and Biodiversity Conservation Act 1999

The controlling provisions under the EPBC Act applying to the SRWD are:

- sections 16 and 17B (Wetlands of international importance);
- sections 18 and 18A (Listed threatened species and communities); and
- sections 20 and 20A (Listed migratory species).

As the EES process is accredited under the EPBC Act, the EES needed to address potential impacts of the SRWD on matters covered by the three controlling provisions. However, the key requirement of the accredited process is the provision of this Assessment to the Australian Government Minister for the Environment, Heritage and the Arts. The Assessment is supported by the EES and the Inquiry Panel report.

3 Integrated Assessment

3.1 Assessment Context

In assessing the environmental effects of the SRWD proposal, this Assessment takes into account the applicable aspects of legislation and policy², including the Greater Geelong Planning Scheme, which requires the consideration of these effects in statutory decision-making.

Consistent with applicable legislation, including the P&E Act, EPBC Act and *Environment Protection Act 1970* (EP Act), as well as the EE Act, this Assessment needs to consider the implications of the project for ecologically sustainable development (ESD). The first three of these Acts incorporate broadly consistent objectives and/or principles of ESD³. Further, the *Ministerial Guidelines for Assessment of Environmental Effects* made under section 10 of the EE Act explicitly call for the assessment of projects to be made in the context of the principles and objectives of ESD.

To provide a coherent structure for this Assessment, the key issues relating to the SRWD and its consistency with applicable legislation and policy have been synthesized into an integrated set of evaluation objectives. A draft set of objectives were included within the Assessment Guidelines for this EES. These have now been refined in light of the subsequent consideration of project issues. Table 1 lists these objectives, together with the key legislation that underpins them. Specific aspects of applicable legislation and related policy will be highlighted in the discussion under individual evaluation objectives.

These evaluation objectives provide a set of benchmarks for assessing likely environmental outcomes of SRWD.

Table 1 Evaluation Objectives and Key Statutes

Evaluation Objectives	Key statutes
1. To create a residential and waterways development that would contribute positively to housing availability, community well-being, economic activity and services viability in the Point Lonsdale-Queenscliff area.	P&E Act
2. To minimise to the extent practicable any adverse effects on the landscape, character and amenity of Point Lonsdale, Queenscliff and adjoining rural areas, including their attractiveness for recreation and tourism.	P&E Act CM Act
3. To minimise to the extent practicable impacts of site works on both any significant geomorphologic values and soil conditions that could contribute to geotechnical, health or amenity risks.	P&E Act EP Act CM Act
4. To maintain waterway conditions suitable for protecting aquatic health.	P&E Act, EP Act C&LP Act
5. To ensure that the project design would provide adequate protection from flood risk in the context of climate change.	P&E Act CM Act

² See Appendix for further details.

³ Or “sustainable development” or “environment protection”

6. To avoid or minimise to the extent practicable adverse effects on native vegetation and on-site wetland values, including floral and faunal species and communities protected under the FFG Act or the EPBC Act.	P&E Act FFG Act EPBC Act
7. To avoid or minimise to the extent practicable, adverse effects on off-site wetland values, especially the ecological character of Swan Bay (and chiefly those parts recognised under the Ramsar Convention), during both construction and operational phases.	P&E Act EP Act EPBC Act
8. To avoid or minimise to the extent practicable adverse effects on both Aboriginal and non- Aboriginal cultural heritage values.	AH Act H Act P&E Act
9. To ensure that the development can be implemented in accordance with a robust and transparent framework for environmental management.	P&E Act EP Act AH Act EPBC Act
10. To enable sustainable development and a net community benefit over the short- and longer-term, having regard to the likely overall economic, social and environmental implications of the proposal.	EE Act P&E Act EP Act EPBC Act

3.2 Project Options

The EES presented two alternative site development options that were considered by Stockland for the SRWD:

- Option A – a residential development with a main lake system in the western part of the site and
- Option B – an integrated residential and waterways development.

Both Options A and B seek to retain all residential development south of the Bellarine Highway within the existing residentially zoned land. Development of the land north of the Bellarine Highway is restricted to the construction of the waterways system through to Lakers Cutting.

The EES established that Options A and B were both feasible alternatives for the proposed development of the site. These two Options, as well as the ‘no project scenario’, were then assessed by the proponent against a range of environmental, social and economic criteria. While Options A and B performed equally in relation to a number of these factors, the former did not sufficiently balance the waterways and residential aspects of the development and would have required the importation of fill from offsite. Therefore the EES proposed Option B (Figure 2) as the project, particularly as it considered this option would offer superior outcomes for the site in terms of balancing environmental, economic and social aspects, including:

- effective use of water sensitive urban design (WSUD) to manage the water quality entering aquatic environments,
- conservation of sensitive environmental areas (i.e. conservation area in the western portion of the site, bigger area of land left for on-site revegetation, a significant wetland and habitat around waterways),

- integration with Point Lonsdale (i.e. minimal visual impact on the entrance to Point Lonsdale, integration with existing Lonsdale Lakes Estate, greatest diversity of residential living options),
- provision of commercial and community facilities for residents (i.e. recreational open space, retail and community facilities and access for pedestrians and cyclists).



Figure 2 Option B - Stockland Residential and Waterways Development
(not to scale)

3.3 Social and Economic Viability

Objective 1: *To create a residential and waterways development that would contribute positively to housing availability, community well-being, economic activity and services viability in the Point Lonsdale-Queenscliff area.*

Statutory Context

This objective addresses the capacity of the SRWD proposal to contribute to the social and economic sustainability of the Point Lonsdale-Queenscliff area. It encapsulates a range of relevant considerations under the P&E Act and the two local planning schemes.

Pertinent objectives of planning under section 4(1) of the P&E Act include:

- (a) to provide for the fair, orderly, economic and sustainable use, and development of land;
- (c) to secure a pleasant, efficient and safe working, living and recreational environment for all Victorians and visitors to Victoria;
- (e) to enable the orderly provision and coordination of public utilities and other facilities for the benefit of the community; and
- (g) to balance the present and future interests of all Victorians.

In addition, the SPPF also highlights the need for planning and development to balance key principles relating to settlement, environment, resource management, infrastructure, economic well-being and social needs. In particular, clause 11.02 of the SPPF sets a goal of 'integrating environmental, social and economic factors in the interests of net community benefit and sustainable development'. Social and economic effects are a relevant consideration in relation to both planning scheme amendments and planning permits under the P&E Act.

The BoQ and CoGG are jointly developing a Structure Plan for the township of Point Lonsdale to identify township development opportunities and constraints, including a Settlement Boundary as well as major community and physical infrastructure requirements for the town.

The draft Structure Plan released in September 2008 anticipates residential development on the SRWD site, i.e. within the area currently zoned Residential 1 under the Greater Geelong Planning Scheme. This area falls within the proposed coastal settlement boundary. In this context, I concur with the Inquiry Panel and I see no reason to defer consideration of the SRWD proposal until the current structure planning exercise for Point Lonsdale is complete.

Housing Availability and Community Well-being

As noted by the Inquiry Panel, Point Lonsdale has not participated in the rapid development that has taken place on other parts of the Victorian coastline in recent years. Approximately 50 percent of the total numbers of dwellings are used as holiday or non-permanent homes. The township has a well established permanent community of approximately 2,500 residents, while the population expands to more than 8,400 people during the summer holiday period.

The SWRD proposal would result in a permanent population increase of up to 1,200 people over the 10 to 12 year development period. Key issues in this context are whether the new development would: (a) provide needed housing opportunities on the Bellarine Peninsula; (b)

create a satisfactory environment for community well-being for the new residents; and (c) not significantly diminish the well-being of existing residents⁴.

In relation to the first issue, it is of fundamental relevance to note that through its Coastal Spaces policy the Victorian Government has determined to focus the on-going demand for development of coastal housing and related facilities within well-defined township areas. The rejection in 2006 of the earlier proposal put forward by Stockland was a result of its extending beyond the established residentially zoned area. In light of the manifest demand for new housing in high-amenity areas on the Bellarine Peninsula, there are *prima facie* strong grounds for approving urban developments which are: (a) within an existing Residential Zone and (b) meet relevant design, infrastructure and environmental objectives. The SRWD clearly satisfies the first criterion, while the second set of aspects needs to be assessed – the focus here being on environmental aspects and to a lesser extent infrastructure.

Regarding the second issue, there is ample evidence – and the Inquiry Panel has been satisfied by this – that the proposed SWRD is founded on sound design concepts that will ensure a high-quality residential environment. In addition to the incorporation of strong design standards, the provision for the following components and facilities in the SRWD will underpin this outcome: a multi-purpose community centre, local convenience shop, retirement village of 170 independent living units, an aged care facility of up to 120 beds, and a network of local paths and cycling tracks linking the development to Point Lonsdale and the adjoining 56 ha conservation reserve.

Turning to the third issue, I note that the above elements of the SRWD will add to the facilities available to the Point Lonsdale community. Furthermore, the socio-economic and demographic profile of the Point Lonsdale community does not indicate a high degree of vulnerability to an influx of new residents, who are likely to be both financially established and more age-diverse⁵. To the contrary, the capacity of the community to sustain local networks and support local businesses and activities is likely to be strengthened by a moderate expansion of population and social diversity brought about by the SRWD.

The Inquiry Panel observed that “in a vibrant society, there will always be change and Point Lonsdale should be no different”. I agree. The Inquiry Panel also considered that the phasing of SRWD construction over 10-12 years would provide sufficient time for the proponent, together with the two Councils, to monitor and address community needs arising from the SRWD, including new health and medial support services, public transport and children’s services, as these evolve. The medium-term prospect is for an enhancement of community facilities and well-being rather than any diminishment.

One aspect of physical infrastructure that will require some upgrading is the connection to the external road network. According to the EES, the main external social impact of the proposed development would be increased traffic on the local road network (approximately 5,050 vehicle movements per day, and during peak periods up to 6,740 per day). While the predicted traffic volumes would be within acceptable levels of traffic activity for the existing road categories, the EES acknowledges that some mitigation measures would be needed:

- modifications of the external intersections at Bellarine Highway/Fellows Road and Point Lonsdale Road/Lawrence Road to mitigate congestion and increase safety;
- a review of speed limits on the Bellarine Highway and Shell Road adjacent to the site;
- the provision of new bus stops adjacent to the site, and

⁴ The issue of the change that the SRWD may induce in the character of Point Lonsdale will be addressed in section 3.4.

⁵ I note the Inquiry Panel found that while the proposal would increase the availability of housing to a wider range of population, it is not aimed at first home buyers.

- investigation of the need for a local community shuttle service from the proposed development.

The Inquiry Panel also identified the need for a safe pedestrian crossing(s).

Economic Activity

Changes to community well-being attributable to the project will also be closely related to impacts on economic conditions. The EES concluded that the proposed development would have a positive economic impact on Queenscliff, Point Lonsdale and the wider regional area. The benefits flowing out of the capital investment would include increased retail and non-retail spending by both the permanent visitor populations and creation of substantial employment during construction (approximately 2,360 direct full-time jobs and an additional 6,390 indirect jobs) as well as ongoing employment (approximately 32 jobs in the retail sector, 90 jobs in the aged care facility and an additional 80 indirect jobs in the wider region to support local economy). These are important benefits⁶.

Notwithstanding some local apprehension, the SRWD is likely to stimulate additional tourism-related development – a positive outcome in the context of the strategic elements of the two local planning schemes, which regard the tourism sector as a critical component of the local economy for the townships of Point Lonsdale and Queenscliff.

Conclusion

I note that as the proposed SRWD is within the Residential 1 Zone, and hence the current settlement boundary of Point Lonsdale, the proposed use of the land is consistent with Coastal policy under the SPPF (Clause 15.08).

It is my assessment that the SRWD proposal would:

- Make a valuable contribution to housing supply and choice on the Bellarine Peninsula, including for aged people, within a well-planned residential development;
- Provide a more balanced demographic community profile, increase employment opportunities, strengthen demand for local business and services, improve the range of available community services and facilities, and enhance overall capacity for community life, within what will remain a relatively small coastal township;
- Generate traffic impacts on the local and arterial road networks within acceptable limits, if appropriate mitigation measures are implemented.

I note that Development Contributions (as determined by the CoGG) will provide funds for future social infrastructure.

Further, it is my assessment that:

- The CoGG and the BoQ jointly monitor the provision of community facilities and any other social impact issues that may arise during the development of the SRWD.

3.4 Visual and Landscape Character

Objective 2: To minimise to the extent practicable any adverse effects on the landscape, character and amenity of Point Lonsdale, Queenscliff and

⁶ I note that Technical Appendix to the EES overestimated the retail and non-retail spending generated by the new permanent residents, however this overestimation was corrected in the main EES document. I agree with the Inquiry Panel that the overall estimates of economic and employment effects are adequate.

adjoining rural areas, including their attractiveness for recreation and tourism.

Statutory Context

The SPPF clause 15.08 for Coastal Areas requires decision-making by planning and responsible authorities to have regard to both *The Coastal Spaces Landscape Assessment Study* (2006) and “*The Design and Siting Guidelines for Structures on the Victorian Coast*” (1998). The first document locates the SRWD site within two landscape character types: Area Character Type 2.2 – Lonsdale Lakes, and Landscape Character Type 4.1 – Bellarine Hill (Murradoc Hill), both of which are designated as being ‘Regionally Significant’ for their undeveloped coastal landscape with coastal views. The second document provides recommendations for the type of structures appropriate in different landscape “Setting Types”. These guidelines describe the local “Setting Type”, including the development site, as “Characterised by limestone cliffs and dunes. Vegetation is low in exposed areas which contrast with tall exotic plantings in Queenscliffe”. They include a recommendation that: “The form of the structure should maintain and enhance the established coastal landscape character of the area as expressed in the dominant forms of the surrounding environment”.

Key Issues

The key issues to be considered in this context are:

- Whether the landscape characteristics of the proposed development would respond well to its natural setting, the existing Point Lonsdale township and a broader region; and
- Whether the proposed development is planned effectively for its natural setting by setting appropriate design principles to minimise the potential impacts on visual amenity of the area.

Visual and Landscape Effects

As noted above, the proposed development site is highly modified, especially due to previous shell grit extraction. The site largely comprises a low-lying open rural landscape with coastal tussock grasslands and ephemeral saline wetlands within its centre, and moonah woodlands, Coastal Tea-tree communities, remnant sand dunes and vegetated overburden stockpiles occurring along the boundary, and an artificial lake formed as part of the existing Lonsdale Lakes Estate on the eastern boundary.

As presented in the EES, the SRWD proposal aims to respond to and enhance the environmental and landscape values of the local area by incorporating the following principles into the design:

- An open space and drainage network that extends and enhances the wetland ecology of the site, and provides a linear parkland system that will form a unique neighbourhood within the Point Lonsdale region.
- Providing a green edge to sensitive interfaces along the road network that adjoins the site. This will ensure that development will not form a blight on the existing landscape. and
- A strategy to build upon remnant vegetation, such that indigenous species are used for the revegetation and landscaping works, which will in turn enhance the landscape and visual qualities of the area (EES Chapter 15, p20).

Proposed planning controls that were advanced during the Inquiry Panel process provide for building controls and design guidelines that will, amongst other things, specify architectural character, building materials and external colours to assist the development’s integration with the existing urban fabric of old Point Lonsdale.

I note the Inquiry Panel finding that the proposal would effectively avoid detrimental impacts on the character, amenity and infrastructure of Point Lonsdale and Queenscliff, including their attractiveness for recreation and tourism, by implementing the above design principles to ensure that high internal visual quality is achieved and external impacts are minimised.

In regard to external visual impacts, the EES indicated that the SRWD would be visible from Marcus Hill on the Bellarine Highway and rooftops will be visible on the approach to the township. The Inquiry Panel found that proposed measures to minimise the external visual impact, including planting of screening trees, building height controls and setbacks, would be adequate to minimise impacts on the visual amenity of the Point Lonsdale township.

Conclusion

It is my assessment that the SRWD proposal responds well to its landscape setting, having regard to relevant policy guidance for coastal development.

Further to this, it is my assessment that planning controls for the development require amenity planting – additional to revegetation to create habitat and environmental open space areas - using a diversity of locally indigenous species, including where practicable species of Regional and State significance.

3.5 Geomorphology and soil conditions

Objective 3: *To minimise to the extent practicable impacts of site works on both any significant geomorphologic values and soil conditions that could contribute to geotechnical, health or amenity risks.*

Statutory Context

The landscape of the SRWD site includes features of geomorphological interest, as well as of ecological, aesthetic and cultural interest. One of the objectives of the CM Act is pertinent in this regard, viz. “to protect and maintain areas of environmental significance on the coast including its ecological, geomorphological, geological, cultural and landscape features” (s.4(b)). The objectives of planning under section 4(1) of the P&E Act are also pertinent, viz. “(d) to conserve and enhance those buildings, areas or other places which are of scientific, aesthetic, architectural or historical interest or otherwise of special cultural value”.

The SRWD must comply with relevant pollution control measures under the EP Act, including in accordance with the *Industrial Waste Management Policy (IWMP)* (*Waste Acid Sulphate Soil*) which provides specific guidance on the identification, assessment and management of Acid Sulphate Soils (ASS). In addition, the 2008 VCS includes a relevant statement - i.e.: “Avoid disturbing coastal acid sulphate soils (CASS) and ensure any development proposed near or on CASS demonstrates that it will avoid any disturbance”.

Key Issues

The proposed SRWD would result in extensive excavation and relocation of large quantities of soil to provide for the development of residential areas and waterways. The key issues that need to be considered in the context of applicable legislation and policy are:

- Impacts on geomorphologic values of the development site and surrounding areas;
- Geotechnical capacity of the land to support the proposed development; and
- The potential impacts of the proposed SRWD on land contamination, including mobilisation of acidic solutions from ASS.

Discussion

The EES investigations included an examination of the geomorphologic significance, geotechnical capacity and the potential contamination of the site, as well as assessment of the potential impacts during and after construction of the proposed development.

Geomorphologic Value

The main geomorphic features of the Stockland site are swamp and wind-driven (aeolian) deposits. The swamp deposits comprising sands and silt are located at the southern part of the site and cover about two thirds of the proposed development. The aeolian deposits are low sandy dunes which separate the swamp deposits. The proposed SRWD would result in both the dune areas and the swamps being excavated.

I note the Inquiry Panel findings that "the removal or contouring of the dune areas within the site will reduce its value as a demonstration of some coast-related geomorphologic processes. This value has however already been compromised by the embankment constructions and the shell grit excavations including the dumping of overburden. I agree with the Inquiry Panel's conclusion that "as other local examples are available, the geomorphologic values of the area will not be unduly compromised by the development"

Geotechnical Capacity

The SRWD site is generally highly modified by past land uses, including the shell grit mining, construction of road and railway track embankments and construction of on-site lakes being part of the uncompleted residential development. The shell grit mining created the existing water bodies that are partially linked to Lake Victoria, Lakers Cutting and to the on-site lakes by man-made channels.

The EES assessed the potential adverse effects during construction and post-construction. The key environmental risks during construction included: dust generation, the discharge of sediments or turbid water to the water bodies and erosion of the exposed working areas. The key post-construction risk is erosion of the constructed beach edges or lake edges resulting in turbid discharge to the water bodies.

I note that the Inquiry Panel is of the view that "there has been sufficient evaluation of the geotechnical capacity of the site to conclude that potential deleterious impacts are minor and can be managed successfully".

As an overall conclusion, the Inquiry Panel finds that geotechnical issues can be successfully addressed during the detailed design process and through implementation of the Environment Protection Authority's (EPA) *Environmental Guidelines for Major Construction Sites* and in the project's Environmental Management Framework (EMF) and consequent management and operational plans.

Soil Conditions

The SRWD site is a low lying coastal area subject to occasional stormwater and seawater flooding. These conditions indicate the potential risk for some occurrence of ASS that, once disturbed, could react with oxygen generating sulphuric acid which could affect ecological health and built structures.

I note the Inquiry Panel findings, that "site examinations to date have not identified the presence of acid sulphate soils although the EES acknowledges potential for their formation. The EES notes that because of high calcium carbonate deposits, there is a natural buffering capacity to prevent net acid generation over a large portion of the site and treatment of these soils will not be required. Where such buffering capacity is deemed inadequate, treatment and on-site burial of those soils is proposed. The Panel is satisfied that acid sulphate soils

can be adequately managed, as outlined in the EES, through a Coastal Acid Sulfate Soils Management Plan, which is to include monitoring of waterways and groundwater, to the satisfaction of the responsible authority". I further note that a Coastal Acid Sulfate Soils Management Plan should include sediment control procedures to ensure that accidental discharge of Coastal Acid Sulfate Soils to waterways does not occur. These procedures should give regard to a draft '*Best practice guidelines for assessment and management of acid Sulfate soils in Victoria*'(DSE, June 2008)⁷.

The development of this site could also potentially disturb any contaminants which have accumulated in the soil due to past activities or land uses. The discontinued shell grit mining, including the area north of the Bellarine Highway used for the maintenance and fuelling of the mining equipment, have the potential for soil contamination. It is likely that this area contains several underground fuel tanks of unknown location. Currently the maintenance area is used for the fabrication of metal goods and several workshops are located there. Other past practices on the site, such as potato cultivation on the south side of the Bellarine Highway, disposal of demolition and solid inert waste and use of the land as a race track, also have the potential to cause soil contamination.

I note the Inquiry Panel findings that "as a result of past practices, there are pockets of low level contamination at the site, namely some buried inert waste, some low level arsenic and dieldrin contamination, potentially some asbestos buried in with the demolition, and solid inert waste'. I further note that the EES investigations found that arsenic and dieldrin levels in all samples were below the National Environment Protection Measures (NEPM) human health levels set to trigger further investigation. Arsenic levels exceeded the NEPM levels for urban ecological investigation and dieldrin was detected in the areas used in the past for potato cultivation.

I support the Inquiry Panel's view that the proposed management and mitigation measures for the potential ASS are acceptable.

I accept the Inquiry Panel's conclusion that, 'further investigation of site soil contamination and ASS is required' and its support for the EES commitment to 'engage an EPA accredited independent auditor to provide a certificate of environmental audit that complies with Part IXD of the *Environment Protection Act 1970* to provide surety that the site has been cleaned up to an acceptable standard'.

Salinity Management

Corangamite Catchment Management Authority (CCMA) advised in its submission on the EES that it is in the process of developing a Salinity Management Overlay (SMO) for the Greater Geelong Planning Scheme "to guide decision making in any development in salinity prone areas to protect public and community assets from salinity impact on infrastructure".

While salinity issues relating to the SWRD can be addressed through the required project Environment Management Plan (EMP) on the planning permit, as recommended by the Inquiry Panel, I note that a further planning scheme amendment process will be needed to apply an SMO to the land since this is not part of the current proposal.

⁷ Appendix 3b of *Draft Strategy for Coastal Acid Sulfate Soils in Victoria*. DSE June 2008.

Conclusion

It is my assessment that:

- The potential impacts and environmental risks of site works on both any significant geomorphologic values and soil conditions will be minimised and adequately managed through the proposed management and mitigation measures.

Further to this, it is my assessment that:

- The proponent needs to engage an EPA appointed Auditor (Contaminated Sites) to oversee and advise on further investigations of site contamination (including the potential for ASS) and where necessary undertake the appropriate audits in accordance with Ministerial Direction No.1. The results of the assessment (and audit) need to be used to inform mitigation and management measures proposed in the EMF which is a requirement of the Development Plan for the site.
- The proponent should establish the technical specifications in the Project's EMP (PEMP) and associated documents to manage salinity, erosion and other unavoidable impacts, in consultation with relevant authorities prior to commencement of any works.
- The proponent needs to implement stormwater and sediment controls in accordance with the requirements of the EPA's *Environmental Guidelines for Major Construction Sites* (Publication 480).

3.6 Hydrology and water quality

Objective 4. To maintain waterway conditions suitable for protecting aquatic health.

Statutory Context

State Environmental Planning Policies (Waters of Victoria) (SEPP (WoV)) defines the required environmental quality to protect beneficial uses of water environments, as well as specifying actions to manage activities that have the potential to impact on the environmental quality of aquatic environments. SEPP (WoV) Schedule F6 specifies that for Aquatic Reserves there is to be "no variation from the background water quality" in order to protect "natural ecosystems". While the main body of Swan Bay falls within the Aquatic Reserves segment under Schedule F6, Lakers Cutting falls within the Inshore segment for which water quality objectives aim to protect "substantially natural ecosystems with some modification" to be protected.

No approval is required for the SRWD under either the EP Act or the *Water Act 1989*. However, consent is required under the CM Act. The protection of aquatic ecological values in coastal waters potentially impacted upon is a consideration for this statutory decision.

The 2008 Victorian Coastal Strategy (VCS) also includes some relevant statements: "prohibit the development of new residential canal estates to ensure the protection of coastal and estuarine environments (p40, VCS). I note that the SRWD is a residential waterways development in an area with existing water drainage features.

Key issues

The key issues for the project that need to be considered in the context of applicable legislation and policy are:

- Impacts on quality of surface waters at or near the proposed development site, including Lakers Cutting and Swan Bay that could result from contamination of water due to both construction and post-construction SRWD activities (e.g. sediment and nutrient run-off);
- Changes to hydraulic regime resulting from changes to the ground surface level at the development site causing impacts to the local groundwater table, surface drainage patterns, and overland flow regime, including on adjacent land.

Discussion

Surface and ground water currently drains through the site and discharges into Lakers Cutting and then Swan Bay. During wet periods, overland flow from Lake Victoria drains through the site. This hydrological connectivity would be maintained by the SRWD waterways and lakes, which would be a tidally flushed, 4.5 km long system connected to Lakers Cutting. The tidal circulation of water would be controlled by one-way valves at the inlet and outlet points to manage hydraulic flow and water quality requirements.

Water quality objectives. The main environmental risk to the aquatic health of Lakers Cutting, and indirectly Swan Bay, would be adverse effects of water quality of the SRWD waterways, due to hydraulic connectivity between the existing water bodies and the development. The water quality of the constructed waterways is also of importance in terms of beneficial uses within the SRWD, including aquatic ecosystems and human health and amenity. The prevention of algal blooms is particularly important in this regard.

Existing water quality in Lakers Cutting does not meet the applicable SEPP objectives. In this circumstance, clause 11(2) of SEPP (WoV) F6 provides that where the standard environmental quality objectives cannot be attained because of natural variation, the background water quality becomes the environmental quality objective. On this basis, the EES proposed that the adopted objective for water quality in the internal waterway system would be to meet or exceed background water quality in Lakers Cutting.

The main risks to achieving the water quality objective for the SRWD arise from:

- inadequate water circulation (flushing flow rates and hydraulic detention time);
- flood inflows from Lake Victoria due to hydraulic connectivity with the development site;
- urban stormwater run-off; and
- possible eutrophic conditions in the new waterways resulting in algal blooms.

Hydraulic flows and water quality. The EES included hydraulic modelling to inform the design of the proposed waterway system. The outcomes of the modelling indicated that under the driest (lowest rainfall) and worst-case tidal conditions, water in the proposed waterways would be flushed at least 36 times a year (approximately once each 10 days on average). The model predicted that the longest duration between two flushings would be 14 days. On this basis, the EES put forward a design objective of not exceeding 20 days hydraulic detention time for more than 20 percent of the year. The achievement of this objective would be reliant on maintaining an adequate one-way water circulation through the inlet and outlet of the waterway system – fortunately, a suitable valve system is available.

I note that the EES hydraulic modelling was subject to peer review by Parsons Brinckerhoff during preparation of the EES and no compelling evidence of deficiencies in this modelling was presented to the Inquiry Panel. While it is plausible that problems potentially affecting water quality could arise during the operation of the flushing system, the Inquiry Panel was satisfied that there is sufficient scope to adjust the design and/or operational practices to overcome such problems. Design measures could include modifying the bathymetry of the waterways and the use of flap valves or pumping, while any vegetative clogging of the valves or siltation of the sill between Lakers Cutting and Swan Bay could be addressed.

Though there is sufficient scope to effectively manage the flushing rate, there is a risk that algal blooms could occur within the waterways system if there is an excessive influx of nutrients creating eutrophic conditions, particularly during periods of elevated temperatures. At the same time, it is important to note that there is no history of blooms in either Lakers Cutting or Swan Bay, while the high flushing rates between Lakers Cutting and Swan Bay as well as the ecology of Lakers Cutting would strongly mitigate against the risk of blooms spreading either into or from the SRWD waterways.

The EES put forward a range of mitigation measures to manage both potential on-site and off-site risks of high nutrient loads from stormwater and flooding. These measures include the use of WSUD to manage and treat on-site stormwater, such as rainwater tanks (to be used for toilet flushing and outdoor use), bioretention basins at drain outlets in reserves adjacent to lakes and waterways and swale drains that connect house stormwater drains to rain gardens⁸. Retrofitting the existing Lonsdale Lakes development with bioretention systems is proposed to reduce the aggregate pollutant load to the development.

Stockland's obligation of ensuring that outflows do not diminish water quality in Lakers Cutting is clearly established by the SEPP (WoV) Schedule F6 – there are consequences under the EP Act if either pollution or the clear threat of pollution occurs. Effective monitoring and control of water quality is therefore important for this project. The EES includes a draft Water Quality Management and Hydraulic Monitoring Plan that specifies hydraulic performance objectives as well as the components of a monitoring program. The Plan provides for monitoring of:

- Flow rates and volumes at the main inlet and outlet points to the Lake system and at Shell Road;
- Water quality at various strategic locations specified in the EMP; and
- Sediments and aquatic plant communities in Lakers Cutting.

I note that the Inquiry Panel concluded that "in combination, the achievement of the water quality objectives, the flushing objectives, the best practice targets for stormwater quality and the physical design of the lake system leave only a minimal and manageable risk that algal blooms will originate from the project site".

Conclusion

It is my assessment that, with appropriate detailed design and operational measures, the SRWD would avoid adverse effects on water quality in Lakers Cutting and Swan Bay, consistent with SEPP requirements.

Further it is my assessment that:

- The Water Quality Management and Hydraulic Monitoring Plan be endorsed by the EPA prior to the commencement of earthmoving works.; and
- The design and operational plan for the waterway flushing system be subject to endorsement by the EPA and CCMA.

⁸ The use of WSUD would comply with the best practice management standards required under Clause 56.07 of the Victoria Planning Provisions. The details of the WSUD are to be incorporated into the Masterplan for the development.

3.7 Climate Change and Flood Risk

Objective 5. To ensure that the project design would provide adequate protection from flood risk in the context of climate change.

Statutory Context

Flood protection, as well as protection of ecological values, are relevant policy considerations for the SRWD decisions under the P&E Act. As the lowest lying elements of the SRWD, the lakes and waterways system provides the hydraulic connection to the sea that might be affected by any water level rise resulting from climate change, and hence subject to increased flood risk.

The 2007 Draft Victorian Coastal Strategy, released after the start of the EES exhibition period, proposed an indicative global 0.8m sea level rise by 2100 as a basis of coastal planning. The new VCS released in December 2008 confirmed the use of 0.8m sea level rise by 2100 as a basis of coastal planning. It also calls for consideration of the combined effects of tides, storm surges, coastal processes and local conditions such as topography and geology when assessing risks and impacts associated with climate change.

Discussion

The EES assessed the potential effects of climate change on the SRWD, including by modelling of a sea level rise in combination with effects of storm surges and larger high tides, and the related changes to groundwater levels, rainfall and evaporation on the coastal plain area around Lake Victoria and Lakers Cutting. The modelling predicted that a maximum sea water level could reach 2.35 m AHD, if a 0.8 m sea level rise were combined with a tidal storm surge (i.e. a peak tide level of 1.41 m AHD obtained from 1 in 100 year storm data) and overland flooding (1 in 100 year rainfall). These conditions simulate a worst case scenario for climate change effects and would result in flooding of most of the current residential area of Point Lonsdale bounded by the coast, Fellows Road and Shell Road.

The EES provided data indicating that a maximum tide would reach 1.65 m AHD at the SRWD site, providing that road embankments were raised to prevent flooding from Lakers Cutting. Based on this premise, as well as the conservatism of its analysis, the EES concluded that a minimum floor level of 1.8 m AHD would be sufficient to avoid flooding of the development as a result of climate change. Stockland advised the Inquiry Panel that the hydraulic design of the proposed waterways system would be sufficiently flexible to effectively manage the predicted maximum tidal water level of 2.35 m AHD by either modifying the inlet flow or pumping the excess water.

However, the CoGG advised the Inquiry Panel that some modifications to drainage of the SRWD site would be needed to address the existing flood risk, i.e. irrespective of whether the site is developed or not. In this context, the Inquiry Panel found that the work Stockland has agreed to undertake (and pay for) will improve the hydraulic connectivity between the site and Lake Victoria and will reduce the risk of flooding for the housing in the Emily Street/Santa Monica Boulevard estate. I note that this work would provide an important benefit to the Point Lonsdale community.

The Inquiry Panel found that, notwithstanding the conservatism of the EES analysis, a minimum floor level of 2.35 m AHD for dwellings and commercial buildings would be the most prudent option to protect the development from the effects of sea level rise and associated changes. Adoption of this floor level would:

- avoid the risk of flooding of the proposed residential area if road embankments were not raised;

- provide a minimum of 0.6 m freeboard should protective works (for example, road embankments) be completed in the future. This measure would address the CCMA's requirement of a 0.5 m minimum freeboard allowance for buildings in the area.

I note that the Inquiry Panel acknowledged that to meet this requirement, the proposed floor level of about 50 percent of the SRWD houses would need to be raised a maximum of 0.6 m. The Inquiry Panel noted the proponent's verbal advice that the house foundations on the lower allotments can be raised to meet this requirement, although this would have design implications, including a need to import fill from elsewhere.

The 2008 VCS states that new residential canal estates will be prohibited on the coast to ensure the protection of coastal and estuarine environments. It defines canal estate as "any development that requires a constructed waterway, canal or water body that is then inundated by or drains to a natural water body".

The SRWD is proposed within an area of existing inundation and drainage and its waterways will drain into what is considered to be an artificial water body (Lakers Cutting). In addition, through the project design, Stockland is seeking to modify the drainage of the area on both a hydrologically and ecologically sound basis in order to produce an environmentally sound residential and waterways development.

Conclusion

It is my assessment that the EES and Inquiry Panel process have adequately considered the effects of future flooding risk to the SRWD, having regard to the complexity of predicting climate change effects on drainage and flooding risk for local areas.

Further, it is my assessment that:

- A minimum floor level of 2.35m AHD be required for dwellings and commercial buildings, as a specified requirement of the development approvals.
- Matters relating to additional fill requirements and management of fill are to be addressed in the Earthworks Environmental Management Plan of the required SRWD Development Plan for the site, including consideration of options for rising floor levels that do not rely on bulk fill.

3.8 Biodiversity

Objective 6: To avoid or minimise to the extent practicable adverse effects on native vegetation and on-site wetland values, including floral and faunal species and communities protected under the FFG Act or the EPBC Act.

Statutory Context

Key statutes and associated policies and strategies relevant to this objective include:

- *Flora and Fauna Guarantee Act 1988* (FFG Act) and Victoria's Biodiversity Strategy, as well as Victoria's Native Vegetation Management – A Framework for Action (NVMF);
- *Planning and Environment Act 1987* (P&E Act); and
- Commonwealth EPBC Act.

The purpose of the FFG Act is to enable and promote the conservation of Victoria's native flora and fauna. Its objectives include: "(c) to manage potentially threatening processes; and (e) to ensure that the genetic diversity of flora and fauna is maintained". Further to this, Victoria's Biodiversity Strategy made under the FFG Act includes two related goals, i.e.:

- "the present diversity of species and ecological communities and their viability is maintained or improved across each bioregion", and
- "there is no further preventable decline in the viability of any rare species or of any rare ecological community".

In the context of these goals, the Victorian NVMF is the principal document setting out Victorian Government policy for the protection of native vegetation. The "net gain" approach set out in the NVMF adopts a hierarchy of avoidance, minimisation and offset principles. The first priority is the avoidance of clearing and therefore losses of existing native vegetation.

One of the objectives for planning in Victoria under Section 4(1) of the P&E Act is: "to provide for the protection of natural and man-made resources and the maintenance of ecological processes and genetic diversity". SPPF clause 15.09, "Conservation of native flora and fauna", complements this.

The controlling provisions under the EPBC Act to which the SRWD is subject are:

- sections 16 and 17B (Wetlands of international importance);
- sections 18 and 18A (Listed threatened species and communities); and
- sections 20 and 20A (Listed migratory species).

Key Issues

The key issues to be considered with respect to the SRWD project are:

- The proposed removal of native vegetation and compliance with the NVMF;
- The potential for changes to the hydrological regime and increased human presence to cause additional significant ecological impacts; and
- The potential for significant effects on any flora or fauna or migratory fauna species listed under the FFG Act, EPBC Act or international treaties.

The EES described the existing ecological conditions and assessed the potential impacts of the SRWD on both terrestrial and marine ecology. I note both that the flora and fauna assessment was peer reviewed and that the Inquiry Panel was satisfied that the EES had adequately considered all relevant matters.

3.8.1 Native Vegetation

The original vegetation on site, i.e. prior to European settlement, is thought to have comprised a central area of saline wetland of Coastal Salt-marsh and Brackish Sedge-land encircled by Coastal Alkaline Scrub. Much of the native vegetation now present on the site has regenerated since the cessation of shell grit mining and the previous dairy farming.

Shell grit mining involved removal of overburden and dredging of underlying sand and shell beds, leaving shallow ponds of varying depth in some areas and overburden mounds in others. This activity created the various wetland habitats currently found on the site as well as Lakers Cutting.

The EES describes the present condition of the vegetation on site as follows (EES Chapter 10, p12)

The condition of remnant vegetation within the site is variable. Where the original soil surface is intact the vegetation is generally in good condition. However, much of the site has been subject to shell grit mining, clearing for agriculture and dumping of fill. Where this disturbed land is subject to inundation and/or high salinity levels, areas have been colonised by salt-tolerant native species and weeds are either absent or only present with low cover. Colonisation of this recently formed landscape has produced vegetation communities similar to the EVCs that would occur naturally in similar physical environments. Disturbed areas where salinity levels are low are often dominated by pasture grasses and other environmental weeds and support predominantly introduced vegetation.

At a broad scale, the whole SRWD site may be described as a complex of Coastal Salt-marsh, Coastal Alkaline Scrub and Grassy Woodland Ecological Vegetation Classes (EVCs), though with unusual species combinations that have colonised post-disturbance habitats.

The EES suggests that the ecological values of the SRWD site are of conservation significance for the following reasons:

- The presence of rare and threatened EVCs.
- The presence of foraging, and potential roosting habitat for the endangered and protected Orange-bellied Parrot.
- Populations of listed floral species.
- The potential for the site to offer refuge to a range of waders and waterbirds that are significant at the national, state and regional levels.
- Significance of the site for the ecological health of Swan Bay, which is an important component of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site.

Since the ephemeral wetlands on the SRWD site are part of a chain of wetland habitat linking the Swan Bay Ramsar site to Lake Victoria, it is important that this ecological connectivity as well as overall on-site ecological values are maintained. The proposed tidal waterway system and WSUD elements, in combination with revegetation of parts of the site, are the central elements in Stockland's proposal to maintain ecological values. Stockland contends that the tidal waterways and revegetated areas will provide both alternative habitat and potentially improved ecological connectivity in this area.

The alteration of the topography and the hydrological regime as part of the SRWD will displace or modify some current wetland habitats, in addition to creating conditions for a new arrangement of wetland habitats. These changes will affect the frequency of inundation and hence the salinity regime at different locations. The EES suggested that if the appropriate topography, hydrology and salinity is retained for the wetland EVCs currently present, the revegetation areas designed to support these EVCs would be colonised by indigenous native species.

In order to maintain the ecological values associated with the wetlands, Stockland propose to establish a variety of edge treatments and a shallow-graded cross-section profile within the tidal waterway to provide habitat opportunities for waterbirds, including:

- The creation of habitat links using the waterway and revegetated areas in the western area of the site.
- Substantial revegetated areas of Coastal Salt-marsh, Brackish Sedgeland and Moonah woodland surrounding the western lake and stretching along the majority of the southern boundary, which is in addition to the areas of existing native vegetation

that will be retained as part of the proposed development project.

The SRWD proposal retains the majority of native vegetation on site, particularly the larger and more significant patches, such as the Coastal Alkaline Scrub EVC, Coastal Dune Scrub EVC and Brackish Sedgeland EVCs. These EVCs are both within and outside of the residentially zoned land. The proposal generally avoids the large, high quality area of native vegetation in the northern part of the site (a combination of Coastal Alkaline Scrub, Coastal Dune Scrub and Brackish Grassland EVCs).

Stockland also proposes to permanently reserve 56 ha within the SRWD site as Environmental Open Space, including 31.24 ha of existing native vegetation and revegetation works between Shell Road and Creswell Road, as well as an area extending along the majority of the southern boundary of the site adjacent to Shell Road.

In addition, the lake and waterways system would form a further 32 ha of Public Open Space. It is proposed that once this conservation reserve is established, the management function would be taken over by the CoGG as reflected in one of the Section 173 agreements for the site. In total, over 30 percent of the SRWD site would be reserved and managed primarily for conservation and open space.

As noted in EES Technical Appendix 7, approximately 1.00 habitat hectares of Coastal Saltmarsh (an endangered community under the FFG Act) is to be removed as part of the development. Other potential losses of native vegetation include: Brackish Sedgeland (0.45 habitat hectares), Coastal Tussock Grassland (1.24 habitat hectares) and Coastal Alkaline Scrub (1.94 habitat hectares).

Approximately 30 hectares of native re-vegetation (some off-site) of five Ecological Vegetation Classes (EVCs) is proposed as an offset to compensate for vegetation loss, as follows:

- Coastal Salt-marsh 6.1 ha
- Brackish Sedge-land 11.4 ha
- Coastal Alkaline Scrub 5.9 ha
- Coastal Tussock Grassland 6.4 ha
- Damp sands Herb-rich Woodland 0.6 ha

During the Inquiry Panel hearings, the proponent advised that it has secured an external offset site within the Otway Plains Bioregion, relatively close to the development site. The site covers approximately 7 ha and supports Coastal Saltmarsh and Brackish Sedgeland of Very High conservation significance. The offset potential for this site exceeds the offset deficit of 0.99 habitat hectares of Very High conservation significant Coastal Saltmarsh associated with the development. On this basis, the Inquiry Panel concluded that the proposed development has the capacity to achieve net gain consistent with the “like-for-like” requirements for all assessable EVCs impacted by the development.

One of the EVCs that has colonised the former shell grit quarrying areas has been identified as Saline Aquatic Meadow. All of this vegetation present on the SRWD site - approximately 32.4 ha - would need to be removed for the proposed development. During the preparation of the EES, the Department of Sustainability and Environment (DSE) advised Stockland that in the absence of an EVC Benchmark, a qualitative and quantitative assessment of this type of native vegetation would not be required, as its conservation significance could be determined at that time. Consequently, the habitat-hectare calculation of the offset required under the NVMF did not include this EVC.

DSE has now modified its previous advice. On 15 October 2008 it released a Vegetation Quality Assessment (VQA) Benchmark for Saline Aquatic Meadow (EVC 842). However, DSE has recently advised that this EVC Benchmark is subject to further investigation in relation to its distribution and conservation status and consequently it has not been approved by DSE for statutory purposes. As the status of this EVC is not clearly resolved, there is not a clear basis for applying any specific requirements under the NVMF. In view of the recent colonisation by the Saline Aquatic Meadow at the SRWD site – which may be indicative of its adventitious nature - as well as the need for decision-making to proceed on the basis of reasonably available information and applicable policy - it seems neither practicable or appropriate to require an offset commensurate with the area of Saline Aquatic Meadow to be removed. Rather, to achieve a partial offset, reliance needs to be placed on a combination of:

- (i) on-site and off-site offsets of coastal saline EVC(s), if an offset of the Saline Aquatic Meadow is not available, i.e. not “like for like”; and
- (ii) optimal design of the waterway system and revegetation works to enable some further establishment by Saline Aquatic Meadow, as has occurred since shell grit extraction ceased, or alternatively - if this cannot be achieved - in a nearby area with similar conditions.

In relation to (i), DSE has advised that the 7 ha Coastal Saltmarsh and Brackish Sedgeland external site secured by Stockland will provide a sufficient offset in compensating for the on-site offset deficit. Notwithstanding this, there is some potential to establish Saline Aquatic Meadow vegetation, either on-site or locally, though substantially less than 32.4 ha.

I also note that under the NVMF, the Minister for Environment and Climate Change would need to approve the removal of EVCs of Very High conservation significance.

I note that Option B provides better overall conservation and biodiversity outcome, by retaining 56 ha for a conservation reserve, creating new public land and re-establishing estuarine and woodland habitats. Option B also provides for the protection and long term management of large areas of native vegetation, notably the Coastal Alkaline Scrub (which is dominated by Moonah *Melaleuca lanceolata*) and includes restoration of important wetlands in the western area of the site. These are distinct advantages and there are no compelling reasons to further consider Option A in this Assessment.

3.8.2 Flora

The EES assessment included botanical field surveys during winter, spring and early summer seasons in 2002 and 2003 to record, by sample survey, the vascular flora and to establish the presence or potential presence of any National, State or regionally significant species. A total of 252 vascular plant species were recorded on the project site comprising 116 native and 136 introduced species.

While the EPBC-listed Maroon Leek-orchid, River Swamp Wallaby-grass and Clover Glycine, all are known from the vicinity, the consultants did not identify any EPBC Act-listed plant species on the site during the field surveys.

Ten plant species listed under the FFG Act were identified on-site. Five of these are likely to be unavoidably impacted by the development: Dune Poa, Coast Wirilda, Salt Lawrenzia, Tiny Arrowgrass and Prickly Arrowgrass. Three of the ten species (Tasman Grass-wrack, Yellow Sea-lavender and Coastal Cranesbill), occurred in areas of native vegetation proposed to be retained as part of the development.

I accept the EES and Inquiry Panel findings that the presence of some of these latter flora species in disturbed areas demonstrates the colonising capacity of the species. I note that the proposed mitigation measures for FFG-listed flora species will be included in the proponent's EMF and Ecological Management Plan for the development. Some of these species, including Dune Poa, are proposed to be used in revegetation and landscaping works on the site.

3.8.3 Fauna and Avifauna

The SRWD is centrally located within an extensive wetland complex of very high value for avifauna. Field surveys undertaken by Biosis (2007) and Practical Ecology (2003) recorded a total of 95 terrestrial vertebrate species, predominantly birds.

The EES stated that fauna species of national significance were not recorded within the site during the field surveys.

The Little Egret, which is FFG listed as Endangered in Victoria, was observed on site on two occasions during the field surveys. It is a highly mobile and nomadic species and the site is not considered by Biosis to provide habitat of critical importance to the species.

The Orange-bellied Parrot (OBP) is listed as Endangered under the EPBC Act and the Victorian FFG Act. The OBP utilises habitat in areas close to the site on the Bellarine Peninsula every winter, including some close to the development site. It has not been recorded on the SRWD site but the EES concluded that it may visit the site occasionally given it has suitable feeding and roosting habitat. The current scrub (roosting habitat) is intended to remain and be extended. In addition, there are commitments to design and construct the waterways to promote salt-marsh habitat and to extend the areas of Coastal Alkaline Scrub.

The Inquiry Panel considered it unlikely that the OBP would be impacted due to the SRWD development, and any minor deleterious impact on habitat at the site would be mitigated given the measures set out in the EMF.

The Inquiry Panel also considered that the site does not provide significant or limiting habitat for any of the other listed species found on the site or which could potentially inhabit it (including the Red-necked Stint, the Common Greenshank, the OBP and the Little Egret). Furthermore, any residual impacts would be mitigated via the implementation of measures set out in the project's EMF.

I accept the Inquiry Panel's findings on these matters.

3.8.4 Listed Migratory Species

Suitable habitat occurs within the development site for eight species of migratory wading and shore birds that are listed by the EPBC Act: Red-necked Stint, Sharp-tailed Sandpiper, Curlew Sandpiper, Double-banded Plover, Eastern Curlew, Pacific Golden Plover, Grey Plover and Common Greenshank.

Reliable records of the occurrence of these species on the development site are few, being limited to the Red-necked Stint and Common Greenshank. The EES considered that the range of visiting shore birds is not diverse and that no species occurs in significant numbers over the site. They consider that this is probably due to "*the nature of the substrates of the shell grit extraction ponds which are generally considered unsuitable to foraging waders and their invertebrate prey.*"

Nevertheless, expert opinion submitted during the hearing process is that many of these species certainly utilise brackish wetlands and salt-marsh like that on the site and may occur there at times.

The EMP intends that the wetlands are designed so as to make at least some of them suitable to waders and shorebirds. It is also intended that roosting habitat would be established amongst the wetland and waterway system.

The EES reported that impacts associated with the operation of the development once it is complete also have the potential to affect fauna. These 'disturbance impacts' include noise, pets, machinery, vehicle traffic, general human activities and artificial light. The presence of humans and associated domestic animals, traffic and infrastructure could affect the behaviour of local birds in particular, as well as their use of adjacent areas. Activities of shorebirds, such as foraging, breeding and roosting can be affected by noise and visual disturbances. Key areas of sensitivity that need careful management include the proposed areas of native vegetation to be retained and the wetland areas identified as potential habitat for migratory waders (and the OBP).

3.8.5 Listed Threatened Species and Communities

The EPBC Protected Matters Search Tool lists three flora species and thirty-eight fauna (31 birds, 4 mammals, 2 fish, 1 amphibian) that have been either recorded within five kilometres of the site or have likely suitable habitat within this range. It is to be noted that the number of species identified by the search tool is strongly affected by the site's proximity to the shoreline and ocean habitats and it therefore includes, for example, 11 species of Albatross and Giant Petrel.

As indicated in Table 6 of the Inquiry Panel report (page 172), 17 of the listed fauna species require habitat quite different from that at the site and seven require habitat substantially different.

Two mammal species are considered locally extinct and it is noted that the habitat of the site is generally unsuitable to these species. The remaining four listed species are birds, three of which are widespread and require scrub habitat for which the planned site revegetation is expected to offset any loss of existing habitat.

The fourth species, the OBP, which has not been observed on the site, is listed as critically endangered in both the EPBC Act and the FFG Act. Although the proposed development will have some impacts on avifauna such as the increase in human presence which may discourage OBP from using the site for foraging and roosting, the Inquiry Panel's evaluation of the potential risk to the OBP concluded that there would be no significant impact from the development and any residual impacts would be reduced with the implementation of the Ecological Management Plan.

The Inquiry Panel concluded that there is low risk of adverse impacts on migratory water birds and it considered that the proposal is capable of satisfying the requirements of the EPBC Act and the relevant international treaties.

I accept the Inquiry Panel's conclusions that impacts to listed threatened and migratory species under the EPBC Act would not be detrimental to those species, and that suitable mitigation measures would be implemented to minimise any residual impacts to these species. These measures will be set out in the Ecological Management Plan.

Proposed Mitigation and Management

The development of a residential area with approximately 600 dwellings adjoining the habitat area will inevitably entail significant threats or stresses affecting native fauna, as well as flora. In relation to fauna, key stresses will include traffic, domestic pets, actual human presence, lights and noise. As identified in the Ecological Management Plan, Stockland proposes to mitigate such impacts through establishing bylaws or property covenants to exclude keeping cats as pets; ongoing pest animal control programs; sign-posting of areas to protect native vegetation; and restricting vehicle access to areas of revegetation.

Conclusion

Having regards to the Inquiry Panel's analysis as well as the EES, it is my assessment that:

- The proposed design both avoids and minimises, to the extent practicable, adverse effects on native vegetation and biodiversity, and therefore would not have a significant overall effect on native vegetation and biodiversity values, particularly given that appropriate avoidance and management proposed, including in accordance with the NVMF requirements.
- The SRWD proposal, although resulting in some removal of native vegetation, would have minimal impact on native vegetation and would provide substantial opportunities to recreate habitat throughout the site, such as retaining a total of 31.24 ha of existing native vegetation on site as well as providing approximately 30 ha of land for revegetation, conservation and open space.
- Overall, I consider the impacts to flora of State significance on the site to be acceptable in light of the proponents management strategies identified in the EMF and Ecological Management Plan, including for example, incorporating Coast Wirilda and Dune Poa, both of which occur throughout much of the site, into landscape plantings and appropriate revegetation works.
- Potential residual impacts on threatened and migratory species listed under the EPBC Act would not be detrimental to those species.

Further to this, it is my assessment that:

- The proponent prepares a Native Vegetation Management and Offset Plan (NVMOP) to be endorsed by DSE prior to any vegetation being removed for the project.
- The Minister for Environment and Climate Change consider the proposed removal of EVCs of Very High Conservation Significance for the SRWD in conjunction with the endorsed NVMOP.
- The proponent preferentially utilise species of Regional as well as State Significance and document this intention in the re-vegetation and amenity plantings set out in the EMF.
- The proponent implements suitable mitigation measures, as proposed in the EES, to minimise impacts on threatened and migratory species listed under the EPBC Act to the extent practicable.

3.9 Wetland values

Objective 7. *To avoid or minimise to the extent practicable, adverse effects on off-site wetland values, especially the ecological character of Swan Bay (and chiefly those parts recognised under the Ramsar Convention), during both construction and operational phases.*

Statutory and Policy Context

The primary legislation that applies to the assessment of wetland values include the following statutes:

- P&E Act 1987
- SEPP (Waters of Victoria) – Schedule F6 Waters of Port Phillip Bay
- EPBC Act 1999

Key Issues

The key issues to be considered in this context are whether:

- The proposal would affect the existing wetland values through changing the existing hydrology, water quality and salinity regime.
- The proposal is likely to have an effect on ecological values of Swan Bay, which is part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar wetland area, including nationally threatened species or ecological communities, or migratory birds.

Ramsar Wetland Setting

Lakers Cutting is an artificial lagoon connected to the southern end of Swan Bay. Lake Victoria is not included in the Swan Bay Ramsar wetland site. The Bellarine Highway, Fellows Road and Murray Road physically separate Lakers Cutting from the proposed project. The waters of Lakers Cutting are connected to the existing artificial waterways and the development site via a culvert under Fellows Road. The SRWD proposes to widen this culvert as part of the development.

Lake Victoria is located to the south-east of Lakers Cutting and during prolonged wet periods water from Lake Victoria flows into Lakers Cutting via the Stockland site. Lake Victoria dominates the topography and hydrology of the area by virtue of its size (approximately 2km across at its widest). Lake Victoria currently acts as the main catchment for runoff from the surrounding lands that predominantly consists of farming and agriculture.

The EES notes that the development site is centrally located within an extensive wetland complex of Very High value for avifauna. Swan Bay is an important site for wetland birds, including migratory species protected under international treaties such as JAMBA and CAMBA. The general marine environment of Swan Bay has regional, State, National and International significance. The key habitat values include extensive intertidal and subtidal seagrass beds, intertidal mudflats, mangroves and fringing saltmarsh, which are important for migratory waders and other birds.

Marine Ecology Impacts

The EES marine ecology assessment found that seagrasses are widely distributed within Lakers Cutting and provide the predominant seabed habitat. The EES found that the marine flora and fauna observed in Lakers Cutting during the 2004 field surveys are widely distributed in Swan Bay and other sheltered bays in southern Australia. Although fish were not specifically surveyed as part of the assessment, species of fish common to Swan Bay are

likely to penetrate into the SRWD's waterways system via Lakers Cutting. Bream (black bream) fishing is very popular in Lakers Cutting. Lakers Cutting provides suitable habitat for juvenile and adult bream and also provides permanent water at low tide. Such a combination makes the area locally important as a bream habitat. The consultants noted in the EES that adult bream have been observed to move into the quiet waters of the ponds located on the western side of Fellows Road during peak tidal flow conditions.

Although seven listed threatened or marine species under the EPBC Act were noted on the EPBC Act Search Tool within a 3 kilometre radius in the EES, it is highly unlikely that either whales or the Great White Shark would enter Lakers Cutting, as it is regularly separated from Swan Bay during low tide. The two listed freshwater fish (Dwarf galaxia and the Australian Grayling) live in rivers for all or part of their lives and it is also unlikely that they would be found in Lakers Cutting due to the lack of connection between Lakers Cutting and any rivers and due to the elevated salinity.

The ghost shrimp (*Eucaqlilix Tooradin*) listed under the FFG Act has been recorded in Swan Bay and could be found in seagrass habitat in Lakers Cutting, although there is predicted to be no detrimental impact to this species from the development. Stockland proposes to monitor the seagrass beds and condition as well as water quality in Lakers Cutting to ensure there are no detrimental effects to this species.

Construction Impacts

Potential impacts on the marine ecology of Lakers Cutting from construction activities include physical disturbance, changes in water quality, runoff from the project site and construction vehicles and the prevention of fish movement.

The EES predicts that potential direct physical disturbance to Lakers Cutting is confined to widening of the Fellows Road culvert. Indirect impacts may result from incidental actions arising construction activities. Physical disturbance may also include excavation of marine seagrass on the bed and bank of the Lakers Cutting or blanketing of seagrasses and the associated faunal community from eroded or excavated material.

In regards to ensuring water quality of the marine environment does not decline, it is my understanding that sections of the SRWD's waterways will only be connected to be able to exchange water with Lakers Cutting when water quality in waterways is comparable with these in Lakers Cutting. If the quality of water exchanged between the waterways and Lakers Cutting is maintained as predicted in the EES, including the "first flush" of water from the completed construction stages, it is unlikely that the seagrass community of Lakers Cutting will be impacted and even less likely that the ecology of Swan Bay will be affected. Therefore the risk of this impact is low.

In terms of the potential for construction runoff into the marine environment, the Bellarine Highway and Fellows Road are effective boundaries that prevent direct or diffuse surface runoff from the project site to Lakers Cutting. Any runoff from the site would have to enter Lakers Cutting via the Fellows Road culvert. The risk of runoff from the construction site affecting the seagrass community in Lakers Cutting was assessed as low in the EES, as construction related runoff into Lakers Cutting will be managed through the site construction EMPs.

Closure of the culvert during construction will prevent fish movement during the construction period. The existing fish habitat in the existing channels west of Fellows Road will be removed and modified during construction. There is some movement of fish (notably bream) through the existing Fellows Road culvert joining Lakers Cutting with the artificial channels west of Fellows Road. The movement of fish appear to be related to tidal flow into the channels. The reason for the movement of bream is uncertain, but is not likely to be related

to breeding or spawning, because of the existing elevated salinity in the waterways west of Fellows Road under nearly all conditions.

The impact on fish populations in Lakers Cutting risk due to preventing fish movement into the on-site waterways during construction is likely to be medium as the waterways:

- Are unlikely to be used by bream for breeding or spawning because salinity appears to be too high;
- Are not suitable for eggs or larvae of bream because the salinity is too high (> 22 ppt); and
- Have a small area of hyper saline habitat compared to the substantially larger area of lower salinity seagrass habitat in Lakers Cutting and Swan Bay.

The existing artificial western channels will be reconnected to Lakers Cutting following completion of construction, stabilisation of waterway beds and banks, and recovery of water quality. Hence, in terms of physical isolation of the area from fish movement, the effect will be temporary.

The impacts associated with the widening of the culvert at Fellows Road include disturbance to seagrass in Lakers Cutting during construction. The EES assesses the impacts on seagrass to be medium, as seagrass will be lost from smothering or removal of the seabed, although the area of impact will be small and confined within a silt screen at the Fellows Road culvert. Overall, I accept that there will be some temporary impacts to the seagrass community within Lakers Cutting within the area of construction works for the widening of the culvert at Fellows Road. Impacts will be minimal and managed according to the Ecological Management Plan.

Operational impacts

Potential impacts to marine flora and fauna in Lakers Cutting from the operation of the development include changes to water quality, introduction of marine pests, and general pressures from the increase in human population.

The EES proposed that water quality (salinity, nutrients, suspended solids and turbidity) in Lakers Cutting during operation of the on-site lakes will be close to, or better than presently existing in Lakers Cutting. In regards to salinity, the EES stated that during the operation of the on-site lakes, the salinity levels currently in the west of Lakers Cutting would be reduced and become close to the natural marine conditions of Swan Bay. The potential change of salinity in the west of Lakers Cutting to conditions closer to those of Swan Bay are likely to sustain the *Zostera* and *Heterozostera* species of seagrass in Lakers Cutting. The predominant *Zostera* and *Heterozostera* seagrass mixture may replace the small component of the seagrass *Ruppia* in the western end of the Cutting. Therefore no adverse effects are expected on seagrass in Lakers Cutting.

There will be a low risk of changes in salinity in the western end of Lakers Cutting affecting bream populations in Lakers Cutting because there is no obvious factor to indicate that a change in salinity will not affect bream or the other physical and biological factors that attract them to Lakers Cutting.

Sources of suspended solids during operation of the on-site lakes would be strictly controlled to maintain the amenity of the lakes. Runoff systems into the lakes would, likewise, be carefully designed and managed to minimise nutrients, turbidity and suspended solids in the on site lakes.

Lakers Cutting provides a sheltered and safe environment for families to fish, picnic and relax. Fishing in Swan Bay Marine National Park is prohibited, so there may be increased

fishing pressure on Lakers Cutting that is not protected, regardless of the project development. Lakers Cutting has always been a highly accessible, sheltered and safe body of water for recreational anglers, and was very popular even prior to establishment of no-take areas in nearby Swan Bay.

The increase in human population and associated pressure on the marine ecology of Lakers Cutting due is likely to be significant, particularly in light of regional population and predicted visitation over the next decade regardless of this development. The overall pressures include higher visitation, litter, foot traffic along the edge of Lakers Cutting and fishing pressure. Lakers Cutting may already have experienced increased human activity pressures associated with higher numbers of people fishing due to increased population in the Bellarine area generally. Therefore the risk from the project is concluded to be minimal, as the human population and visitation to the Bellarine Peninsula would increase regardless of the project. However, the increased number of people in the area associated with the project may increase these pressures to some extent.

The Inquiry Panel notes that based on the planned operation of the tidal waterway and use of WSUD for stormwater management, no adverse effect on ecological values of Lakers Cutting or the Swan Bay Ramsar area is anticipated (the flushing efficiency and maintenance of adequate water quality of the waterway system is discussed elsewhere in my Assessment).

I acknowledge that there is a link between the various wetlands and ponds on the Stockland development site to Lakers Cutting and Swan Bay. I agree with the Inquiry Panel that an effective linkage will be maintained as part of the development and various appropriate measures will be implemented to ensure adequate protection of water quality, as well as habitat, for listed threatened and migratory species remains.

Conclusions

Having regards to the Inquiry Panel's analysis as well as the EES, it is my assessment that:

- The current ephemeral wetland links would be disrupted by the SRWD, although an effective linkage would be maintained via the development of a permanent tidal waterway system within the site, as well as implementation of effective management and mitigation measures outlined in Stockland's Environment Management Framework.
- On site treatments, such as the western lake to be developed, will provide good continuity of habitat for waterbirds between the adjacent Swan Bay Ramsar wetland to the east and Lake Victoria to the west, than currently exists.
- Water quality will be maintained at acceptable levels to minimise impacts to species listed under the FFG Act, such as the Ghost shrimp and Black bream, as well as minimising impacts to the water quality of Swan Bay. The construction impacts will be minimised and temporary, although mitigation strategies are to be included in the Construction Environment Management Plan.
- The potential impacts from construction and operation of the SRWD on the ecological character of Lakers Cutting and Swan Bay would be minimised and acceptable.

Further to this it is my assessment that:

- The proponent would prepare a detailed contractor EMPs that specifies the construction methodology and environmental management measures to be adopted for works connecting the development to Lakers Cutting.

- Works not proceed until the Construction Environmental Management Plan is considered by DSE, EPA, CCMA and CoGG and approved under the provisions of Amendment C150 and the CM Act.

3.10 Cultural heritage

Objective 8: *To avoid or minimise to the extent practicable adverse effects on both Aboriginal and non-Aboriginal cultural heritage values.*

Statutory Context

The legislation that applies to the assessment of impacts on cultural heritage includes the following statutes:

- *Aboriginal Heritage Act 2006 (AH Act)*
- *Heritage Act 1995*
- P&E Act

The objectives of the AH Act include:

- “(a) to recognise, protect and conserve Aboriginal cultural heritage in Victoria; and
- (d) to promote the management of Aboriginal cultural heritage as an integral part of land and natural resource management”.

New procedures for protecting and managing Aboriginal cultural heritage in Victoria commenced under the latter Act in mid 2007. These procedures require cultural heritage issues to be considered early in the development planning process, before the approval of a use or development, through the preparation of a Cultural Heritage Management Plan (CHMP). The new Act recognises Aboriginal people as the primary guardians, keepers and knowledge holders of Aboriginal cultural heritage. Aboriginal cultural heritage can include the places, objects, artefacts, beliefs and behaviours that are valued by indigenous Victorians.

Under the transitional provisions of the Act, a proponent must prepare a CHMP where an EES is or has been required and works have not commenced. A CHMP is based on an assessment of a Project's impacts on Aboriginal cultural heritage values and outlines management recommendations, including contingency plans.

The main purpose of the *Heritage Act 1995* is “to provide for the protection and conservation of places and objects of cultural heritage significance”. This Act provides the statutory context for the assessment of impacts on non-Aboriginal post settlement heritage.

The most pertinent objective of planning in Victoria, under Section 4(1) of the P&E Act, is: “to conserve and enhance those buildings, areas or other places which are of scientific, aesthetic, architectural or historical interest or otherwise of special cultural value”. Clause 15.11 ‘Heritage’ of the SPPF addresses both Aboriginal and non-Aboriginal cultural heritage, directing that planning authorities consult with local Aboriginal communities.

Key Issues

The two key issues to be considered in this context are:

- Whether there is significant loss of or impacts on Aboriginal cultural heritage sites and values.
- Whether there is significant loss of or impacts on significant non-Aboriginal cultural heritage sites and values.

Aboriginal Cultural Heritage

The EES' assessment of the proposed development impacts on indigenous cultural heritage included examination of available literature and an archaeological database, as well as field surveys and subsurface testing.

The EES characterised Point Lonsdale as an area of high cultural significance, having been actively inhabited by members of the Bengalta balug clan of the Wathaurong Tribe at the time of European settlement. I note that representatives of both the Wathaurong and Wathaurung communities have applied for status as the Registered Aboriginal Party (RAP) for the area in accordance with the AH Act.

The investigation identified two sites which were previously recorded within the project area, and a further five sites which were found during the sub-surface testing program:

- AAV 7821-583 Isolated artefact
- AAV 7821-584 Isolated artefact
- AAV 7821-643 Artefact scatter and isolated artefact
- AAV 7821-644 Artefact scatter and isolated artefact
- AAV 7821-645 Artefact scatter and isolated artefact
- AAV 7821-646 Artefact scatter
- AAV 7821-647 Artefact scatter

The EES assessed all sites as being of low scientific significance.

The EES also identified three areas considered to be of high potential archaeological sensitivity – in the south-east corner, north of Shell Road and across the north-west boundary. These areas have potential for Aboriginal shell middens, cooking hearths and stone artefact scatters. The EES also suggests that as at least two Aboriginal burials have been located within the Point Lonsdale area, the sand ridges might be considered sensitive for further burials.

The SWRD proposal would involve the disturbance of the two larger areas of archaeological sensitivity (the smaller area of archaeological potential will be retained in open space), and the seven recorded Aboriginal archaeological sites. Of the seven sites, two are located within the development footprint, and five are located within the dunes that are to be excavated for use as fill material.

I note that, having considered the above impacts, the Inquiry Panel was satisfied that protection of indigenous cultural heritage will be appropriately managed through the CHMP process. In addition to supporting the proposed management measures articulated in the EES and draft CHMP, the Inquiry Panel has recommended that an interpretative program, to be used in public spaces as part of an overall urban design, education and public art strategy, be developed.

Non- Aboriginal Cultural Heritage

In assessing the potential impacts of the proposed development on post-settlement cultural heritage assets in the EES, literature and database searches, pedestrian surveys and liaison with CoGG were undertaken.

The EES documents the post-settlement land use history of the project site. In the mid-1800s, the site was part of a large rural property, and was associated with the opening of the

Geelong-Queenscliff railway line. By the 1930s, two horse training tracks had been established, and in the 1950s the site was used as a sand and shell grit works.

Evidence of land use remains in two historical sites within the project area:

- H7821-0106 Shell Grit Camp
- D7821-0107 Laker's Siding (concrete structures associated with Geelong-Queenscliff Railway)

The EES assesses the archaeological significance of these two sites as low.

The Shell Grit Camp is located within the development footprint and will be disturbed in its entirety as part of the excavation of the proposed waterways and lake system. This will require a permit from Heritage Victoria. Laker's Siding is outside of the construction area and will not be impacted by the proposal.

The Geelong-Queenscliff Railway (defined as five metres either side of the centre of the railway line) is covered by a Heritage Overlay in the Geelong Planning Scheme. The proposed construction of a drainage channel beneath the railway line will require a planning permit from CoGG. However the EES concludes that the excavation of the embankment to install culverts will not impact upon the broader cultural significance of the railway line.

I note that the Inquiry Panel considered that the work undertaken in relation to non-Indigenous cultural heritage has been sound, and that there are various statutory processes and safeguards in place to ensure that heritage is properly recorded and managed. On this basis, the Inquiry Panel has not made any specific recommendations in relation to post-settlement cultural heritage.

Conclusion

Having considered the EES and the Inquiry Panel's findings, it is my assessment that:

- The SRWD's impact on seven sites of identified cultural heritage (AAV 7821-583, AAV 7821-584, AAV 7821-643, AAV 7821-644, AAV 7821-645, AAV 7821-646 and AAV 7821-647) in their entire extent) is considered acceptable given the low scientific significance of each individual site.
- The impact of the proposal on post-settlement cultural heritage is minimal. Adequate opportunities to avoid, minimise and manage this impact exist through required statutory processes.

Further to this it is my assessment that:

- A CHMP be prepared and approved in accordance with the *Aboriginal Heritage Act 2006*;
- Impacts upon the two largest sand ridges (south-east corner and north-west boundary) with high archaeological sensitivity could be avoided if fill material is imported or consideration is given to options that do not rely on bulk fill. I note that this option is not Stockland's preferred approach; however the CHMP should specify procedures to be implemented if Stockland proposes to use the ridges for fill requirements as well as detailing the management measures in the event that significant Aboriginal cultural heritage sites are found.
- If disturbance of the sand ridge sites is unavoidable, further sub-surface investigations will need to occur and appropriate management protocols developed before construction activities can commence. These are to be reflected in the CHMP.

- Given the potential sensitivities associated with identifying culturally significant sites within the landscape and making cultural heritage matter found during development activities available to the public, an interpretive program is a matter that is best dealt with through the CHMP rather than the EMP - it is an activity that should be controlled and authorised by the indigenous community, as represented by the RAP or AAV.

3.11 Environmental management

Objective 9: *To ensure that the development can be implemented in accordance with a robust and transparent framework for environmental management.*

Key Issues

- The Project will need to be implemented with a robust and transparent framework for managing the residual environmental impacts and risks, in conjunction with monitoring of the Project's environmental performance.
- Management of all off-site works that would be undertaken by Stockland (i.e. electricity, sewerage, water supply and stormwater drainage services) to comply with the specific PEMP in order to address the relevant environmental requirements and industry best practice. For example, soil and water management plans would be prepared to ensure adequate protection of the adjacent waterways. Protection works will be implemented prior to the installation of the utility services near sensitive areas of significant vegetation or cultural heritage value.

The EES provided a detailed EMF, including an outline of a PEMP and contractor Environmental Management Plans (CEMP's) for the SRWD. The PEMP would need to comply with EMF requirements and would regulate the design, construction, operation and on-going maintenance activities of the development. It is intended to fully develop the project EMP for the design, construction and operations stages of the development, providing Amendment C150 would be approved. Individual contractors would be expected to develop specific construction EMPs for the relevant components of works to the satisfaction of the proponent. The EMF, PEMP and CEMP and all other associated management plans will be components of either the Development Plan or planning permit.

The EMF documented the SRWD's environmental objectives, processes for identification and management of environmental risks, the minimum requirements for environmental control measures, the performance indicators and requirements for both internal and statutory auditing. The EMF elements include:

- Site Lake System Management;
- Groundwater Management;
- Soils Management;
- Terrestrial Ecology Management;
- Cultural Heritage Management;
- Air Quality and Noise Management; and
- General Site Management.

I note the Inquiry Panel found that the EMF encompasses all the environmental issues relevant to the project, but notes that emphasis has been placed on surface water and groundwater, soils and terrestrial ecology.

The Inquiry Panel concluded that the EMF identifies both the main risks of the project and the main commitments contained in the EES technical reports. Further, the Inquiry Panel was satisfied that the general framework for environmental management of the site comprising the three interconnected elements of the EMF, PEMP and the CEMP's represent a robust approach to the environmental management of the project. I support the Inquiry Panel's conclusion.

Conclusion

Having regards to the Inquiry Panel analysis it is my assessment that:

- Amendment C150 provides for the relevant components of the project EMP to be reviewed by DSE, EPA and CCMA before they are finalised and formally considered by the responsible authority CoGG.
- The components of the construction EMPs related to construction works potentially affecting surface and groundwater quality and terrestrial ecology be examined in detail by DSE in consultation with EPA prior to any consent being granted under the CM Act.
- Works do not proceed until the CEMP is considered by DSE, EPA, CCMA and CoGG and approved under the provisions of Amendment C150

Further to this, it is my assessment that:

- The proponent needs to implement mitigation measures proposed in the EES Environmental Management Framework, including re-vegetation and amenity planting using native species of Regional and State significance, water sensitive urban design to capture urban stormwater run-off, and solar efficiency, to the extend practicable and to the satisfaction of CoGG.

3.12 Overall Conclusion and Ecologically Sustainable Development

Objective 9: To enable sustainable development and a net community benefit over the short- and longer-term, having regard to the likely overall economic, social and environmental implications of the proposal .

Having regards to the EES, public submissions and the Inquiry Panel's report, it is my assessment that:

- The proposal converts an unmanaged and unprotected site to a residential area with a high level of amenity whilst adequately protecting its biodiversity value. The proposed use of the land is consistent with Clause 15.08 - Coastal policy of SPPF, as SRWD is contained within the Residential 1 Zone of the current settlement boundary of Point Lonsdale.
- The proposed SRWD is generally consistent with the SPPF and LPPF of the Greater Geelong Planning Scheme as well as the current draft structure planning for Point Lonsdale.
- The SRWD proposal will provide a clear overall societal benefit, taking into account economic benefits, social outcomes and residual environmental impacts.

I note the Inquiry Panel's analysis that:

- The following should be addressed to minimise and manage environmental effects of the provision of infrastructure services for the project:
- The potential impacts of a modified gravity and pressure sewerage system should be further assessed to determine the best technical and environmental outcomes for the proposed development.
- Field surveys should be undertaken to inform the detailed design and in particular the selection of the utility services routes to avoid or minimise impacts on sensitive vegetation and areas with cultural significance.
- Given the degraded nature of the site, the impact of the SRWD on social enjoyment of the existing wetland environs would be minor and offset by improved recreational and social opportunities created through the on-going management of the conservation reserve.
- The infrastructure services needed for the SRWD can be provided in an environmentally safe manner, provided the proposed mitigation and management measures are put in place and adhered to.
- The effective management of both the construction and operations impacts associated with infrastructure services would require preparation of robust project EMP by the proponent, in consultation with DSE and EPA, and to the satisfaction of the responsible authority.
- Further, the proponent would need to ensure that contractor EMPs are adequate and complied with to ensure that any significant impacts of on-site or off-site works are avoided or minimised to the extent practicable.

4 Response to Inquiry Recommendations

The Inquiry Panel's recommendations are presented in 'italics' while the Minister for Planning's response is provided in normal font.

Overall recommendation

That the Minister for Planning should

1. *Approve the Environment Effects Statement to provide the basis of the development proposal (Option B), subject to the consolidated recommendations and modifications documented in Chapter 20.*

Ministers' response

Accepted in principle. I note that this Assessment does not constitute an approval of the proposal.

Hydrology and water quality

Panel recommendations

2. *Amend Planning Permit Condition 7e) to read:*
 - e) *Landscaping and vegetation management for open space areas including ecological management requirements for conservation areas and a plan for the management of nutrients and irrigation.*
3. *Amend Planning Permit Condition 38 to include the following additional requirement:*
 - c) *Culverts under Shell Road shall be designed to accommodate its future duplication and to maintain consistency of flood levels on both sides of the road at 0.9m AHD (1% AEP flood level).*

Ministers' response

Accepted.

Flora and fauna

Panel recommendations

4. *Update the Environment Management Framework to include the following modifications:*

Section 13.4, 2.0 Environmental Control Measures, Design – include the following requirements;

 - *Preferentially select species of Regional and State Significance in re-vegetation and amenity plantings.*
 - *Establish and implement a specific monitoring program and contingency plan, if required, to prevent invasion of the waterways by Rice Grass (*Spartina* spp).*

Ministers' response

Accepted.

5. Amend Planning Permit Condition 24 to read:

24. *The Native Vegetation Offset Plan must provide for the:*

- a) Additional provision and maintenance, off-site, of at least seven hectares of Coastal Salt-marsh and Brackish Sedge-land; and
 - b) Application of all excess habitat hectares as compensation for loss of the Saline Aquatic Meadow (and therefore not be available for trade).
- and must include details of the following:*
- c) Means of calculating.....

Ministers' response

It is my assessment that the above recommendations to amend planning permit conditions 24 (a) to (c) be accepted.

In light of new information provided by DSE on Saline Aquatic Meadow EVC 842 after the close of the Inquiry Panel process, it is my assessment that Stockland, DSE and COGG discuss any further requirements that the release of the Benchmark (although not in a form for statutory purposes) may impose on the project. Any further offsets (if required) are to be incorporated into the NVOMP.

Climate change and sea level rise

Panel recommendations

6. Replace Planning Permit Condition 22 with the following:

The floor levels of all residential and commercial buildings must not be less than 2.35m AHD OR, if the Victorian Coastal Strategy adopts a 2100 sea level rise planning guideline of more than 0.8 metres, the floor levels of all residential and commercial buildings must not be less than 2.35m PLUS the differential between 0.8 metres and the revised planning guideline.

7. Delete Planning Permit Condition 63 (*The freeboard for all new buildings constructed on the subdivision will be a minimum of 500 mm above the applicable flood level*) and renumber remaining permit conditions accordingly.

Ministers' response

Accepted in principle. It is my assessment that:

- A minimum floor level of 2.35m AHD be required for dwellings and commercial buildings, as a specified requirement of the development approvals.
- Matters relating to additional fill requirements and management of fill are to be addressed in the Earthworks Environmental Management Plan of the required SRWD Development Plan for the site, including consideration of options for rising floor levels that do not rely on bulk fill.

Cultural heritage

Panel recommendations

8. *Update the Environment Management Framework to include the following modifications:*

Amend Section 13.5 to require the development and implementation of an interpretation program consistent with the Cultural Heritage Management Plan.

Ministers' response

Accepted. It is my assessment that the proponent should assess importation of fill material to the extent practicable to minimise impacts on the two largest sand ridges (south-east corner and north-west boundary) with high archaeological sensitivity in consultation with CoGG, AAV and relevant responsible authorities. In addition, if disturbance of the sand ridge sites is unavoidable, further sub-surface investigations may be required as part of the final CHMP and appropriate management protocols developed before construction activities can commence.

Transport

Panel recommendations

9. *Amend Planning Permit Condition 1 f) to read:*

f) *Location of bus stops (including shelters and associated signs) and corresponding safe pedestrian crossing treatments on the Bellarine Highway, Shell Road and within the site as necessary;*

10. *Include the following additional items in Revised Planning Permit Condition 5b):*

- v) *Intersection upgrades at 'Bellarine Highway/Fellows Road' and 'Point Lonsdale Road/Lawrence Road'.*
- vi) *Appropriately sited pedestrian crossings on the Bellarine Highway and Shell Road in proximity of proposed bus stops.*

11. *Amend Planning Permit Condition 14 a) to read:*

a) *A roundabout (major traffic control item) and associated roadworks including lighting, linemarking and drainage in Shell Road at the intersection of the subdivisional access road having regard the need to maintain safe truck and vehicular movements to and from adjacent properties;*

Ministers' response

Accepted.

Infrastructure and services network

Panel recommendations

12. Amend Revised Planning Permit Condition 7 l) to read:

- l) Salinity control measures to protect: saline environmental assets; development from the effects of salinity; and future development from aggravating or creating new salinity problems;

Ministers' response

Accepted.

Project implementation

Panel recommendations

13. Update the Environment Management Framework to include the following modifications:

- a) Section 13.1, 1.0 Goals, 5. – to include “and the Melbourne Water WSUD Engineering Procedures: Stormwater”;
- b) Section 13.1, 2.0 Environmental Control Measures, Design – to include reference to the installation of a floating litter trap (Bandalong type) in the outlet channel north of the Bellarine Highway;
- c) Section 13.1, 2.0 Environmental Control Measures, Construction – delete any reference to hay bales and replace with straw bales;
- d) Section 13.1, 3.0 Inspection and Monitoring, Operation – include a maintenance requirement for the floating litter trap;
- e) Section 13.1 – include monitoring of the water in Lake Victoria which is likely to enter the site lake;
- f) Section 13.4, 2.0 Environmental Control Measures, Operation, 2. – insert Stockland as being responsible;
- g) Section 13.4, 3.0 Inspection and Monitoring, Operation, 1. – amend frequency to every 6 months instead of every 2 years;
- h) Section 13.4, 3.0 Inspection and Monitoring, Design/Construction/Operation – include specific reference to the protection of the Moonah Woodland area particularly after excavation has occurred to the north as per the bulk earthworks strategy;
- i) Section 13.4, 3.0 Inspection and Monitoring, Design/Construction/Operation – include ongoing monitoring, adaptive response and reporting of associated management approaches in relation to salt dependant vegetation communities;
- j) Section 13.4 – include reference to the approved Native Vegetation Offset Plan;
- k) Section 13.4 – allow for the management and control of domestic animals and weed escapes;
- l) Section 13.4 – include mitigation measures, monitoring, response and reporting requirements to address the impact on the ten (10) flora species identified as being of State Conservation Significance;
- m) Environmental monitoring and adaptive management strategies for:
 - Sea grass and other aquatic vegetation communities, water depth, sea level, area and temperature in the on-site lakes;
 - Erosion and turbidity on site and down stream during and after construction;
 - Discharge water quality in the pond west of Fellow's Road.

- n) All appendices must be linked back to an activity within either the design, construction or operation sections contained within the report.

14. Amend Planning Permit Condition 7 to read:

7. Prior to works commencing a Project Environmental Management Plan (PEMP) must be submitted to and approved by the Responsible Authority following its consultation with the Department of Sustainability and Environment. The PEMP must be generally in accordance with and implement the recommendations and requirements of the Point Lonsdale Environmental Management Framework (Golders Associates Pty Ltd 2008) forming part of the approved Development Plan under clause 43.04 of the Scheme.

Ministers' response

Accepted. It is my assessment that:

- Amendment C150 provides for the relevant components of the project EMP to be reviewed by DSE, EPA and CCMA before they are finalised and formally considered by the responsible authority, CoGG.
- The components of the construction EMP's related to construction works potentially affecting surface and groundwater quality and terrestrial ecology be examined in detail by DSE in consultation with EPA prior to any consent being granted under the CM Act.

Planning matters

Panel recommendations

The Panel recommends that the EMF be updated/modified to include: additional environmental control measures; inspection, monitoring and reporting requirements; development and implementation of additional adaptive management strategies and the inclusion of a Native Vegetation Offset Plan.

The Panel recommends a repositioning of the EMF components in the suite of planning controls. The revised structure positions the EMF and Master Plans as requirements of the Development Plan within the Schedule to the Development Plan Overlay, and the PEMP and staging plans become requirements of the Planning Permit.

To address the possibility that the project may stall or flounder a new Permit Condition is recommended that requires the Proponent submit a plan, to the satisfaction and approval of the Responsible Authority that shows the manner in which the development of the land will be completed if the next stage is the final stage. This condition requires the owner of the land to enter into a Section 173 agreement providing appropriate security that such works will be carried out if the development of the land ceases at the end of the stage.

Ministers' response

It is my assessment that the above recommendations be supported, subject to consideration of the proposal and this Assessment by the CoGG.

ASSESSMENT OF CONTROLLED MATTERS UNDER EPBC ACT

APPENDIX A

Matters of National Environmental Significance

In September 2003, the delegate of the Commonwealth Minister for the Environment and Heritage decided that the proposed Stockland Residential and Waterways Development (SRWD) at Point Lonsdale is a controlled action; this means that approval is required for the proposal under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The controlling provisions under the EPBC Act are:

- Sections 16 and 17B (Wetlands of international importance); and
- Sections 18 and 18A (Listed threatened species and communities)
- Sections .20 and 20A (Listed migratory species).

The EES process was accredited as the assessment approach for the proposal under the EPBC Act in October 2003.

Wetlands of international importance

The first controlling provision requires consideration of the potential effects of the SRWD on the ecological character of Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site.

The main risks to the Ramsar site arise from the hydrological connection between the SRWD site and the Ramsar site via Lakers Cutting. In particular the potential risks involve:

- Changes to water quality in Swan Bay;
- Changes to hydrological conditions in Swan Bay; and
- Invasion by marine pests.

Section 4.5 of this Assessment considers the potential effects of the SRWD on water quality in the waterways and at Lakers Cutting, while s. 4.6 considers the potential implications for the Ramsar wetlands.

As noted in the EES, water quality conditions at Lakers Cutting and in Lake Victoria do not meet the applicable objectives in the State Environment Protection Policy (Waters of Victoria) (SEPP (WoV)). Currently, flood waters from Lake Victoria flow through the SWRD site to Lakers Cutting, with no control or water quality mitigation measures, and then into the Ramsar site.

The EES investigations included rigorous hydrodynamic modelling of the proposed one-way tidal flushing system by Golder Associates, as well as a peer review by Parsons Brinckerhoff.

The overriding objective in the project design has been to achieve water quality conditions in the SRWD waterways that would meet, or be superior to, the background quality at Lakers Cutting. The modelling and the project design have taken into account:

- Stormwater runoff from proposed residential development into the SRWD waterways;
- Inflow of low quality water from Lake Victoria into the SRWD;
- Potential for eutrophication and risk of algal blooms in the SRWD waterways; and
- Staging of construction and runoff from works areas.

Key features of the project design to achieve this outcome include:

- A one-way tidal flushing system with a turnover time of not more than 20 days;

- Use of water sensitive urban design (WSUD) and bioretention systems for treating stormwater runoff from residential areas;
- Designing a mix of water bodies in the SRWD to improve water circulation;
- Creating saltmarsh/wetland habitat to reduce the nutrient and sediment load to Lakers Cutting;
- Incorporating a mix of edge treatments/landscaping and vegetation to manage direct runoff into the SRWD waterways.

The hydrodynamic modelling undertaken by Golder Associates has demonstrated that the 20 day turnover target can be achieved, and this finding has been confirmed in a peer review by Parsons Brinckerhoff. This turnover time would be sufficient to prevent the risk of algal bloom.

The hydrodynamic modelling by Golder Associates also indicates that the SRWD is not likely to have a significant effect on siltation and water flows in Swan Bay.

The EES includes a draft Water Quality Management and Hydraulic Monitoring Plan that specifies hydraulic performance objectives for the waterways development and includes the components of the monitoring program. The proposed program includes monitoring of:

- Flow rates and flow volumes at the main inlet and outlet points to the Lake system and at Shell Road;
- Sediments in Lakers Cutting;
- Aquatic plant communities; and
- Water quality at various strategic locations.

The frequency of monitoring would vary from weekly to five yearly depending on the development stage of the project as well as the proposed protocols for addressing non-compliance with water quality objectives.

The modelling undertaken for the EES together with the proposed water quality measures and monitoring program demonstrate that water quality at Lakers Cutting will be similar to, or superior to, current conditions, hence no significant effect on water quality in the Ramsar site is likely to occur.

The marine ecology investigations in the EES conclude that the introduction of marine pest species into Lakers Cutting (and hence the Ramsar site) via the SRWD waterways is very low relative to other vectors for such species. Port Phillip Bay has a relatively high number of introduced marine pest species. These species are likely to spread into Swan Bay through existing vectors if environmental conditions in the Bay are suitable for them. Constant boating and shipping in Port Phillip and high marine activity centres such as Queenscliff are more likely to facilitate the spread of marine pests into the Ramsar site than the SRWD project.

It is my assessment that the SRWD project would not have a significant effect on the ecological character of Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site provided:

- A detailed construction environmental management plan is prepared specifying the construction methodology and environmental management measures to be adopted for works connecting the development to Lakes Cutting;

- Works do not proceed until the construction environmental management plan is considered by DSE, EPA, CCMA and CoGG and approved under the provisions of Amendment C150 and the *Coastal Management Act 1995*.
- The Water Quality Management and Hydraulic Monitoring Plan is finalised to the satisfaction of DSE, EPA, CCMA and CoGG and approved under the provisions of Amendment C150.

Listed threatened species and communities

The EES investigations included comprehensive ecological surveys and analysis of potential biodiversity impacts by Biosis Research. The Biosis studies were subject to a peer review by Brett Lane & Associates.

Section 4.7 of this Assessment outlines the findings in respect to native vegetation and flora and fauna species in general. This section provides findings in respect to the controlling provision for listed threatened species and communities under the EPBC Act.

Threatened Flora

The EPBC Act Protected Matters Search Tool indicated that potential habitat is present on the SRWD site for three flora species listed as threatened under the EPBC Act. The relevant species are: River Swamp Wallaby-grass (*Amphibromus fluitans*), Clover Glycine (*Glycine latrobeana*) and Maroon Leek-orchid (*Prasophyllum frenchii*).

Flora surveys of the SRWD site were undertaken by Biosis in winter, spring and early summer of 2002/2003. The details of the surveys are provided in Technical Appendix 7. No flora species or communities listed as threatened under the EPBC Act were recorded on the SRWD. The level of survey effort is considered adequate to identify the presence, if any, of listed threatened species.

Threatened Fauna

The EPBC Act Protected Matters Search Tool indicates that 22 listed threatened species have the potential to occur within the SRWD site or there is potential suitable habitat in the local area. These species are listed in Table 10-4 of the EES. Of these species, the most significant is the Orange-bellied Parrot (OBP) (*Neophema chrysogaster*).

The fauna investigations conducted by Biosis included a review of literature and databases (including the EPBC Act Protected Matters Search Tool), a targeted survey for the OBP and a general survey for terrestrial vertebrate fauna.

No fauna species listed as threatened under the EPBC Act was recorded on the SWRD during the Biosis field surveys.

Since 1988, there has been a small number of records of the OBP at Lake Victoria, which is near the SWRD site. For this reason a targeted survey for the OBP at the SRWD site was undertaken between 24 July and 18 September 2003. The timing of the survey coincided with the most likely occurrence of the species in the Swan Bay area, which is commonly used by the OBP. Surveys for other terrestrial vertebrates fauna were conducted over the same period. A supplementary survey was conducted on 17 and 18 November 2003 to

target migratory species and reptiles which would not occur on the SRWD site or would be difficult to detect on the site during the July-September survey period.

The findings by Biosis indicated that the use of the SRWD site by the OBP, "if it occurs, may entail very few individuals and be very sporadic, with possible absences of many years". The peer review by Brett Lane, which was also informed by independent visits to the site to observe habitat suitability, reached a similar conclusion, i.e. "*The Orange-bellied Parrot is likely to be, at best, an occasional visitor to the site.*"

The EES incorporates the findings by Biosis and the peer review by Brett Lane to provide a sound basis for concluding that there is unlikely to be a significant effect on the 22 threatened species identified above. It is noteworthy that:

- The SRWD site does not provide suitable habitat for the pelagic species identified by the Protected Matters Search Tool (11 Albatross and Giant-petrel species).
- There is no suitable habitat for the Swift Parrot (*Lathamus discolor*), Grey-headed Flying Fox (*Pteropus poliocephalus*) and the Regent Honeyeater (*Xanthomyza Phrygia*).
- There are no records of the Spot-tailed Quoll (*Dasyurus maculates*) or Long-nosed Potoroo (*Potorous tridactylus*) in the Victorian Government's Atlas of Victorian Wildlife and these species are considered to be locally extinct.
- The Dwarf Galaxias (*Galaxiella pusilla*) and Australian Grayling (*Prototroctes maraena*) are freshwater species.
- The site does not provide habitat of particular significance for the Fairy Prion (*Pachyptila turtur*) although it may occasionally visit the area in poor weather conditions.
- The Southern Brown Bandicoot (*Isodon obesulus*) has not been recorded with 5 km of the site and the site is unlikely to provide suitable habitat.
- The Growling Grass Frog (*Litoria raniformis*) was not observed and its characteristic call was not heard during the site surveys.

Having regard to the comprehensive ecological investigations undertaken during the EES process, it is my assessment that the SRWD project is unlikely to have a significant impact on species listed as threatened under the EPBC Act.

Migratory species

Table A4.3 of the Biosis Research report⁹ provides a complete listing of all species that have been listed as migratory species under the EPBC Act and that have been recorded within 5 km of the SRWD site. Based on the field investigations, species habitat requirements and the extent of species distribution, Biosis concludes that the SRWD would not have a significant effect on any of these species. The site is not considered to provide significant or limiting habitat for any of the migratory species and the proposal would retain habitat for a number of them.

The peer review by Brett Lane confirms the Biosis conclusions in respect to migratory species. It is noteworthy that in a visit to the area on 8 February 2006, Brett Lane observed several thousand migratory shorebirds at Lake Victoria but no migratory shorebirds at the SRWD site.

Based on the investigations by Biosis and peer review by Brett Lane, it is my assessment that the SRWD project is unlikely to have a significant effect on migratory species listed under the EPBC Act.

⁹ Biosis Research Pty Ltd *Flora and fauna of the Point Lonsdale Residential and Waterways Project, Point Lonsdale, Victoria September 2007.*

RELEVANT LEGISLATION AND POLICY FRAMEWORK

A P P E N D I X B

Environment Effects Act 1978

The *Environment Effects Act 1978* (EE Act) provides for assessment of the proposed project (works) that are capable of having significant effects on the environment. The EE Act enables the Victorian Minister for Planning to decide that an EES should be prepared for the proposed project.

The Minister might require a proponent to prepare an EES when:

- the project is likely to have regionally or State significant adverse effects on the environment;
- there is a need for an integrated assessment of the potential environmental effects; and
- normal statutory processes would not provide a sufficiently comprehensive, integrated and transparent assessment.

The preparation of an EES leads to an Assessment by the Minister that provides authoritative findings on the environmental effects of the project, and advice to the decision-makers to inform the statutory approval decisions.

Environment Protection and Biodiversity Conservation Act 1999

The constitutional head of power for the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) largely derives from the Commonwealth's responsibility with respect to the biodiversity-related international treaties.

As the Commonwealth has accredited the EES process under the EPBC Act, the EES needs to include assessment of any impacts of the SRWD on the three applicable controlling provisions under the EPBC Act:

- Sections 16 and 17B (Wetlands of international importance);
- Sections 18 and 18A (Listed threatened species and communities);
- Sections 20 and 20A (Listed migratory species);

Some particular species were cited in the reasons for the Commonwealth's decision to declare the SRWD a controlled action. The effect of these controlling provisions is that impacts on any relevant species or aspects that could be significantly affected would need to be assessed in the EES. Key priorities in this regard are potential impacts on:

- The ecological character of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site, especially including Swan Bay as well as inter-tidal wetlands;
- Listed migratory birds (e.g. Orange-bellied Parrot, Hooded Plover, Ruddy Turnstone, Sharp-tailed Sandpiper, Latham's Snipe) especially in the south of the Bay; and
- Environmental impacts on threatened species and communities within the projects area, including loss of habitat.

As part of the accreditation of the EES process, an Assessment Report is to be submitted to the Australian Government Minister for the Environment, Heritage and the Arts. This report needs to include:

- a description of the action, the places affected by the action, any matters of national environmental significance that are likely to be affected by the action;
- a summary of the relevant impacts of the action;

- a description of feasible mitigation measures, changes to the action or procedures to prevent or minimise environmental impacts on relevant matters of national environmental significance proposed by the proponent or suggested in public submissions;
- to the extent practicable, a description of any feasible alternatives to the action that have been identified through the assessment process, and their likely impact on matters of national environmental significance;
- a statement of conditions for approval of the action that may be imposed to address identified impacts on matters of national environmental significance; and
- a statement of State approval requirements and conditions that apply, or are proposed to apply, to the action when the report is prepared, including a description of the monitoring, enforcement and review procedures that apply, or are proposed to apply, to the action.

This current Assessment under the EE Act represents the Assessment Report required under the accredited process. It is supported by the EES and the EES Inquiry report.

In deciding whether to approve the SRWD, and what conditions to attach to the approval, under s.136 of the EPBC Act, general considerations to be taken into account by the Australian Government Minister include:

- matters relevant to a controlling provision for the action;
- economic and social matters;
- the principles of Ecologically Sustainable Development (ESD); and
- the assessment report (if any) relating to the action.

International Agreements

Several international conventions and treaties are relevant to the SRWD, in particular:

- The Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site is listed under the Convention on Wetlands of International Importance (Ramsar Convention, 1971), which promotes the conservation, wise use and repair of wetlands and obliges member countries to list Wetlands of International Importance and protect their ecological character;
- Several of the migratory waterbird species that frequent the Ramsar site and the Bay are listed under the Japan – Australia Migratory Birds Agreement (JAMBA); the China – Australia Migratory Birds Agreement (CAMBA); and the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention).

The State Planning Policy Framework (SPPF) obliges planning and responsible authorise under the *Planning and Environment Act 1987* to consider the implications of proposals with respect to these treaty obligations (see section B.10).

Planning and Environment Act 1987

The project is subject to approval under the *Planning and Environment Act 1987* (P&E Act), in accordance with existing planning schemes. Planning schemes currently cover only part of the land subject to the proposed development. However, s.4(1) of the P&E Act establishes broad objectives to guide planning and development in Victoria, which are potentially applicable to land in the State and therefore warrant consideration in the context of the SRWD (italics inserted):

- (a) to provide for the *fair, orderly, economic and sustainable use and development of land*;

- (b) to provide for the protection of natural and man-made resources and the *maintenance of ecological processes and genetic diversity*;
- (c) to secure a *pleasant, efficient and safe working, living and recreational environment* for all Victorians and visitors to Victoria,
- (d) to conserve and enhance those buildings, areas or other places which are of scientific, aesthetic, architectural or historical interest or otherwise of special cultural value;
- (e) to protect public utilities and other assets and *enable the orderly provision and coordination of public utilities and other facilities for the benefit of the community*;
- (f) to facilitate development in accordance with the objectives set out in paragraphs (a), (b), (c), (d) and (e);
- (g) to *balance the present and future interests of all Victorians*.

State and Local Policy Framework

The SPPF, which forms part of the Victoria Planning Provisions, has the goal under clause 11.02 of ensuring that the objectives of planning in Victoria (under s.4 of the Act) are “fostered through appropriate land use and development planning policies and practices which *integrate relevant environmental, social and economic factors in the interests of net community benefit and sustainable development*” (italics inserted). The commentary concepts of ‘net community benefit’ and ‘sustainable development’ are not defined under either the P&E Act or the SPPF. However, in combination, they have an essentially equivalent meaning to ESD, encompassing as they do both the social and economic implications of land use and development for the community and implications for environmental protection, natural resources and ecological aspects of sustainability, in the context of inter-generational equity.

Clause 11.03 of the SPPF establishes seven principles of land use and development planning. The ‘environment’ principle, which draws on the principles of the Intergovernmental Agreement on the Environment (IGAE), indicates that planning should, *inter alia*:

- Adopt a best practice environmental and risk management approach which aims to avoid or minimise environmental degradation and hazards;
- Prevent environmental problems created by siting incompatible land uses close together;
- Help to protect the health of ecological systems and the biodiversity they support (including ecosystems, habitats, species and genetic diversity); and
- Protect areas and sites with significant historic, architectural, aesthetic, scientific and cultural heritage values.

Several aspects of the SPPF establish policy on topics relevant to the SRWD, including:

- Clause 15.08 – ‘Coastal areas’, which identifies the needs for land use and development planning to be coordinated with the requirements of the CM Act, and for decision-making under the P&E Act to be consistent with the hierarchy of principles in the Victorian Coastal Strategy;
- Clause 15.09 – ‘Conservation of native flora and fauna’, which states *inter alia* that: Planning and responsible authorities must ensure that any changes in land use or development would not adversely affect the habitat values of wetlands and wetland wildlife habitats designated under the Convention on Wetlands of International Importance (the Ramsar Convention) or utilised by species designated under the Japan-Australia Migratory Birds Agreement (JAMBA) or the China- Australia Migratory Birds Agreement (CAMBA).

Specific clauses in the SPPF that are relevant to the assessment of the SWRD include:

- Clause 11.03 – Principles of land use and development planning
- Clause 14.01 – Planning for urban settlement
- Clause 15.01 – Protection of catchments, waterways and groundwater
- Clause 15.02 – Floodplain management
- Clause 15.08 – Coastal areas
- Clause 15.09 – Conservation of native flora and fauna
- Clause 15.10 – Open Space
- Clause 15.11 – Heritage
- Clause 15.12 – Energy Efficiency
- Clause 16.01 – Residential development for single dwellings
- Clause 17.05 – Agriculture
- Clause 18.01 – Declared highways, railways and tramways
- Clause 19.01 – Subdivision
- Clause 19.03 – Design and Built Form

The Local Planning Policy Framework (LPPF) and other provisions in the Greater Geelong Planning Scheme must also be considered. The local policies of particular relevance are:

- 21.03 – Geelong – part of a wider region
- 21.05 – Planning principles
- 21.07 – Strategic directions
- 21.08 – Urban growth
- 21.10 – Environmental management
- 21.11 – Protection of catchments, waterways and groundwater
- 21.12 – Flood management
- 21.13 – Coastal areas
- 21.14 – Conservation of native flora and fauna
- 21.15 – Open space
- 21.16 – Cultural heritage
- 21.17 – Energy efficiency
- 21.19 – Economic development
- 21.24 – Agriculture and rural land
- 21.30 – Design and Built Form

Coastal Management Act 1995

Under section 37 of the *Coastal Management Act 1995* (CM Act), the use or development of coastal Crown land requires the consent of the Minister for Environment and Climate Change. Section 40 specifies that the Minister may grant consent with or without conditions or may refuse consent. The consent under the CM Act is needed for the works connecting SRWD's waterways to the inlet of the existing tidal water body known as Lakers Cutting.

Section 4(b) of the CM Act contains specific direction on the aspects of the environment to be protected, including objective "to protect and maintain areas of environmental significance on the coast including its ecological, geomorphological, geological, cultural and landscape features".

In considering an application for consent under s.40(2), the Minister must have regard to:

- (a) The Victorian Coastal Strategy;

- (b) Any Coastal Action Plan applying to the land;
- (c) Any recommendation of the Land Conservation Council for the land in respect of which notice has been given to the Department of Natural Resources and Environment under section 10(3) of the Land Conservation Act 1970; and
- (d) The purposes for which land was reserved, in the case of land reserved or deemed to be reserved under the Crown Land (Reserves) Act 1978.

There is no applicable Coastal Action Plan relating to the area directly affected by the SRWD. Further, there is no recommendation of the Land Conservation Council that applies, and no land reserved under the *Crown Land (Reserves)* Act is required.

Victorian Coastal Strategy

Section 15(1) of the CM Act requires the Victorian Coastal Strategy to provide for the long term planning of the Victorian coast:

- (a) To ensure the protection of significant environmental features of the coast¹⁰;
- (b) To provide clear direction for the future use of the coast including the marine environment;
- (c) To identify suitable development areas and development opportunities on the coast; and
- (d) To ensure the sustainable use of natural coastal resources.

The Victorian Coastal Strategy (2008) establishes a hierarchy of principles to guide decision-making for coastal planning and management:

- Provide for protection of significant environmental and cultural values.
- Undertake integrated planning and provide clear direction for the future.
- Ensure the sustainable use of natural coastal resources.

When the first three principles have been considered and addressed:

- Ensure development on the coast is located within existing modified and resilient environments where the demand for development is evident and the impacts can be managed.

Within the framework of its hierarchy of principles, the Strategy sets out a comprehensive set of objectives and program actions. In relation to marine and estuarine environments, relevant objective include:

- Protect, improve and restore coastal, estuarine and marine futures (i.e. biological, ecological, geological and geomorphological) significance (page 22).

Aboriginal and Non-Aboriginal Heritage

Aboriginal Heritage Act 2006

In accordance with the AH Act, an act that harms or is likely to harm Aboriginal cultural heritage will only be permitted to occur in accordance with a cultural heritage permit or approved Cultural Heritage Management Plan (CHMP). Consent to excavate or disturb Aboriginal archaeological sites will be required for the SRWD.

¹⁰ Section 4(b) gives more specific direction on the aspects of the environment to be protected, in relation to the objectives of the CM Act, viz: “to protect and maintain areas of environmental significance on the coast including its ecological, geomorphological, geological, cultural and landscape features”.

Irrespective of any harm caused by the construction of the SRWD, preparation of a CHMP is mandatory for the project under s.49 of the Act, since this section requires a CHMP if works are subject to an EES. Stockland will need to prepare such a plan for the SRWD to be approved by the relevant registered Aboriginal party(ies) (RAP) or in the absence of a RAP, Aboriginal Affairs Victoria.

Heritage Act 1995

This Act provides for the protection, conservation and registration of places and objects of cultural heritage significance in Victoria. The Act also provides for protection of archaeological sites and archaeological relics in the survey area. Consent under s.129(1) to uncover, excavate or damage any archaeological relic(s) is required for the SRWD.

Flora and Fauna Guarantee Act 1988

Under section 4(1) of the *Flora and Fauna Guarantee Act 1988* (FFG Act), the objectives of flora and fauna conservation and management in Victoria include:

- (a) To guarantee that all taxa of Victoria's flora and fauna other than the taxa listed in the Excluded List can survive, flourish and retain their potential for evolutionary development in the wild;
- (b) To conserve Victoria's communities of flora and fauna;
- (c) To manage potentially threatening processes; and
- (e) To ensure that the genetic diversity of flora and fauna is maintained.

Under s.4(2), "a public authority must be administered so as to have regard to the flora and fauna conservation and management objectives".

Part 3 of the FFG Act establishes a process of listing threatened species and ecological communities which are in a demonstrable state of decline which is likely to result in extinction, as well as potentially threatening processes which could pose a significant threat to the survival or evolutionary development of a range of flora or fauna. Action statements provide background information about the listed threatened species, reasons for its decline and the threats which affect it. Action Statements also state what has been done to conserve the species and what is proposed for conservation of the species.

Section 17 of the Act requires a Flora and Fauna Guarantee Strategy to be prepared. This obligation was met through the preparation of *Victoria's Biodiversity*, published in 1997 following the signing in 1996 by the Victorian Government of the *National Strategy for the Conservation of Australia's Biodiversity*¹¹.

Biodiversity Policy

Victoria's Biodiversity identifies goals for biodiversity management in Victoria, including ensuring that:

- There is a reversal across the entire landscape, of the long term decline in the extent and quality of native vegetation, leading to a net gain with the first target being no net loss by the year 2001;
- The ecological processes and the biodiversity dependent upon terrestrial, freshwater and marine environments are maintained and, where necessary, restored;

¹¹ *Victoria's Biodiversity* acknowledges its relationship to the IGAE and the National Strategy for ESD, as well as with various Victorian legislation and strategies, in addition to the FFG Act, including the CM Act, the *National Parks Act 1975* and the *Planning and Environment Act 1987*.

- The present diversity of species and ecological communities and their viability is maintained or improved across each bioregion;
- There is no further preventable decline in the viability of any rare species or of any rare ecological community; and
- There is an increase in the viability of threatened species and in the extent and quality of threatened ecological communities.

Victoria's Biodiversity – Directions in Management provides a framework for responding to biodiversity challenges in different bioregions. In relation to Victoria's bays, inlets and estuaries, the document highlights the declines in seagrasses in the Bay and Western Port (as well as at Corner Inlet and the Nooramunga). Priority actions include (p.137):

- increase understanding, protection and monitoring of vulnerable habitats, particularly seagrass, mangroves and saltmarsh;
- increase understanding and protection of vulnerable and threatened species, and significant sites such as seabird breeding locations;
- progressively improve dredging and spoil disposal;
- Priority actions in relation to the open coast, which encompasses the Entrance to the Bay, include (p.140);
- increase understanding, protection and monitoring of vulnerable habitats, particularly kelp and epibenthic communities affected by trawling or dredging; and
- improve understanding of offshore areas through mapping of marine habitats and developing an inventory of the biological resources.

Victoria's Native Vegetation Framework

Victoria's Native Vegetation Management – A Framework for Action (NVMF) (2002) gives effect to the native vegetation goals of *Victoria's Biodiversity Strategy*, as well as reflecting Victoria's commitments to national policies, viz. the *National Framework for the Management and Monitoring of Australia's Vegetation Management* and the National Strategy for Ecological Sustainable Development (NSESD).

Under NVMF, it is intended that the reversal across the landscape of long-term declines in the extent and quality of native vegetation will contribute to significant outcomes including: The ecological processes and the biodiversity dependent on *terrestrial, freshwater and marine* environments are maintained and, where necessary, restored. (p.14) (italics inserted)

At least in the case of terrestrial habitats, a 'net gain' in the area and quality of native vegetation is to be achieved, in part, by applying a three-step approach when development proposals are considered:

- Avoid adverse impacts, particularly through vegetation clearance;
- Minimise impacts if they cannot be avoided;
- Offset impacts that cannot be avoided or minimised.

The NVMF is implemented largely though the *Planning and Environment Act 1987*, in particular through clauses 15.09 and 52.17 under the Victorian Planning Provisions that apply to all planning schemes. Even in areas, such as coastal marine land, where planning schemes do not extend, the principles of the NVMF remain relevant.

The NVMF is not explicit, but achieving a 'net gain' outcome may not be practicable in the context of development proposals affecting freshwater or marine environments. Nevertheless, in concept, the three-step approach should still be applied. Further, a habitat-hectare method of assessing losses of vegetation quality and quantity may not be readily applicable to non-terrestrial habitats. Nevertheless, the principles that the priority of

avoidance and the extent of required offsets should be in proportion to the conservation significance of the vegetation that could/would be lost can be applied.

Environment Protection Act 1970

The *Environment Protection Act 1970* (EP Act) provides for the prevention of pollution and the protection of the environment and establishes the Environment Protection Authority (EPA).

Works Approval and licensing of the SRWD is not required under the EP Act. The proposed works are not prescribed under the *Environment Protection (Scheduled Premises and Exemptions) Regulations 2007*. The SRWD must, however, comply with the pollution control measures in the EP Act.

There are two aspects of the EP Act that are relevant to the SRWD:

- State Environment Protection Policy (SEPP) and Waste Management Policy, made under s.16 and 16A respectively, that guide:
 - (a) action to maintain environmental quality necessary to protect beneficial uses of Victoria's environment, and
 - (b) the management of wastes.
- Powers available to the EPA to both (a) audit environmental practices and conditions and (b) take enforcement action to protect the environment.

Responsibility for implementation of the EP Act extends well beyond the EPA. Indeed, "protection agencies" with powers or duties under any other Act with respect to the environment or a segment of the environment have responsibilities to protect the Victorian environment in accordance with the Act¹². Public bodies responsible for managing environmental resources, including DSE, Parks Victoria and Corangamite Catchment Management Authority, are protection agencies within the terms of the EP Act.

State Environment Protection Policies

State Environment Protection Policies (Waters of Victoria 2003) (SEPP (WoV)) is of particular relevance to the SRWD. Other SEPP relevant to the SRWD are:

- SEPP (Groundwaters of Victoria) 1997; and
- SEPP (Prevention and Management of Contamination of Land) 2002;

State Environment Protection Policy (Waters of Victoria).

The SEPP (WoV) applies to all surface waters in the state and defines environmental quality objectives and indicators that must be met to protect beneficial uses (including aquatic ecosystems, water suitable for navigation and shipping, water suitable for aquaculture and consumption of crustaceans, molluscs and fish).

The SEPP (WoV) Schedules F6 is a statutory instrument to protect the Waters of Port Phillip Bay. This schedule prescribes the beneficial uses of the environment that are to be protected within specified geographic segments, as well as the environmental quality objectives and attainment measures to be applied. Beneficial uses protected in different segments include:

¹² The Act provides that a protection agency may be designated under section 66A as having specific responsibilities to protect the environment.

- Maintenance of natural aquatic ecosystems and associated wildlife;
- Water-based recreation;
- Production of molluscs for human consumption;
- Commercial and recreational use of edible fish and crustacea;
- Navigation and shipping; and
- Industrial water use.

“Maintenance of natural aquatic ecosystems and associated wildlife” is generally the most limiting beneficial use in the various segments, in terms of acceptable water quality.

The ‘Aquatic Reserves’ segment in Schedule F6 - Waters of Port Phillip Bay, relevant to Swan Bay, specifies that “natural ecosystems” are to be protected, while the ‘Inshore’ segment (fringing most of the Bay) and the General segment (including most of the inner part of the Bay) require “substantially natural ecosystems with some modification” to be protected.

Swan Bay falls within the ‘Aquatic Reserves’ segment of the SEPP (Water of Victoria), Schedule 6. The SEPP (Water of Victoria) objectives specified for ‘Aquatic Reserves’ water quality are not quantitative. A qualitative objective requires ‘no variation from the background water quality’.

The SEPP (Water of Victoria) objectives for ‘Inshore’ protection segment apply to Lakers Cutting and on-site lakes. Currently water quality of Lakers Cutting and on-site lakes do not meet the SEPP (Water of Victoria) water quality objectives.

State Environment Protection Policy (Groundwaters of Victoria)

The SEPP (Groundwaters of Victoria) aims to maintain and, where necessary, improve groundwater quality to a standard that protects existing and potential beneficial uses of groundwaters. The SEPP provides quality objectives for groundwater protection throughout Victoria. Water indicators and objectives are nominated in the Australian Water Quality Guidelines 1992. Exceeding objectives for a nominated indicator in effect defines pollution.

The most sensitive of the beneficial uses to be protected against pollution include the aquatic ecosystems of the on-site lakes, Lake Victoria, Lakers Cutting and Swan Bay. It is also essential that construction and operation of the project should not pollute groundwater beneath the project site.

State Environment Protection Policy (Prevention and Management of Contamination of Land)

The SEPP aims to maintain and improve the condition of the environment to protect current and future beneficial uses of land from the detrimental effects of contamination. In addition, where land is polluted, managing the land to ensure beneficial uses are protected, unacceptable risks to human health and the environment are prevented and pollution is remediated or managed.

The SWRD site has historically been used for agricultural purposes and for mining shell grit. There is potential for contaminated soils to occur in areas of the site that have been previously mined or excavated and backfilled from unknown sources.

Industrial Waste Management Policies (Waste Acid Sulfate Soils) 1999 and (Prescribed Industrial Waste) 1999

Due to the past industrial land use of the proposed SRWD site, the Industrial Waste Management Policies (IWMP) are also relevant to the project's assessment. Of particular relevance are :

- Industrial Waste Management Policy (Waste Acid Sulfate Soils), and
- Industrial Waste Management Policy (Prescribed Industrial Waste)

Commercial and industrial wastes are generated by commercial, industrial or trade activities, and include construction and demolition wastes. Prescribed wastes include hazardous wastes and wastes that can affect amenity (for example odour). The majority of these wastes are from industrial sources and are referred to as prescribed industrial wastes.

The Industrial Waste Management Policy (IWMP) (Waste Acid Sulphate Soil) provides specific guidance on the identification, assessment and management of Acid Sulphate Soils (ASS).

The IWMP (Prescribed Industrial Waste) provides for classification and management of industrial waste in Victoria, including the prevention and minimisation of waste generated. The IWMP (Prescribed Industrial Waste), prohibits the disposal or reuse of waste at any premises unless the occupier is either licensed or has an environmental management plan approved under the IWMP.

Catchment and Land Protection Act 1994 (C&LP Act)

The C&LP Act provides for the protection and integrated and co-ordinated management of catchments in Victoria. The relevant objectives for catchment management under Section 4 of the C&LP Act are:

- (a) to establish a framework for the integrated and co-ordinated management of catchments which will
 - (i) maintain and enhance long-term land productivity while also conserving the environment; and
 - (ii) aim to ensure that the quality of the State's land and water resources and their associated plant and animal life are maintained and enhanced;
- (c) to establish processes to encourage and support participation of land holders, resource managers and other members of the community catchment management and land protection.

Catchment management priorities and programs are expressed through Regional Catchment Strategies that are approved pursuant to the C&LP Act.