

MORE SPECIALISTS, ARTNERING MORE POWERFULLY THINKING MORE INNOVATIVELY, DESIGNING MORE INTELLIGENTLY, DELIVERING MORE RELIABLY

# PORT KEMBLA OUTER HARBOUR DEVELOPMENT Environmental Assessment

# PORT KEMBLA OUTER HARBOUR DEVELOPMENT

Appendix L: Landscape and Visual Amenity Appendix M: Heritage Appendix N: Climate Change

Prepared for Port Kembla Port Corporation

March 2010





Port Kembla Outer Harbour Development Port Kembla Port Corporation 11 February 2010

# Landscape and Visual Amenity Assessment



## Landscape and Visual Amenity Assessment

Prepared for

Port Kembla Port Corporation

Prepared by

AECOM Australia Pty Ltd Level 8, 17 York Street, Sydney NSW 2000, Australia T +61 2 8023 9333 F +61 7 8023 9399 www.aecom.com ABN 20 093 846 925

11 February 2010

60039301

Printed on environmentally responsible paper.

© AECOM Australia Pty Ltd 2010

The information contained in this document produced by AECOM Australia Pty Ltd is solely for the use of the Client identified on the cover sheet for the purpose for which it has been prepared and AECOM Australia Pty Ltd undertakes no duty to or accepts any responsibility to any third party who may rely upon this document.

All rights reserved. No section or element of this document may be removed from this document, reproduced, electronically stored or transmitted in any form without the written permission of AECOM Australia Pty Ltd.

## **Quality Information**

Document	Landscape and Visual Amenity Assessment
Ref	60039301
Date	11 February 2010

Prepared by Deborah Bowden

Reviewed by Andrew Cook

#### **Revision History**

Revision Date	Details	Authorised		
		Name/Position	Signature	
A	25-Sep- 2010	For Environmental Assessment	Andrew Cook Associate Director - Environment	Oh al.
В	11-Feb-2010	For Environmental Assessment	Andrew Cook Associate Director - Environment	Oh. A.
		а.		
		*		
*2		3		
÷ *	3			
	Ø		а.	1 - 14 - 13 - 14 2

1.0	Introduction		
2.0	2.0 Existing Visual Environment		
	2.1	Assessment Criteria	3
	2.2	Viewing Locations	4
3.0	.0 Visual Impact Assessment		
	3.1	Concept Plan Activities	7
	3.2	Major Project Activities	8
	3.3	Immediate Vicinity	9
	3.4	Local Area	12
	3.5	Regional Area	17
4.0	Mitigation Measures		27
	4.1	Concept Plan and Major Project	27
5.0	Summ	nary	28

## 1.0 Introduction

A landscape and visual impact assessment has been undertaken to identify the potential visual impact associated with the proposed Outer Harbour development. The proposed development includes the creation of additional port side and landside facilities in the Outer Harbour. Specifically, the development will include 42 hectares of hardstand to accommodate new multi-purpose terminals, container terminals, seven new berths and road and rail infrastructure to support the expansion.

The assessment comprised a qualitative review to establish the landscape character and existing visual context in the vicinity of a range of viewing locations of the Outer Harbour. A review of designated scenic areas and representative viewing locations in the immediate, local and regional area has been conducted to establish the sensitivity of the visual resource and zone of visual influence.

The assessment has considered potential visual impacts associated with future development activities on the local and regional character and quality of existing landscape units, and on views to and from the Port during Stage 1 (Major Project) and for the full development (Concept Plan).

A series of photographs have been taken from representative viewing locations in the immediate, local and regional areas to the north, west and south of the Port to illustrate the likely visual impact associated with the progressive development of the proposed new multi-purpose and container terminals.

## 2.0 Existing Visual Environment

The visual envelope of the Port of Port Kembla is typical of an active port. The proposed Outer Harbour development is located in the southern part of the Port.

The landscape character of the Outer Harbour is predominantly industrial and commercial. Visual features of this landscape unit include built up areas comprising commercial and industrial premises that range in size, building style and features. Heavy industry, such as BlueScope Steel steelworks, dominates the vista and beyond are the developments in the inner harbour, including GrainCorp grain silos and coal terminal. The Outer Harbour is also characterised by existing infrastructure typical of an active port precinct, including the eastern and northern breakwaters and three remaining jetties.

In the surrounding area, a 198m tall smoke stack at the former copper smelter and refinery site in Port Kembla, owned by Port Kembla Copper Pty Ltd, can be seen from many regional viewpoints. The smoke stack is currently the subject of an assessment being undertaken under Part 3A of the EP&A Act 1979 and if approval is granted the stack would be demolished sometime in 2010 (Port Kembla Copper, 2009).

The hard structures and heavy industrial character of the Outer Harbour are juxtaposed with a relatively natural landscape comprising the large expanse of open water within and outside the Outer Harbour, a strip of sandy beach (Red Beach) and some fragmented and degraded riparian vegetation associated with Salty Creek. The heavy industrial character of the wider precinct is also in contrast to the Illawarra Escarpment which provides a natural backdrop to the port area to the west and north west.

The location of the Outer Harbour makes it visible to many users of coastal areas to the north and south of the Port, including the Wollongong beaches and elevated lookouts at Mt Kiera, Mt Bulli and Hill 60.

#### 2.1 Assessment Criteria

The visual assessment has been undertaken for both the Concept Plan and the development associated with the Major Project (Stage 1). The assessment has considered the visibility of the proposed development, and the capacity of the existing landscape to absorb the new infrastructure and terminal operations. These two assessment criteria have been described in more detail below:

#### Visibility

Visibility is a measure of the extent that a proposed development is visible in surrounding areas. In considering the visibility of a proposed development a range of factors including the number of viewers, the length of viewing time, and the viewing distance are taken into account.

For the purposes of this assessment viewing distance has been divided into three categories: immediate vicinity (within 1km); local area (between 1km and 4km); and regional area (greater than 4km). Length of view has been divided into three categories: short (a few seconds); moderate (a few minutes up to an hour); and long (longer than an hour).

#### Visual absorption capacity

Visual absorption capacity is the ability and extent to which an existing landscape is able to absorb a new development without creating a major change in the general visual envelope. For the purposes of this study, the capacity of a landscape to absorb new development has been divided into three categories:

- Low.
- Moderate.
- High.

By comparing the visibility and absorption capacity of a view it is possible to determine a level of visual impact as defined in Table 1.

Visual absorption capacity	<u>Visibility</u>		
	Low	Moderate	High
High	Low	Low-Moderate	Moderate
Moderate	Low	Moderate	High
Low	Low	Moderate	High

With regard to the proposed Outer Harbour development, the capacity of the existing port related infrastructure and associated industry, such as BlueScope Steel steelworks, to absorb additional port infrastructure is high.

#### 2.2 Viewing Locations

Impacts on the landscape character and visual setting surrounding the Outer Harbour are outlined in each of the view locations considered as part of this visual assessment. View locations from popular local and tourist locations, including lookouts and coastal areas, as well as view locations from neighbouring residential areas have been considered. Publicly accessible views have been included only and no views have been considered from within privately owned premises.

Each of the viewing locations has been assessed through consideration of the location of the view, likely type of viewers, context of the view, likely number of viewers, distance of view from proposed development, likely length of view, extent that the proposed development is visible from the view, and the capacity of the surrounding area to absorb the proposed development.

Each of the viewing locations considered as part of the visual are presented in Figure 1 and include:

Immediate Vicinity:

- 1. Outer Harbour lookout
- 2. Gloucester Boulevard, Port Kembla
- 3. Gallipoli Street. Port Kembla

#### Local Area:

- 4. Hill 60 Park
- 5. Blaxland Avenue and Flagstaff Road intersection
- 6. Panorama Estate, Lake Heights
- 7. Wollongong Golf Course

#### Regional Area:

8. Sublime Point Lookout

- 9. Bulli Lookout
- 10. Bulli Pass
- 11. Bulli Beach
- 12. Bellambi Pool
- 13. Corrimal Beach
- 14. Wollongong North
- 15. Lions Park, Wollongong
- 16. Mt Keira

#### Figure 1: Locations of Viewing Locations



## 3.0 Visual Impact Assessment

#### 3.1 Concept Plan Activities

#### Construction

The Concept Plan would be constructed wholly within the existing Outer Harbour area. During construction there would be temporary visual impacts relating to the introduction of plant and equipment, such as dredging and earthmoving equipment; the presence of materials stockpiles; and potential light spill during night-time works. There would also be visual impacts associated with the construction of terminals and berths, new road and rail infrastructure and areas of newly reclaimed surface. The existing heavy industrial development and activity within the port area would assist with absorbing the potential impact associated with the dredging, reclamation and general construction activities to be undertaken as part of the Concept Plan.

Reclamation and dredging activities, creation of hardstand areas and infrastructure to support port operations would be progressively developed as part of the Concept Plan. The Concept Plan would be largely driven by market trade demand and progressively completed in a number of sequential stages, which, except for Stage 1 (Major Project), would be subject to separate additional approvals and detailed assessments prior to operation.

#### Operation

Activity and infrastructure associated with the operation of the new container terminals and multipurpose terminals, berths and new rail and road infrastructure would have visual impacts on the landscape. The main visual impacts would result from increased port infrastructure such as cranes, forklifts and trucks, increased area of hardstand (reclaimed land), dry bulk stockpiles and bulk cargo storage, container stacks, increased shipping movements into and out of the harbour, and increased terminal lighting. An artist's impression of the Concept Plan is illustrated in Figure 2. The staged development of the terminals, berths, port infrastructure and road and rail infrastructure would mean that operational visual impacts would occur progressively during the Concept Plan development. Although these impacts would be permanent they would occur within the context of the existing heavy industry, port infrastructure and port activities in the Outer Harbour. In addition, the overlap between staged construction and operation activities (e.g. the overlap between Stage 1 operation and Stage 2 construction) would result in cumulative visual impacts, but these would be short term and would occur within the context of the existing industry and port-related activities.

#### Figure 2: Artist's Impression of the Concept Plan



### 3.2 Major Project Activities

#### Construction

The bulk of the reclamation and dredging activities would be undertaken as part of Stage 1 (Major Project). This includes reclamation for the central and southern portion of the multi-purpose terminals and reclamation of container terminals. The central portion of the multi-purpose terminals would be paved while the balance of the reclaimed areas would be surfaced with compacted gravel or similar material. Dredging of rock and soft sediment material would be undertaken between the multi-purpose and container terminals and to the east of the container terminals and the material would be used for the reclamation. Dredging would be undertaken 24 hours a day which would result in visual impacts from lighting during night time activities.

Construction of the first multi-purpose berth would result in additional truck movements along Flinders Street to deliver materials and personnel.

A new permanent road link from Christy Drive to the central portion of the multi-purpose terminals would be constructed and a temporary haul road would be constructed from Foreshore Road to facilitate the reclamation of the container terminal area. Rail infrastructure within the South Yard would also be upgraded. All of these works would result in additional road and rail traffic to deliver materials and personnel.

Terminal infrastructure on the central portion of the multi-purpose terminals would be constructed including terminal lighting and installation of services. A sulfuric acid pipeline that is currently located between Jetty No. 4 and the Orica above ground storage tanks to the south of Foreshore road would be relocated to connect to the first multi-purpose berth.

Visual impacts during construction would include temporary impacts associated with:

- General construction activities, site compound, stockpiles, construction machinery and plant;
- Additional road and rail traffic for delivery of plant, equipment, materials and personnel;

- Dredging machinery and activities in the centre and east of the Outer Harbour;
- Increased land area as a result of land reclamation for the multi-use terminals and future container terminals;
- Construction works for the multi-purpose terminals and berth and container berth; and works associated with the upgrade of rail infrastructure in the South Yard.

#### Operation

The central portion of the multi-purpose terminal area would be operational as part of the Major Project (Stage 1) including the first multi-purpose berth.

Visual impacts would include a hardstand area of approximately nine hectares, terminal infrastructure including conveyor systems and lighting, stockpiles of dry bulk and a cement facility.

A range of plant and equipment, including mobiles stackers, cranes, forklifts, trucks, and train movements would be required for the operation of the multi-purpose terminals and movement of bulk material.

The operation of the first berth would generate an additional 100 vessel visits within the outer harbour per year, which would equate to an average of one ship every 3-4 days.

Port Kembla Gateway would remain operational during Stage 1 of Outer Harbour development, including during the reclamation and dredging activities associated with the new multi-purpose terminals.

#### 3.3 Immediate Vicinity

Three representative viewing locations in the immediate vicinity of the proposed Outer Harbour development have been considered as part of this assessment:

- 1. Outer Harbour lookout
- 2. Gloucester Boulevard, Port Kembla
- 3. Gallipoli Street, Port Kembla

#### 1. Outer Harbour lookout

Plate 1: View from Outer Harbour Lookout



View Location	View from Outer Harbour lookout that is located immediately south of Port Kembla Port Corporation (PKPC) office, looking north west
Likely Viewers	Visitors to PKPC office, Heritage Park and Breakwater Battery Museum. Fisherman utilising the boat ramp would view a similar visual landscape
Context of View	Slightly elevated view of the Outer Harbour, existing jetties and BlueScope Steel steelworks with Illawarra Escarpment in the background
Likely number of viewers	Low to Moderate
Distance of view from proposed development	150m
Length of view	Moderate (a few minutes up to an hour)
Visibility	High
Visual absorption capacity	High
Level of visual impact	Moderate

Comment

Concept Plan

The proposed Concept Plan development would have a moderate visual impact on visitors to the lookout. The proposed reclamation, increased area of hard stand and construction of new terminals would result in a change to the built environment viewed from the lookout. While the visibility of the proposed development is high the visual absorption capacity of the area that is dominated by existing industrial and port related infrastructure is also high.

Major Project

Dredging and reclamation works for the multi-purpose terminals and container terminals would be visible from this location. Additional cranes would be visible, however these would be consistent with existing views of cranes and heavy port-related industry. The works and related heavy machinery for the Major Project would only be visible for the limited duration of the construction period. Although the length of view is moderate, the visibility and visual absorption capacity of the area is high therefore visual impacts would be moderate.

#### 2. View from Gloucester Boulevard

Plate 2: View from Gloucester Boulevard, Port Kembla



View Location	View from Gloucester Boulevard, looking north west
Likely Viewers	Motorists and passengers, local residents walking/cycling around area
Context of View	View of the commercial and industrial premises located within the outer harbour
Likely number of viewers	Low

Y:\60039301\_PKOHD\4. Tech work area\4.4. Environment\1.03.01.02 Specialist Studies\EA Rev G - specialist studies\techincal papers - reviewed and finalised\Appendix L Landscape and Visual Amenity Assessment.docx Revision B - 11 February 2010

View Location	View from Gloucester Boulevard, looking north west
Distance of view from proposed development	700m
Length of view	Low (a glimpse to a few minutes)
Visibility	Low
Visual absorption capacity	High
Level of visual impact	Low
Comment	

Concept Plan

The proposed Concept Plan development would have low visual impact for users of Gloucester Boulevard. Although the road is proximate to the Outer Harbour, a view of the new terminals would be screened by existing commercial and industrial premises and structures in the foreground. Major Project

The proposed development for the Major Project approval (Stage 1) would have low visual impact for users of Gloucester Boulevard. Although the road is proximate to the Outer Harbour, views during construction, dredging and reclamation works for the new terminals and views during operation of the multi-purpose terminal would be screened by existing commercial and industrial premises and structures in the foreground.

#### 3. View from Gallipoli Street

#### View from Gallipoli Street, Port Kembla Plate 3:



View Location	View from open space at north western end of Gallipoli Street, Port Kembla, looking north	
Likely Viewers	Motorists and passengers, local residents walking/cycling around area	
Context of View	Slightly elevated view of the port precinct, adjacent commercial and industrial premises and Illawarra Escarpment	
Likely number of viewers	Low	
Distance of view from proposed development	800m	
Length of view	Low to moderate	
Visibility	Moderate	
Visual absorption capacity	High	
Level of visual impact Moderate		
Comment		
Concept Plan		
The proposed Concept Plan develor Street, Port Kembla	opment would have a moderate visual impact on views from Gallipoli	
The top part of an existing crane located at Gateway Jetty in the Outer Harbour is visible. The proposed		

Outer Harbour development would result in an increased number of cranes operating on the new

terminals into the future. The proposed new terminals and increased shipping movements would be partially screened behind the existing commercial and industrial premises in the foreground and would be consistent with existing port related infrastructure and heavy industrial activity in the area generally. Major Project

The proposed multi-purpose terminalswould be constructed and operational resulting in additional infrastructure such as conveyor systems and mobile stackers and loaders being visible. During construction, views of the dredging and reclamation works and associated plant (e.g. barges, dredgers) would be limited, as existing infrastructure in the foreground blocks full view of the Outer Harbour. During operation, the new multi-purpose terminalsand increased shipping movements would be partially screened behind existing commercial and industrial premises in the foreground and would be consistent with existing port-related infrastructure and heavy industry in the area.

#### Conclusion: Immediate Vicinity

Based on the assessment of viewing locations within the immediate vicinity of the Outer Harbour, the visual impact of the proposed Concept Plan would be low to moderate depending on the location of the view. Viewers within the Outer Harbour would experience the greatest visual impact due to the proximity to the proposed development and general lack of foreground screening, although the changes would be in keeping with the existing port-related industrial and commercial activities in the Outer Harbour. Viewers in the immediate adjacent area, however, would likely experience a low visual impact due to the potential screening of the Outer Harbour development by adjacent commercial and industrial buildings and structures.

### 3.4 Local Area

Four representative viewing locations (refer to Figure 1) in the local area of the proposed Outer Harbour development have been considered as part of this assessment:

- 4. Hill 60 Park
- 5. Blaxland Avenue and Flagstaff Road intersection
- 6. Panorama Estate, Lake Heights
- 7. Wollongong Golf Course

#### 4. View from Hill 60 Park

Plate 4: View from Hill 60 Park, Port Kembla



View Location	View from Hill 60 Park lookout, looking north north west
Likely Viewers	Visitors to Illawarra region. Local residents
Context of View	Elevated view of the outer and inner harbours, existing jetties, BlueScope Steel steelworks, Port Kembla Copper smoke stack and Illawarra Escarpment
Likely number of viewers	Moderate
Distance of view from proposed development	2km
Length of view	Low to moderate (a few minutes up to an hour)
Visibility	High
Visual absorption capacity	High
Level of visual impact	Moderate
Commonst	

#### Comment

#### Concept Plan

The proposed Concept Plan development would have a moderate visual impact on views from Hill 60 Park. The visual impact from this viewing location is due to the visibility provided by the elevation of the viewpoint and the moderate number of viewers. The crane on the end of Gateway Jetty in the Outer Harbour is clearly visible and up to eight rail-mounted cranes and six ship-mounted cranes would be visible once the multi-purpose and container terminals are operational. Additional hardstand areas and ships at berth would also be visible from this viewpoint, however there would be some screening provided by buildings in the foreground

Views of the new terminals and reclaimed (hardstand) areas would be seen within a context of port and industrial related infrastructure and once constructed the terminals would appear as an extension of the existing infrastructure.

#### Major Project

Visual impacts would arise from construction works for the multi-purpose terminal, berths and dredging and reclamation for other terminals. The stockpile area in the south of the site could be partially visible during construction. During operation there would be minor visual impacts resulting from increased shipping movements (on average two additional ships per week) and two additional cranes operating at the multi-purpose terminal. Views of the reclamation and dredging works in the east of the site would be only partially visible, but screened by existing industrial development in the foreground. Plate 5: View from Blaxland Avenue and Flagstaff Road intersection, near Flagstaff Park



View Location	View from intersection of Blaxland Avenue and Flagstaff Road, looking north east
Likely Viewers	Motorists and passengers, local residents walking/cycling around area
Context of View	Flagstaff Park and built urban environment in the foreground and Outer Harbour and existing jetties in the background
Likely number of viewers	Moderate
Distance of view from proposed development	2km
Length of view	Low (glimpse to a few minutes)
Visibility	Moderate
Visual absorption capacity	Moderate
Level of visual impact	Moderate
Comment	

Comment

Concept Plan

The proposed Concept Plan development would have a moderate visual impact on views from the intersection of Blaxland Avenue and Flagstaff Road. The crane on the end of Gateway Jetty is clearly visible and up to eight rail-mounted cranes and six ship-mounted cranes would be located in the Outer Harbour once the multi-purpose and container terminals are operational.

Although the reclaimed areas and new terminals would be visible from this location, and in particular, the container terminal, the visual impact is moderate due to the short length of view. The eye is drawn to the ocean and the breakwater in the background and part of the view of the proposed development is shielded by Flagstaff Park and industrial developments in the foreground. Additional ship movements involved in Concept Plan constructions would be visible from this viewpoint, though would also be partially impeded by Flagstaff Park and existing buildings.

Construction of road and rail infrastructure would not impact visual amenity in this location as the western and southern works areas of the Concept Plan are screened by vegetation and industrial development in the foreground.

Major Project

Construction, dredging and reclamation activities would create visual impacts during construction of works for the Major Project, although the impacts would be moderate due to the short length of the view and the afforded by Flagstaff Park and industrial development in the foreground. During operation, the multi-purpose terminalsand associated cranes would be visible but would be partly obscured by Flagstaff Park and industrial development, so visual impacts would be moderate. Increased shipping movements (on average two additional ships per week) would be visible from this viewing point, but would be in keeping with the existing shipping activity related to the port.

#### 6. View from Panorama Estate

Plate 6: View from Panorama Estate, Lake Heights



View Location	View from new subdivision in Lake Heights, looking east north east
Likely Viewers	Motorists and passengers, local residents walking/cycling around area
Context of View	Slightly elevated view of the Outer Harbour, existing jetties, BlueScope Steel steelworks and residential properties
Likely number of viewers	Low
Distance of view from proposed development	3km
Length of view	Short (glimpse to a few minutes)
Visibility	Moderate
Visual absorption capacity	Moderate
Level of visual impact	Moderate
Comment	

Comment

Concept Plan

The proposed Concept Plan development would have a moderate visual impact on views from Panorama Estate in Lake Heights. The existing crane at Port Kembla Gateway is partially screened by vegetation and residential housing in the foreground. Up to eight rail-mounted cranes and six ship-mounted cranes would be constructed as part of the multi-purpose and container terminals and these would be partially visible beyond the existing roofline of the houses. Additional ship movements, due to Concept Plan constructions, would also be partially visible on the open sea in the background. The reclamation area and new terminals would be seen within a context of port related infrastructure, the existing residential properties, BlueScope Steel steelworks in the foreground, and the open sea in the background.

Major Project

Two cranes would be operational as part of the proposed multi-purpose terminals and there would be partial views of the dredging and reclamation works for the future container terminals from this location. However, these views would be seen in the context of the port-related infrastructure and existing industrial and residential views in the foreground.





View Location	View from Wollongong Golf Course, near Bank St, looking south
Likely Viewers	Golf participants
Context of View	Undulating topography of vegetated sand dunes. The Port Kembla Copper smoke stack and tallest stacks at the steelworks are visible
Likely number of viewers	Moderate
Distance of view from proposed development	Approximately 3km
Length of view	Moderate
Visibility	Low
Visual absorption capacity	High
Level of visual impact	Low
Commont	

#### Comment

#### Concept Plan

The proposed Concept Plan development would have a low visual impact on the users of the Wollongong Golf Course. From the elevation of the golf course the Port Kembla Copper smoke stack and tallest smoke stacks of BlueScope Steel steelworks are partly visible. However the Outer Harbour is shielded from view by the existing topography of the golf course. The existing crane located on Port Kembla Gateway is not visible and therefore it is likely that the new terminals, supporting infrastructure and ship movements would not be visible.

#### Major Project

The proposed Major Project development would have a low visual impact on the users of the Wollongong Golf Course. From the elevation of the golf course the Port Kembla Copper smoke stack and tallest smoke stacks of BlueScope Steel steelworks are partly visible. However the Outer Harbour is shielded from view by the topography of the golf course . Works associated with construction, dredging and reclamation works would not be visible during construction and the new multi-purpose terminal, supporting infrastructure and ship movements would not be visible.

#### **Conclusion: Local Area**

Based on the assessment of viewing locations within the local area of the Outer Harbour, the visual impact of the proposed Concept Plan and Major Project development would be low to moderate depending on the location of the view. Views from residential areas to the south and west of the Outer Harbour, which are relatively undulating, would likely comprise glimpses of cranes and some dredging and reclamation works, though this would be viewed in the context of existing port and industrial development in the foreground and/or background. The topography of the Wollongong Golf Course to the north would effectively screen the golf players' view of the development.

## 3.5 Regional Area

Nine representative viewing locations in the regional area of the proposed Outer Harbour development have been considered as part of this assessment:

- 8. Sublime Point Lookout
- 9. Bulli Lookout
- 10. Bulli Pass
- 11. Bulli Beach
- 12. Bellambi Pool
- 13. Corrimal Beach
- 14. Wollongong North
- 15. Lions Park, Wollongong
- 16. Mt Keira

#### 8. View from Sublime Point Lookout

Plate 8: View from Sublime Point Lookout



View Location	View from Sublime Point Lookout, looking south
Likely Viewers	Visitors to Wollongong area and those travelling north and south along the Southern Freeway
Context of View	Elevated view of the northern suburbs of Wollongong, including Bulli, Bellambi, Corrimal, and Wollongong City in the foreground
Likely number of viewers	Moderate
Distance of view from proposed development	Approximately 18km north
Length of view	Moderate (a few minutes up to an hour)
Visibility	Low
Visual absorption capacity	High
Level of visual impact	Low
Comment	

Concept Plan

The proposed Concept Plan would have a low visual impact on the views of visitors to Sublime Point Lookout. The new terminals would be visible in the distance approximately 18 km away. While a large number of visitors to the lookout would view the new terminals and their period of view may be moderate, the visual absorption capacity of the port precinct is high, as at this distance, the terminals and ship movements would be similar to existing port related infrastructure in the area. Major Project

Dredging, reclamation and construction of the multi-purpose terminal and berth would be visible in the distance. The visual absorption capacity of the port precinct is high as at this distance, the terminal and cranes would be similar to existing port related infrastructure and activities, therefore the level of visual

|--|

impact would be low from this viewpoint.

#### 9. View from Bulli Lookout

#### Plate 9: View from Bulli Lookout



View Location	View from Bulli Lookout, looking south
Likely Viewers	Visitors to Wollongong area and those travelling north and south along Southern Freeway
Context of View	Elevated view of the northern suburbs of Wollongong, including Bulli, Bellambi, Corrimal, and Wollongong city
Likely number of viewers	Moderate
Distance of view from proposed development	Approximately 18km
Length of view	Moderate (a few minutes up to an hour)
Visibility	Low
Visual absorption capacity	High
Level of visual impact	Low
Commencent	

Comment

Concept Plan

The proposed Concept Plan would have a low visual impact on the views of visitors to Bulli Lookout. The new terminals would be visible in the distance approximately 18 km away. While a large number of visitors to the lookout would view the new terminals and their period of view may be moderate, the visual absorption capacity of the port precinct is high as at this distance, the terminals would be similar to existing port related infrastructure in the area.

Major Project

Dredging, reclamation and construction of the multi-purpose terminal and berth would be visible in the distance. The visual absorption capacity of the port precinct is high as at this distance, the terminal and cranes would be similar to existing port related infrastructure and activities. Accordingly, the level of visual impact arising from the Major Project development on Bulli Lookout would be low.

#### 10. View from Bulli Pass

A photograph was not available from this viewpoint due to narrowness of Bulli Pass and inability to stop vehicle in a safe location.

View Location	View from Bulli Pass, looking south
Likely Viewers	Motorists and passengers descending Bulli Pass into Bulli and Woonona
Context of View	Glimpses from moving vehicles of the northern suburbs of Wollongong, including Bulli, Bellambi, Corrimal, and Wollongong City. The Outer Harbour is located in the far distance near the horizon
Likely number of viewers	Moderate to high
Distance of view from proposed development	Approximately 17km
Length of view	Short (a few seconds)
Visibility	Low
Visual absorption capacity	High
Level of visual impact	Low

Comment

**Concept Plan** 

The proposed Concept Plan development would have a low impact when viewed from Bulli Pass. The new terminals would be viewed in the distance approximately 17 km away. The trees and other vegetation bordering Bulli Pass would obscure most of the view including the new terminals and additional shipping movement, and would be viewed in context of existing development in the foreground.

Major Project

The proposed Major Project development would have a low impact on visual amenity when viewed from Bulli Pass. The new terminals and additional shipping movements would be viewed in the distance approximately 17 km away. The trees and other vegetation bordering Bulli Pass would obscure most of the view including the new terminal and the dredging and reclamation works.

#### 11. View from Bulli Beach

Plate 10: View from Bulli Beach



View Location	
View Location	View from recreational area at Bulli Beach, adjacent to Ruby's Café
Likely Viewers	Visitors to Bulli Beach and guests at Ruby's Café
Context of View	Panoramic views of coastline south of Bulli toward Wollongong and Port Kembla
Likely number of viewers	High
Distance of view from proposed development	Approximately 13km
Length of view	Moderate to high (a few minutes to in excess of an hour)
Visibility	Low
Visual absorption capacity	High
Level of visual impact	Low
0	·

Comment

Concept Plan

The proposed Concept Plan development would have a low impact when viewed from Bulli Beach. The new terminals and additional shipping movements would be viewed in the far distance near the horizon. The expanse of sandy beach and ocean in the foreground of this view draw the viewer's attention to the immediate and local landscape.

Major Project

Construction activities, dredging and reclamation works and additional shipping movements associated with the Major Project works would be indiscernible in the far distance near the horizon. The expanse of sandy beach and ocean in the foreground of this view, and the low lying topography, draw the viewer's attention to the immediate and local landscape. The proposed development would therefore have a low visual impact when viewed from Bulli Beach.

#### 12. View from Bellambi Pool

Plate 11: View from Bellambi Pool



View Location	View from playground and near Bellambie Pool, looking south west
Likely Viewers	Visitors to Bellambi Pool and playground. Cyclists, joggers and walkers undertaking recreational activity in the open space area
Context of View	View of open space area, including cycleway, playground and adjacent residential properties
Likely number of viewers	Moderate to high
Distance of view from proposed development	10km
Length of view	Moderate to high (a few minutes to in excess of an hour)
Visibility	Nil
Visual absorption capacity	High
Level of visual impact	Nil
Comment	

Concept Plan

Bellambi Pool is located to the north of a headland that screens views toward Wollongong and the Outer Harbour. The existing infrastructure at the Outer Harbour and surrounds is not visible (including the Port Kembla Copper smoke stack) and accordingly the new terminals and ship movements would not be visible during construction or operation.

Major Project

A headland to the north of the pool screens views to the existing infrastructure at the Outer Harbour and surrounds (including the Port Kembla Copper smoke stack). Therefore construction works and operation of the multi-purpose terminal and ship movements associated with the Major Project development would not be visible from Bellambi Pool.

#### 13. View from Corrimal Beach

#### Plate 12: View from Corrimal Beach



View Location	View from Corrimal Beach, looking south
Likely Viewers	Corrimal Beach users
Context of View	Expanse of sandy beach and ocean with Hill 60 Park, Port Kembla Copper smoke stack and BlueScope Steel steelworks on the horizon
Likely number of viewers	Medium
Distance of view from proposed development	9km
Length of view	Moderate to high (a few minutes to in excess of an hour)
Visibility	Low
Visual absorption capacity	High
Level of visual impact	Low
Comment	

#### Comment Concept Plan

The proposed Concept Plan development would have a low visual impact on views from Corrimal Beach. Little to no port related infrastructure is discernible in either the Inner or Outer Harbour precincts. This is due to the relatively low elevation from which the Port is viewed from this location. Although the length of view is moderate to high, the new terminals would have low visibility from the level of the beach as the eye is drawn toward other key features such as the Port Kembla Copper smoke stack, Hill 60, Wollongong Harbour Lighthouse and the steelworks when looking south.

#### Major Project

Little to no port related infrastructure is discernible in either the Inner or Outer Harbour precincts from this view point at Corrimal Beach. Although the length of view is moderate to high, the dredging and reclamation works and the new terminal would have low visibility from the level of the beach as the eye is drawn toward other key features such as Port Kembla Copper smoke stack, Hill 60, Wollongong Harbour Lighthouse and the steelworks when looking south.

#### 14. View from Wollongong North

Plate 13: View from Wollongong North



View Location	View from North Wollongong, near Stuart Park
Likely Viewers	Visitors to beach and Stuart Park
Context of View	Expanse of sandy beach and pine tree and apartment fringed coastal area. The two Wollongong lighthouses are visible in the eastern part of the view.
Likely number of viewers	High
Distance of view from proposed development	Approximately 7km
Length of view	Moderate to high (a few minutes to in excess of an hour)
Visibility	Nil
Visual absorption capacity	High
Level of visual impact	Nil
Comment	

Concept Plan

The proposed Concept Plan development would have no visual impact on views from the Wollongong North beach adjacent Stuart Park. The headland and high rise apartments located adjacent to the beach effectively screen views toward the Port.

Major Project

The proposed construction, dredging and reclamation works and operation of the multi-purpose terminal would have no visual impact on views from the Wollongong North beach adjacent Stuart Park. The headland and high rise apartments located adjacent to the beach effectively screen views toward the Port.

#### 15. View from Lions Park, Wollongong

Plate 14: View from Lions Park, Wollongong



View Location	View from car park off Endeavor Drive, Lions Park, looking south
Likely Viewers	Locals and visitors to Wollongong area
Context of View	Slightly elevated view of the Port, Hill 60 Park, Port Kembla Copper smoke stack, BlueScope Steel steelworks and GrainCorp grain silos with open sea in the foreground
Likely number of viewers	Moderate to high
Distance of view from proposed development	5km
Length of view	Moderate to high (a few minutes to in excess of an hour)
Visibility	High
Visual absorption capacity	High
Level of visual impact	Moderate
Commont	

Comment

Concept Plan

The proposed Concept Plan development would have a moderate visual impact on views from Lions Park.

An existing crane located at Port Kembla Gateway in the Outer Harbour is visible and the proposed Concept Plan development would result in up to eight rail-mounted cranes and six ship-mounted cranes operating on the new terminals in the future. Despite the high number of viewers and potential moderate to high length of viewing period, the proposed new terminals would be partially screened behind the breakwater and would be consistent with existing port related infrastructure and industrial activity. Additional ship movements due to the Concept plan development will also be visible from the viewpoint. Looking south the eye would still be drawn toward the prominent BlueScope Steel steelworks and GrainCorp grain silos in the distance.

Major Project

The proposal would have a moderate visual impact on views from Lions Park due to additional plant and equipment including two ship-mounted cranes, ship loading conveyors and mobile stackers operating on the new terminal. However, the terminal and additional ship movements would be partially screened behind the breakwater and would be consistent with existing port related infrastructure and industrial activity. It is unlikely that dredging and reclamation works would be discernable from this location due to the distance. Looking south the eye would still be drawn toward the prominent BlueScope Steel steelworks and GrainCorp grain silos in the distance.

#### 16. View from Mt Keira

Plate 15: View from Mt Keira



View Location	View from Mt Keira lookout, looking south east
Likely Viewers	Visitors to Illawarra region and local residents
Context of View	Elevated view of Wollongong with Port Kembla and open sea in the background.
Likely number of viewers	Moderate to high
Distance of view from proposed	Approximately 7km
development	
Length of view	Moderate
Visibility	High
Visual absorption capacity	High
Level of visual impact	Moderate
Comment	

Concept Plan

The proposed Concept Plan development would have a moderate visual impact on views from Mt Kiera. The view of the port area is dominated by the GrainCorp grain silos, BlueScope Steel steelworks and the Port Kembla Copper smoke stack, and the Outer Harbour is defined by the northern and eastern breakwaters.

The reclamation would extend into the harbour to a location equivalent with the extent of Port Kembla Gateway. The existing crane at Port Kembla Gateway is visible and up to eight rail-mounted cranes and six ship-mounted cranes would be present once the multipurpose and container terminals are operational. Also visible would be the additional ships required for Concept Plan developments. The newly reclaimed and paved areas would also be clearly visible during construction and operation. The reclaimed land, hardstand areas and new terminals would be seen within a context of port related infrastructure and industrial development and the capacity of this view to absorb the new terminal is high. Looking south the eye would be drawn toward the prominent existing GrainCorp grain silos and BlueScope Steel steelworks in the foreground and the ocean in the background. Major Project

Works associated with dredging and reclamation as well as construction of the first terminal would be clearly visible from this vantage point. During operation, the terminal and cranes would be visible adjacent to the existing crane on Port Kembla Gateway. The reclaimed land and new terminal would be seen within the context of existing port related infrastructure and industrial development, as would the ships required for construction of the Major Project. The capacity of the view to absorb the new terminal is high so the level of visual impact would be moderate.

#### **Conclusion: Regional Area**

Based on the assessment of viewing locations within the regional area of the Outer Harbour, the visual impact of the proposed Concept Plan development and Major Project would be low to moderate depending on the location of the view. With the exception of Lions Park, Wollongong and Mt Keira, most views of the Outer Harbour are effectively screened behind headlands and port related and industrial development in the foreground or are of sufficient distance that the features of the proposed

development would be indiscernible. The most prominent features of the port area from the regional viewing locations are the Port Kembla Copper smoke stack, BlueScope Steel steelworks and GrainCorp grain silos.

## 4.0 Mitigation Measures

Construction of the Concept Plan and the three stages of development would involve key activities such as dredging, reclamation, road construction, and rail infrastructure upgrades. Operational activities that would be undertaken in each stage of the Concept Plan, such as operation of berths, truck and train movements, stockpiling of dry bulk and containers, would also be repeated throughout each of the stages. Accordingly, the visual impacts associated with each construction and operation phase of the development would be similar. In light of this, the proposed mitigation measures and controls for potential visual impacts on the immediate, local and regional landscape - for both Stage 1 (Major Project) and all stages of development (Concept Plan) - have been presented together, as follows:

## 4.1 Concept Plan and Major Project

#### Construction

- Lighting used for evening and night time work, including lighting on dredging plant, would be projected downward and illuminate the work area only to minimise light spill into surrounding areas.
- Construction staging and methodology would be designed to ensure efficiency of works and to minimise period of disturbance.
- Construction areas and plant/machinery and materials storage areas would be clearly delineated to ensure visual amenity of the site is maintained.

#### Operation

- Lighting for the terminals and other operational areas, including the new road links, would be carefully selected to minimise light spill on surrounding areas outside the terminal boundaries and minimise visual impact when viewed from adjacent premises.
- A Landscape Management Plan would be prepared to guide any landscaping works proposed across the site.
- Suitable colours and materials would be selected for the buildings and other structures to minimise reflectivity and contrast.

## 5.0 Summary

During development of the Concept Plan, visual impacts on the immediate, local and regional landscape during construction phases would result from dredging and reclamation activities, construction of new road links, upgrade of existing rail infrastructure, and general construction activities including stockpiling and plant and equipment storage areas. Once the Concept Plan is operational, visual impacts would include an additional 42 hectares of hard stand to accommodate multi-purpose terminal and container terminal, seven new berths, movement of plant and equipment, additional truck and train movements, container stacks and storage of dry bulk and bulk cargo.

The additional port activity would be located within an area dedicated to port activities and industrial development and would be in harmony with the surrounding environment.

This assessment has analysed the potential visual impacts of the development from a total of 16 viewpoints in the immediate, local and regional viewshed. Visual impacts were considered to be either nil (two locations), low (seven locations) or medium (seven locations). A range of mitigation measures are proposed during construction and operational phases of the development to mitigate visual impacts. Measures to mitigate visual impacts for the Concept Plan are also appropriate for Stage 1 of the development.