

# Visual Impact Assessment

Proposed Port Kembla Bulk  
Liquids Terminal

TQ Reference: PJ-PK-0001-REPT-018

8201510301/Report 003 Ver 3



Prepared for  
TQ Holdings Pty Ltd

9 November 2015



## Contact Information

**Cardno South Coast**  
**Trading as Cardno (NSW/ACT) Pty Ltd**  
ABN 95 001 145 035

Level 1, 47 Burelli Street  
PO Box 1285  
Wollongong NSW 2500

Telephone: 02 4228 4133  
Facsimile: 02 4228 6811

[southcoast@cardno.com.au](mailto:southcoast@cardno.com.au)  
[www.cardno.com.au](http://www.cardno.com.au)



Author(s):

Robert McKinlay  
Town Planner



Approved By:

Daniel Thompson  
Senior Environmental Planner

## Document Information

Prepared for	TQ Holdings Pty Ltd
Project Name	Proposed Port Kembla Bulk Liquids Terminal
File Reference	Report 003 Ver 3 - Visual Impact Assessment - TQ Bulk Liquids Terminal.docx
TQ Reference	PJ-PK-0001-REPT- 018
Job Reference	8201510301/Report 003 Ver 3
Date	9 November 2015
Version Number	3
Effective Date	9 November 2015
Date Approved:	9 November 2015

## Document History

Version	Effective Date	Description of Revision	Prepared by:	Reviewed by:
2	29/09/2015	Final	RJM	DJT
3	9/11/2015	Revised after NSW Ports comments	RJM	AJL

© Cardno. Copyright in the whole and every part of this document belongs to Cardno and may not be used, sold, transferred, copied or reproduced in whole or in part in any manner or form or in or on any media to any person other than by agreement with Cardno.

This document is produced by Cardno solely for the benefit and use by the client in accordance with the terms of the engagement. Cardno does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by any third party on the content of this document.

## Executive Summary

The Visual Impact Assessment has been completed by Cardno on Behalf of TQ Holdings Pty Ltd to support an application to construct and operate the Port Kembla Bulk Liquids Terminal (PKBLT). The assessment has been conducted in accordance with the SEARs issued for the project.

The assessment has identified that the subject site and surrounds has a low sensitivity to change. This results from the industrial and port uses which exist on and around the site. These existing uses and facilities provide a visual environment which contains shapes, materials and other visual elements which provide both a high level of visual complexity and a low level of visual quality. Consequently the proposed changes to this site from the proposed facility will not have a significant visual impact on the area as it has been assessed to not be sensitive to the proposed development.

The visual impact assessment has been informed by a viewshed analysis using a LiDAR generated terrain model which includes existing buildings and trees. Consequently this provides a realistic assessment of the visibility of the most prominent features of the proposed development from key vantage points. The viewshed assessment identifies that the proposed facility will not be substantially visible from most locations in the surrounding area.

To the west, PK BLT is sheltered by the existing Grain Corp terminal which blocks most lines of sight to the southwest and west. To the north in Coniston and the Wollongong CBD, the proposal is visible from scattered locations due to the interruption of lines of sight by vegetation and buildings. Particularly in the Wollongong CBD, it appears that the proposal will not be visible from most public streets, parks and spaces except for a small number of scattered locations. The proposal will be visible from beach side areas between Flagstaff Hill and the Wollongong Golf Club, however in these locations the proposal will appear in the context of the existing industrial facilities. Consequently the proposal is not considered to be substantially visible from areas outside the Port Kembla Port Precinct.

The assessment considered the visual character of the proposal and found that the proposed structures, materials and scale of the proposal are similar to those of the existing industrial development. Consequently the proposal is considered to have a similar visual character to that of the existing development.

Mitigation measures have been identified to reduce potential impacts. These include the use of materials and paints to mimic the existing industrial development as far as possible and implementation of lighting in accordance with AS 4282-1997 and AS/NZS 1680.5:2012 as appropriate.

It is considered that with application of the recommended mitigation measures, the proposal will have minimal visual impact.

# Table of Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	Purpose of Report and Legislative Context	1
1.2	Proposed Development	1
1.3	Site Description	1
1.3.1	Subject Site and Study Area	1
1.3.2	Locality	2
1.3.3	Sensitivity of the local landscape to change	2
<b>2</b>	<b>Methods</b>	<b>5</b>
2.1	Visual Impact Assessment	5
2.1.1	Preliminary Viewshed Analysis	5
2.1.2	Site Inspection	5
2.1.3	Visualisation of the Development	5
2.1.4	Assessment of Visual Impact	5
2.1.5	Lighting Impact Assessment	5
2.2	Visual Assessment Criteria	5
2.2.1	Sensitivity to Change	6
2.2.2	Visibility of the Proposal	6
2.2.3	The visual character of the development	6
<b>3</b>	<b>Visual Impact Assessment</b>	<b>8</b>
3.1	Viewshed Analysis	8
3.2	Site Inspection	8
3.2.1	Site Photos	8
3.2.2	Existing Views to the Site	10
3.3	Visualisation of the Development	15
3.4	Surrounding Development	16
3.5	Lighting Impact Assessment	17
3.5.1	Existing Sources of Light Pollution	17
3.5.2	Lighting Requirements of the Proposal	17
3.5.3	Lighting Design	17
3.5.4	Luminaire Selection	17
3.5.5	Luminaire Position and Mounting Height	18
3.6	Visual Impacts of the Proposed Development	18
3.6.1	Sensitivity to Change	18
3.6.2	Visibility of the Proposal	18
3.6.3	Visual Character of the Development	18
<b>4</b>	<b>Conclusion &amp; Recommendations</b>	<b>21</b>
4.1	Conclusions	21
4.2	Recommendations	21

## Tables

Table 1-1	Secretary's Environmental Assessment Requirements (SEARs)	1
-----------	---	---

## Figures

Figure 1-1	Site Plan	3
Figure 1-2	Location Plan	4
Figure 2-1	View-shed Analysis	7
Figure 3-1	View towards the berth area and Site 2 from the waterway (Viewpoint 4)	9
Figure 3-2	View towards the proposed fuel tanks on Site 1 from Tom Thumb Road (Viewpoint 6)	9
Figure 3-3	Panorama from waterway to the Inner Harbour including the GrainCorp Silos and new silos under construction (View Point 9)	10
Figure 3-4	View towards the site from Wollongong Golf Course (View Point 1)	10
Figure 3-5	View towards the site from Robwald Avenue, Coniston (View Point 2)	11
Figure 3-6	View towards the site from Port Kembla Harbour Entrance (View Point 3)	12
Figure 3-7	View towards the site from Mount Keira (View Point 5)	13
Figure 3-8	View towards the site from Flagstaff Hill (View Point 7)	14
Figure 3-9	View towards the site from Hill 60 (View Point 8)	14
Figure 3-10	Visualisation from Mount Keira (View Point 5)	15
Figure 3-11	Visualisation from Flagstaff Hill (View Point 7)	16
Figure 3-12	View Point Location Plan	19
Figure 3-13	Indicative Plan Showing Adjoining Developments	20

## Appendices

### **Appendix A** Photo Plates from View Points

# 1 Introduction

---

## 1.1 Purpose of Report and Legislative Context

This Visual Impact Assessment has been undertaken on behalf of TQ Holdings Pty Ltd (TQ Holdings) to identify potential visual impacts as a result of the Port Kembla Bulk Liquids Terminal (PKBLT) at selected sensitive receivers through the consideration of impacts at key viewpoints. The site of the Proposal is located at Lot 2 DP1125445, Lot 301 DP1148391 and Lot 11 DP1182111 in Port Kembla.

This assessment has been developed in accordance with the Secretary's Environmental Assessment Requirements (SEARs) as detailed in **Table 1-1**.

**Table 1-1 Secretary's Environmental Assessment Requirements (SEARs)**

Secretary's Environmental Assessment Requirement
--

Key Issues
------------

*Visual Amenity* – including:

- An assessment of the potential visual impacts of the proposed development on the amenity of the surrounding area;

---

This assessment also considers the potential cumulative impact of adjacent developments, including the Quattro Grain Terminal which is currently under construction on an adjoining site within the Port Precinct.

## 1.2 Proposed Development

TQ Holdings is proposing to construct and operate the PKBLT with capacity of up to 288 ML of storage for combustible and flammable liquids on land situated between existing GrainCorp and Port Kembla Coal Terminal operations in the Inner Harbour area of Port Kembla.

The proposed development will occur on land zoned SP1 – Special Activities under State Environmental Planning Policy (Three Ports) 2013.

## 1.3 Site Description

### 1.3.1 Subject Site and Study Area

The subject site comprises the development site from which visual impacts would potentially be generated. The study area includes all areas that are potentially impacted upon by the proposal.

The subject site consists of three parcels of land and a berth as identified in **Figure 1-1** and includes:

- Site 1 – Combustible and flammable bulk liquids storage and pump bay.
- Site 2 – Combustible and flammable bulk liquids storage and truck loading facilities.
- Site 3 – Site control room & office block, maintenance work shop and utilities.
- Berth 104 – Bulk liquids unloading facilities.

The subject site consists of largely cleared industrial land which is mostly void of any vegetation. Remaining vegetation at the subject site consist of some introduced grasses and shoreline vegetation. The topography of the subject site is relatively flat with a slight slope south towards the waterways. The topography at the subject site is highly modified.

### 1.3.2 Locality

The TQ Holdings site is located within the Port Kembla Port precinct approximately 70 km from Sydney and 3 km from the Wollongong City Centre in the Wollongong Local Government Area (LGA) (**Figure 1-2**). The port is connected to Wollongong via the arterial road Spring Hill Road and to Sydney via the Princes Motorway. The Port is located on a highly modified estuary at the mouth of Allans Creek and Gurungaty Waterway with the Tasman Sea to the east. Port Kembla consists of a number of industrial land uses with various berths for the loading and unloading of cargo ships.

The locality (within 5km of the subject site) consists of predominantly cleared and/or disturbed lands largely due to industrial, commercial and residential development. The remnant Tom Thumb Lagoon is located to the north of the study area which is connected to the Gurungaty Waterway.

### 1.3.3 Sensitivity of the local landscape to change

The existing landscape within the vicinity of the subject site is considered to be generally of low visual quality, with elements of higher visual quality north and south along the coastline. Critical characteristics of the local landscape include:

- The industrial complex of Port Kembla and the steelworks.
- Relatively flat topography around the Port with the undulating hills of Mount Saint Thomas, Lake Heights and the Illawarra Escarpment in the background.
- The ocean and coast east of Port Kembla, views along the coast to and from Hill 60 and Flagstaff Point.
- Suburbs of Mount Saint Thomas, Coniston, Wollongong and Cringila.

The locality is considered to be of generally low visual sensitivity with the capacity to absorb development, particularly given the highly industrialised nature of the surrounds. Consequently, there are no identified issues which should be considered in maintaining the local visual quality.



**Legend**

- Project Site (7.22 ha)
- Cadastre (LPI, 2015)

Site #	Lot / DP	Area (ha)
Site 1	2 / 1125445	1.80
Site 2	301 / 1148391	4.14
Site 3	11 / 1182111	0.37
Berth 104	70 / 1182824	0.91
		<b>7.22</b>



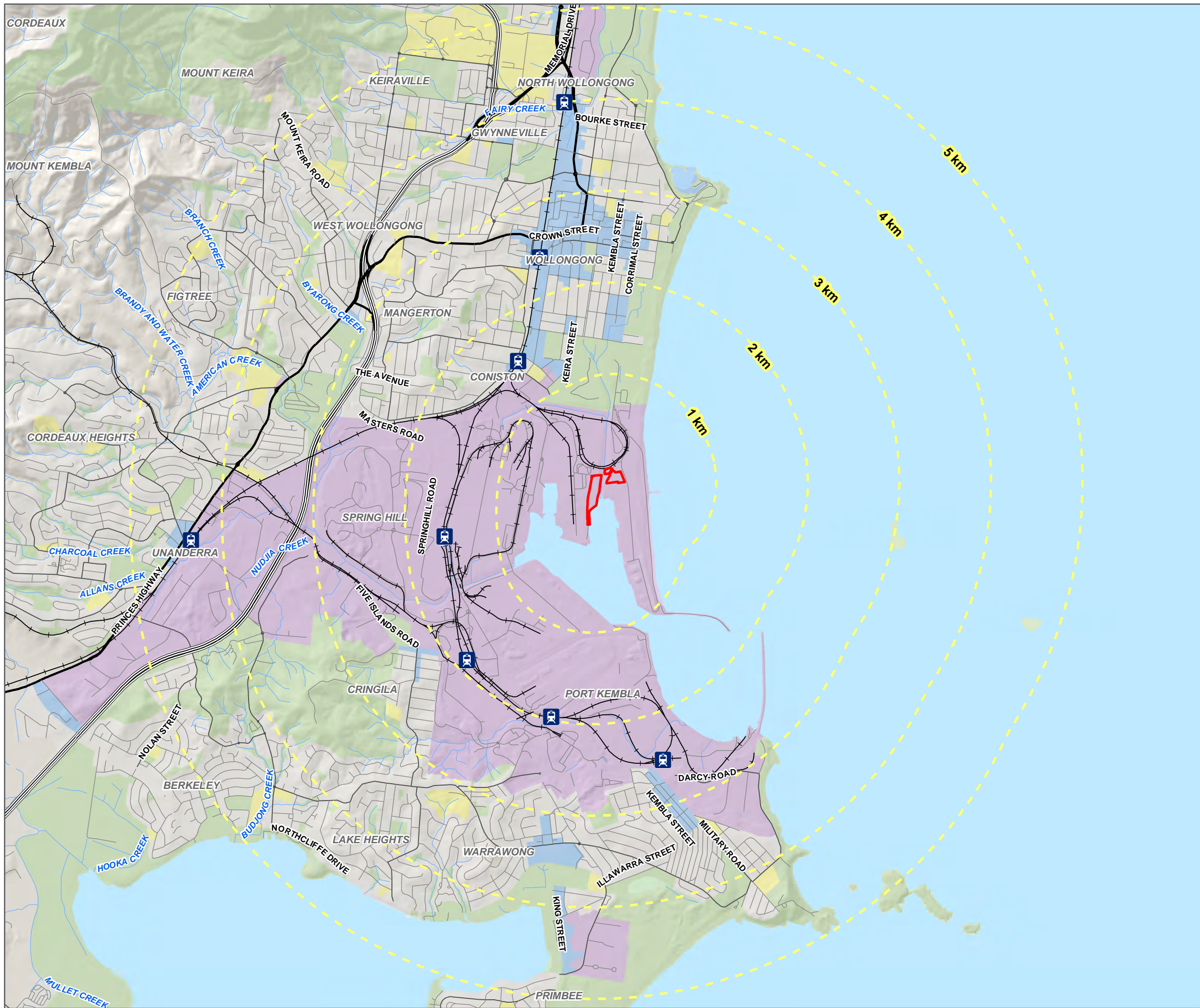
**FIGURE 1-1**  
1:2,500 Scale at A3

Metres

0 25 50 75 100

**Site Plan**  
PORT KEMBLA





# Location Plan

PORT KEMBLA

## Legend

- Project Site
- Railway Stations
- Railway
- Motorway
- Primary Road
- Distributor Road
- Local Road
- Watercourses

## Land Use (ABS, 2011)

- Commercial
- Education
- Industrial
- Parkland
- Residential
- Water

FIGURE 1-2

1:40,000 Scale at A3



Map Produced by Cardno NSW/ACT Pty Ltd (WOL)  
 Date: 2015-10-26  
 Coordinate System: GDA 1994 MGA Zone 56  
 Project: 82015103  
 Map: 82015103-GS-025-LocationPlanVisual.mxd 02  
 All base data supplied by LPI unless otherwise stated.

## 2 Methods

---

### 2.1 Visual Impact Assessment

A site specific literature and database review was undertaken prior to undertaking field survey and the preparation of this report. This included desktop analysis of aerial photography and regional scale mapping resources from the following sources:

- Nearmap
- Google Earth
- Wollongong City Council
- LPI Six Maps

#### 2.1.1 Preliminary Viewshed Analysis

A viewshed analysis has been undertaken using Geographical Information Systems (GIS). ArcGIS 10.3 was the software utilised by Cardno to identify which parts of the surrounding area could potentially view part of the site in its existing form.

The viewshed analysis completed for the PK BLT is found in **Figure 2-1**.

#### 2.1.2 Site Inspection

A site inspection was carried out to verify the results of the GIS viewshed analysis.

#### 2.1.3 Visualisation of the Development

Visualisation was undertaken using ESRI ArcGIS Viewport to generate perspective renderings of the proposed development as seen from sensitive locations. The existing views towards the proposed development were captured in photographs. The photographs and renderings of the proposed development were superimposed using image editing software to demonstrate the effect of the proposal on the existing view.

#### 2.1.4 Assessment of Visual Impact

A qualitative assessment of the impact of the proposal on views to the site has been undertaken. Viewpoints were identified based on the level of site visibility and sensitivity of the location.

#### 2.1.5 Lighting Impact Assessment

This is a qualitative assessment of the impact of the proposal on light spill in the context of the surrounding industrial development.

### 2.2 Visual Assessment Criteria

The impacts of the proposed TQ Holdings facility which is the subject of this Visual Impact Assessment are considered to be contingent on:

**2.2.1      Sensitivity to Change**

This considers the capacity of the locality to adapt and incorporate the proposal without drastically changing the character of its appearance. This considers the form, colour, shape, texture and scale of the existing development context.

**2.2.2      Visibility of the Proposal**

This considers whether the proposal is substantially visible in the landscape. This includes consideration of existing development and features which can screen or obscure the proposal.

**2.2.3      The visual character of the development**

This considers the qualities of the proposed development to assess its integration and contribution to the locality.

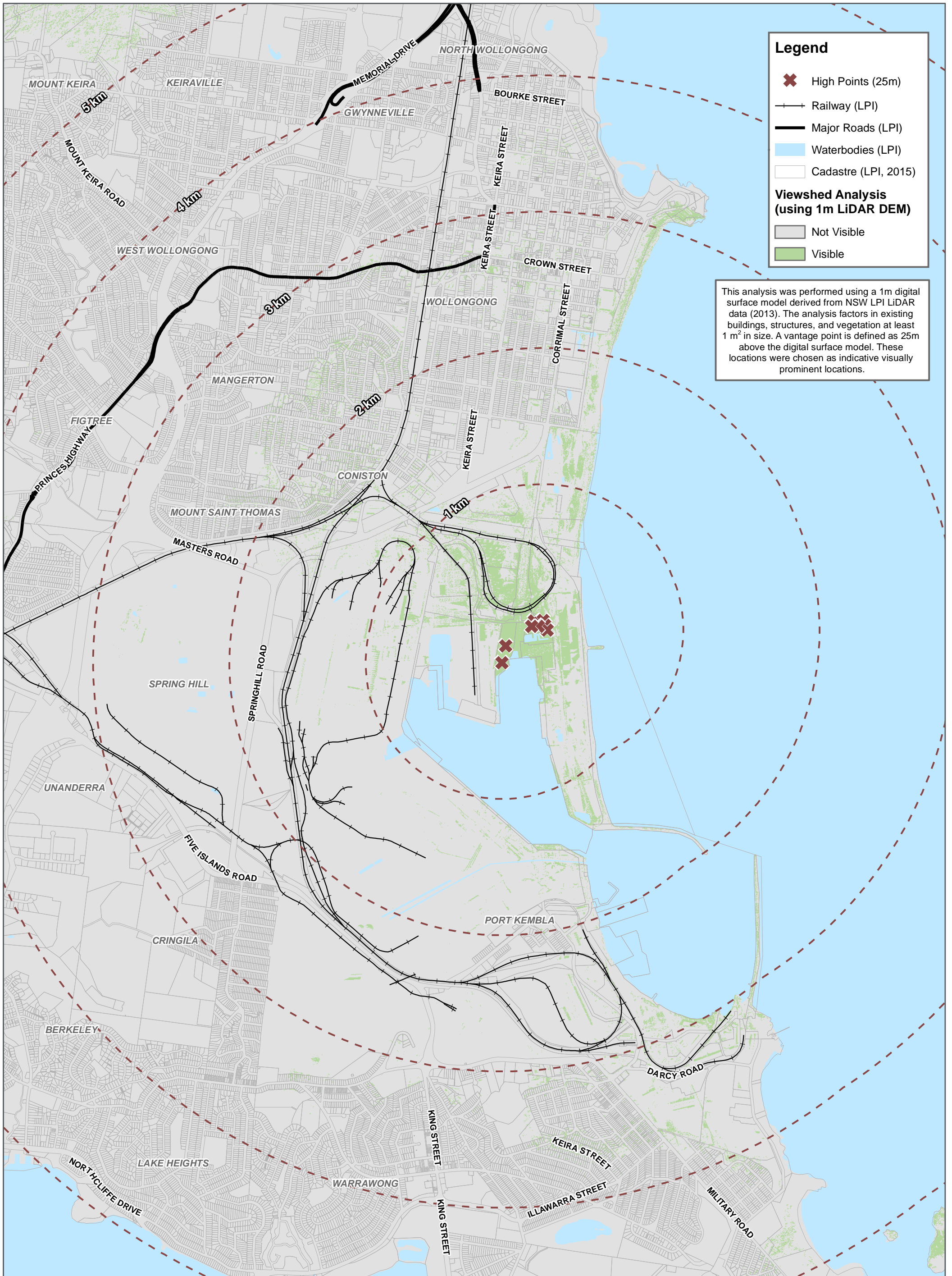
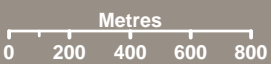


FIGURE 2-1  
1:25,000 Scale at A3



**Viewshed Analysis**  
PORT KEMBLA



Map Produced by Cardno NSW/ACT Pty Ltd (WOL)  
Date: 2015-09-29  
Coordinate System: GDA 1994 MGA Zone 56  
Project: 82015103-01  
Map: 82015103-GS-011-ViewshedAnalysis.mxd 03

## 3 Visual Impact Assessment

---

### 3.1 Viewshed Analysis

The viewshed analysis shown in **Figure 2-1** considers a LiDAR terrain model including trees and buildings to calculate from where the highest points on the project may be visible. Therefore, the model represents a realistic visibility scenario.

The proposal will be visible from areas within the Port Kembla industrial area such as the Port Kembla Coal Terminal rail link and the Australian Amalgamated Terminals site. However, these areas are used and occupied for the purposes of industrial and port activities and consequently visibility from these locations is considered acceptable.

The proposal may be visible from residential areas in Coniston, Cringila and the southern parts of Wollongong CBD although it is noted that these areas already have extensive views of the Port Kembla industrial area and the cumulative impact is minimal. Views from these areas to the proposal are filtered through trees and buildings, ensuring that the proposal is only visible from a number of scattered vantage points and is not visible from most locations. The viewshed analysis suggests that most views from the Wollongong CBD will be from the roofs and upper levels of buildings, while visibility from public streets and spaces will be minimal.

The proposal would also be partly visible from the east facing sections of the elevated suburbs of Farmborough Heights and Cordeaux Heights, as well as limited parts of south east facing portions of Mount Saint Thomas. In these locations the existing GrainCorp terminal blocks most lines of sight to the proposal.

The proposal will not be visible to most residential suburbs on the Coastal Plain, with no visual impact on residents in these areas. The elevated suburbs would have distant views to the site, which have the industrial backdrop of the existing Port infrastructure, helping to reduce the visual prominence of the site.

The proposal will be visible from the beaches and coastal open space between Flagstaff Point and the Wollongong Golf Club. In these locations the proposal will not be sheltered by the existing industrial development, however the industrial backdrop provided by the existing industrial development at Port Kembla will reduce the visual prominence of the site.

As noted earlier, this proposal is located in an existing industrial area and is to some degree sheltered and filtered by existing industrial development around the site, as well as the elevated bushland comprising Greenhouse Park to the north. Consequently, the proposal is not considered to be substantially visible.

### 3.2 Site Inspection

#### 3.2.1 Site Photos

The Site Photos identified in the figures below are cross referenced in the View Point Location Plan at **Figure 3-12**.

**Figure 3-1 View towards the berth area and Site 2 from the waterway (Viewpoint 4)**



**Figure 3-2 View towards the proposed fuel tanks on Site 1 from Tom Thumb Road (Viewpoint 6)**



**Figure 3-3 Panorama from waterway to the Inner Harbour including the GrainCorp Silos and new silos under construction (View Point 9)**



### 3.2.2 Existing Views to the Site

**Figure 3-4 View towards the site from Wollongong Golf Course (View Point 1)**



The silos and tanks of the existing facilities are highly visible from this location. Their presence is filtered by vegetation at the edge of the golf course.

**Figure 3-5 View towards the site from Robwald Avenue, Coniston (View Point 2)**



This view is typical of the glimpsed views of the site as seen from certain streets in the suburb of Coniston. The view is filtered through trees and buildings in the foreground. Existing industrial buildings dominant the view of the site itself.

**Figure 3-6 View towards the site from Port Kembla Harbour Entrance (View Point 3)**



The Port Kembla Coal Terminal filters views towards the existing industrial buildings near the site. The industrial buildings blend into the shape of the escarpment which sits in the distance behind the site.

**Figure 3-7 View towards the site from Mount Keira (View Point 5)**



This view from the Illawarra's most prominent lookout is the view that tourists are most likely to have of the proposed site. The existing industrial development around the Port Kembla inner harbour dominates the site. There are existing silos and tanks in the area adjacent to the site. Behind the site, the Port Kembla Coal Terminal is a significant feature which obscures the shoreline.

**Figure 3-8 View towards the site from Flagstaff Hill (View Point 7)**



From Flagstaff Hill the site sits in front of the existing GrainCorp silos with the Bluescope Steelworks to the rear. The existing industrial buildings are prominent.

**Figure 3-9 View towards the site from Hill 60 (View Point 8)**



When viewed from Hill 60, the site is sheltered by the existing grain silos and industrial buildings on adjacent land. The hills and escarpment behind the site act to disguise and soften the outline of the existing industrial buildings.

### 3.3 Visualisation of the Development

Figure 3-10 Visualisation from Mount Keira (View Point 5)



The Mount Keira lookout is a highly visited tourist location, with sweeping views of the Coastal Plain that includes the industrial lands of Port Kembla. From Mount Keira the site is placed in the foreground immediately adjacent to the existing GrainCorp silos with the Port Kembla Coal Terminal and the Quattro Grain silos to the rear and Bluescope Steelworks to the right (south). The existing industrial buildings are prominent, particularly the light colour GrainCorp Silos and the red and green yard machines associated with the Coal Terminal, which have a higher degree of visual prominence when in operation as they move back and forth along the coal stockpile. From this view, the proposal appears to integrate with the existing industrial development. The GrainCorp silos shelter the berth component of the proposal completely. The proposed fuel tanks integrate with the silos and existing tanks on other sites in the Inner Harbour.

**Figure 3-11 Visualisation from Flagstaff Hill (View Point 7)**



Flagstaff Hill is a highly visited tourist location that provides views both north and south along the coast, with southerly views including the industrial lands of Port Kembla. From Flagstaff Hill the site sits in front of and adjacent to the existing GrainCorp silos with the Quattro Grain Terminal and Port Kembla Coal Terminal to the rear. The western portion of the site is partially concealed by the topography of Greenhouse Park. The existing industrial buildings are prominent, with the proposal integrating with the existing industrial development from this view. The proposed fuel tanks integrate with the silos and existing tanks on both the GrainCorp and BlueScope sites located across the Inner Harbour.

### 3.4 Surrounding Development

As demonstrated in **Figure 3-16** and **Figure 3-17**, the site photos and the existing views of the site, the surrounding development is dominated by port facilities and industry. The GrainCorp terminal and the Quattro grain terminal in particular bear a strong visual resemblance to the proposal, with the GrainCorp terminal providing a partial visual barrier to regional views from the elevated areas of the Escarpment including Mount Keira and the suburbs of Farmborough Heights and Cordeaux Heights. The use of metallic surfaces and finishes by these developments combined with cylindrical features is very similar to that proposed by TQ Holdings on the site.

The Port Kembla Coal Terminal yard machines are large and brightly coloured. The machines also move around the coal stockpile as they load and unload coal. The combination of size, colour and movement attracts the eye, further reducing the visual prominence of the fuel tanks. The scale and shape of these developments ensures that the proposal will appear well integrated and in keeping with the surrounding area.

## 3.5 Lighting Impact Assessment

### 3.5.1 Existing Sources of Light Pollution

The port of Port Kembla is occupied by numerous large industrial facilities that operate continuously. These facilities are extensively illuminated to facilitate efficient operations and safe working conditions. Specific facilities such as the BlueScope Steelworks feature prominent gas flares and frequently emit clouds of water vapour which reflect other light sources. The surrounding arterial roads at Springhill Road, Masters Road and Five Islands Road are continuously illuminated at night through bright street lights which contribute significantly to light pollution.

### 3.5.2 Lighting Requirements of the Proposal

As this facility will handle combustible and flammable liquids the lighting fixtures will need to meet the required safety specifications for hazardous areas. Lighting associated with proposed site activities will include:

- Type 1 - Lighting of external/internal site roadways
- Type 2 - Lighting of truck filling operations within covered bays
- Type 3 - Lighting of external accesses, stairways, gantrys, tanks, sumps and pumping equipment.
- Type 4 - Lighting from vehicles and mobile equipment for safety (headlights and flashing beacons).

### 3.5.3 Lighting Design

- Lighting fixtures shall be designed in accordance with *AS 4282 - 1997 Control of the obtrusive effects of outdoor lighting* and *AS 1940 The storage and handling of flammable and combustible liquids* ; and
- The development shall be lit in accordance AS/NZS 1680.5:2012 Australian and New Zealand Interior and workplace lighting, Part5: outdoor workplace lighting.

### 3.5.4 Luminaire Selection

**Type 1** luminaires are traditional road lighting style luminaires. The proposal includes the use of luminaires with a forward throw distribution to ensure maximum light distribution across the site and minimum backwards light spill out of the site.

**Type 2** luminaires will be overhead weatherproof highbay/floodlight type luminaires aimed directly downwards so that the truck loading/unloading operators and can see the access and the vehicles below. This type of lighting is unlikely to provide light spill as it has a fixed downward arc, with loading/unloading operations performed away from the site boundary.

**Type 3** luminaires would have a fixed arc, with the luminaires attached to the external access stair on the overhead gantry for workers to climb up in safety at night. Minimisation of any direct light spill requires selection of a luminaire that has a horizontal front glass when aimed and fixed in position. This requires a floodlight with an asymmetric distribution with a peak intensity of at least 60 to 65 degrees above the nadir. A narrow beam floodlight will provide internal site area lighting with a high degree of control whilst minimising light spill.

**Type 4** luminaires will be mounted on mobile vehicles. These include headlights and potentially rotating light warning beacons. Mobile and transitory lighting effects from site based activities (i.e. truck and vehicle movements) are expected to be limited to the heavy industrial areas only. The small size of these lights and their limited power in the context of the surrounding development suggests that they will make a minimal contribution to light spill.

### **3.5.5 Luminaire Position and Mounting Height**

The position and mounting height of the luminaire are equally important to luminaire selection to ensure the minimum environmental light spill and to provide outdoor lighting to the site. Luminaire height and positioning will be chosen to achieve the lowest light spill from the project as is reasonably possible.

## **3.6 Visual Impacts of the Proposed Development**

### **3.6.1 Sensitivity to Change**

The site is located within the Port Kembla Inner Harbour area. As demonstrated above, this area is characterised by existing industrial development immediately adjacent to the site including GrainCorp, Port Kembla Coal Terminal, Quattro Grain Terminal and the Australian Amalgamated Terminals, as well as by major facilities in the wider Port Kembla area such as the Cement Australia and the BlueScope Steelworks and rolling mills. These facilities have highly reflective metallic surfaces, with straight and angular elements such as gantries, sheds and chimneys that contrast with the curved geometries of the silos and railway loops. This visual diversity and complexity ensures that new developments of similar scale do not appear out of place. These facilities are brightly illuminated at night to facilitate continuous operation, thus generating significant light spill beyond their site boundaries.

The proposed tanks will be painted white with some galvanised and/or painted structures forming part of access ways and other building structures. Views towards the site are dominated by existing industrial development with similar materials and colours to those proposed. At night, light spill from the existing facilities is already significant. Consequently, the area is considered to have a low sensitivity to changes resulting from further industrial development.

### **3.6.2 Visibility of the Proposal**

Storage tanks (day) and lighting (night) will create the greatest visual impacts however the proposal will be significantly shielded from view by existing industrial facilities. The scale of the proposal is smaller or similar to the existing industrial development including GrainCorp, Quattro Grain Terminal, and the Port Kembla Coal Terminal. Consequently the proposal will not appear as visually dominant or intrusive. The Port Kembla area has already developed extensive landscaping and vegetation areas to filter and mask views of the existing industrial facilities. Consequently, the proposal will not be substantially visible. Where the proposal will be visible, it will appear integrated with the existing development.

### **3.6.3 Visual Character of the Development**

The visual character of the proposal integrates with the existing industrial development adjacent to the site and elsewhere in the Port Kembla industrial cluster. The use of metallic materials and finishes is consistent with the existing development. The geometries of the proposed tanks and structures correspond to those of the existing silos and tanks adjacent to the site, with the existing GrainCorp Storage silos 51.6m above PKHD and the new Quattro Silos 38m above PKHD. The PK BLT silos are lower in height at 35.5m above PKHD. Consequently, the scale of the proposed development is similar to the existing industrial development. Measures will be implemented to minimise light spill from the facility so that the cumulative impacts of the proposal will be minimal.



**Legend**

- Project Site
- View Point Locations
- Major Roads (LPI)
- ++ Railway (LPI)

© Land and Property Information 2015



FIGURE 3-12  
1:30,000 Scale at A3

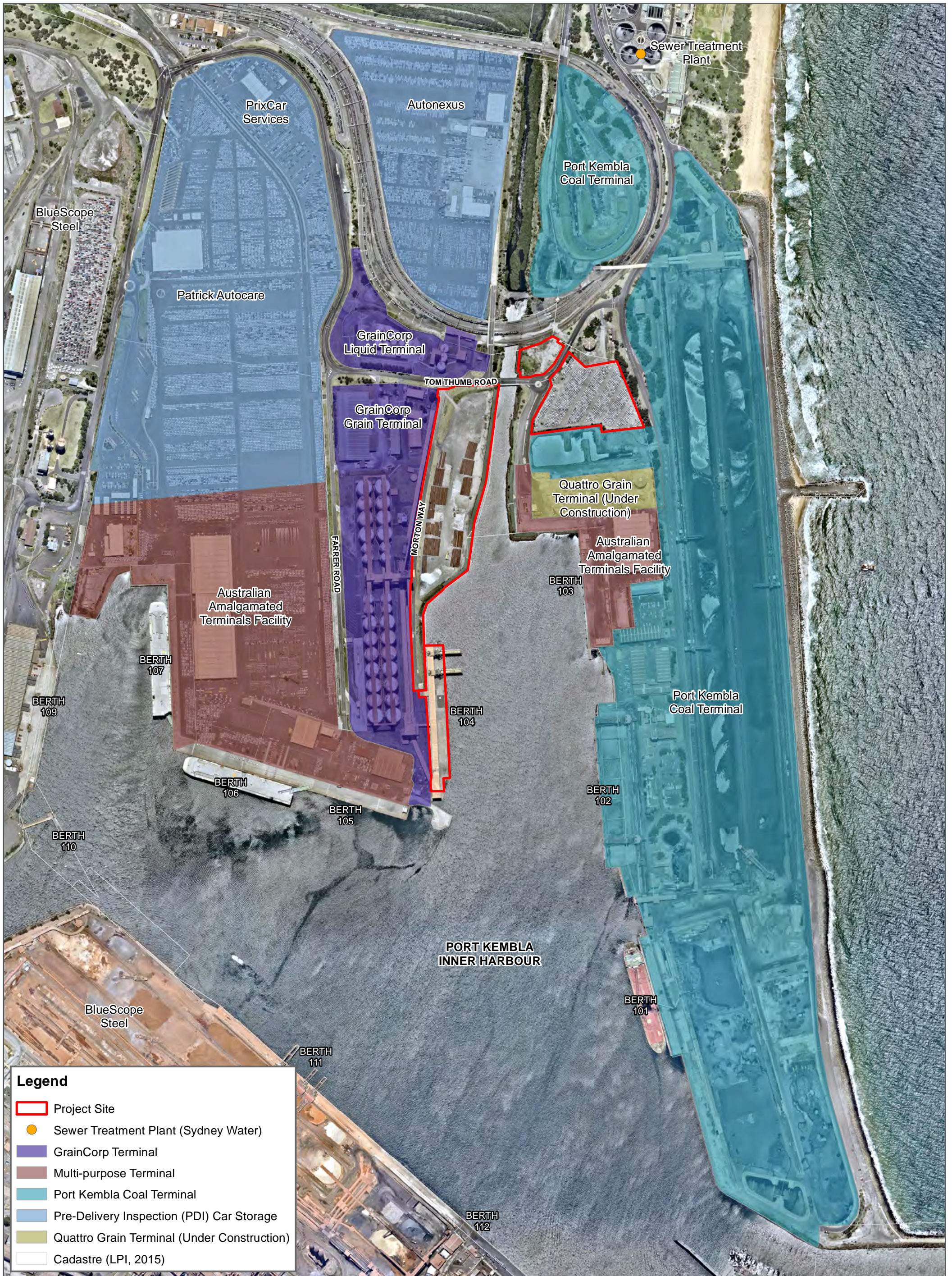


## View Point Location Plan

PORT KEMBLA



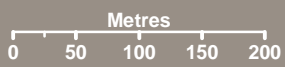
Map Produced by Cardno NSW/ACT Pty Ltd (WOL)  
Date: 2015-10-26  
Coordinate System: GDA 1994 MGA Zone 56  
Project: 82015103-01  
Map: 82015103-GS-012-ViewPointPlan.mxd 04



**Legend**

- Project Site
- Sewer Treatment Plant (Sydney Water)
- GrainCorp Terminal
- Multi-purpose Terminal
- Port Kembla Coal Terminal
- Pre-Delivery Inspection (PDI) Car Storage
- Quattro Grain Terminal (Under Construction)
- Cadastre (LPI, 2015)

FIGURE 3-13  
1:6,000 Scale at A3



**Adjoining Developments Plan**  
PORT KEMBLA



Map Produced by Cardno NSW/ACT Pty Ltd (WOL)  
Date: 2015-10-26  
Coordinate System: GDA 1994 MGA Zone 56  
Project: 82015103-01  
Map: 82015103-GS-027-AdjoiningDevelopmentsVisual.mxd 02  
Aerial imagery supplied by nearmap (January, 2015)

## 4 Conclusion & Recommendations

---

### 4.1 Conclusions

The proposed PKBLT is located in an existing industrial area of Port Kembla's Inner Harbour that operates 24 hours per day, seven days a week. The existing industrial development surrounding the proposal provides a visual environment which is not sensitive to change. The proposal itself is of a scale which will be quite visible, but views from identified vantage points are filtered and partially masked by existing industrial development such as the GrainCorp Terminal which sits immediately to the west of the site. Furthermore, the proposed facility is composed of similar materials, shapes and surfaces to those employed by existing industrial facilities. Consequently, the proposal will integrate with the existing industrial setting and have a low to moderate visual impact.

The existing developments within the port generate a high degree of light emissions. The extent of lighting proposed is not expected to introduce any significant night time visual impacts to the land areas surrounding the industrial and Port Precinct. Therefore minimal effect on adjacent properties is anticipated through the use of appropriately designed, specified and sited lighting fixtures.

Consequently, the proposed PKBLT will have minimal visual impact on the amenity of the surrounding areas.

### 4.2 Recommendations

The following actions are recommended:

- Use of materials and paints to mimic the existing industrial development as far as reasonably practical; and
- Design and implementation of lighting in accordance with:
  - *AS 4282 - 1997 Control of the obtrusive effects of outdoor lighting*
  - *AS 1940 The storage and handling of flammable and combustible liquids*
  - AS/NZS 1680.5:2012 Australian and New Zealand Interior and workplace lighting, Part5: outdoor workplace lighting

Proposed Port Kembla Bulk Liquids  
Terminal

APPENDIX

A

PHOTO PLATES FROM VIEW  
POINTS

VIEW POINT 7 - With Proposed PKBLT Development



VIEW POINT 7 - Without Proposed PKBLT Development



**VIEW POINT 5 - With Proposed PKBLT Development**



**VIEW POINT 5 - Without Proposed PKBLT Development**



**VIEW POINT 8 - Towards Proposed PKBLT Development**



**VIEW POINT 3 - Towards Proposed PKBLT Development**



**VIEW POINT 2 - Towards Proposed PKBLT Development**



**VIEW POINT 1 - Towards Proposed PKBLT Development**



## VIEW POINT 9 - Towards Proposed PKBLT Development



VIEW POINT 4 - Towards Proposed PKBLT Development





PEDESTRIANS  
WATCH YOUR  
STEP



KERMAN

## About Cardno

Cardno is an ASX200 professional infrastructure and environmental services company, with expertise in the development and improvement of physical and social infrastructure for communities around the world. Cardno's team includes leading professionals who plan, design, manage and deliver sustainable projects and community programs. Cardno is an international company listed on the Australian Securities Exchange [ASX:CDD].

## Contact

Cardno South Coast

Level 1, 47 Burelli Street  
Wollongong NSW 2500

Phone: 02 4228 4133

Fax: 02 4228 6811

[southcoast@cardno.com.au](mailto:southcoast@cardno.com.au)

[www.cardno.com](http://www.cardno.com)