

PORT KEMBLA DEVELOPMENT CODE

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NSW Ports

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1 Introduction

1.1 Purpose of the Code

NSW Ports is committed to ensuring that the Port of Port Kembla (Port Kembla) precinct is developed and managed in line with NSW Ports' strategic vision to manage and develop its port land and port-related infrastructure in a safe, secure, efficient and environmentally responsible manner to cater for the import and export demands of the NSW economy. To assist in achieving this vision, the *Port Kembla Development Code* has been prepared to:

- apply to land NSW Ports manages;
- articulate NSW Ports' design and operational requirements for all new development in a consolidated document;
- set minimum standards for design and operation of new development at Port Kembla; and
- provide a guide for consent authorities to assess and determine new development at Port Kembla.

1.2 Objectives of the Code

The overall objective of this Code is to promote sustainable development at Port Kembla. This is to be achieved by:

- facilitating the future development of the Port in an efficient manner;
- minimising the impacts of activities at the Port including on the surrounding environment and community;
- ensuring the ongoing security of the Port;
- minimising risks associated with both construction and operations at the Port; and
- enhancing the visual amenity of the Port through a consistent and coordinated approach to development.

1.3 How to use the Code

This Code covers a number of key assessment areas. For each area, a series of objectives and criteria are nominated. The objectives state the outcomes that are to be achieved for future development. The criteria are intended to ensure that the stated objectives are met.

All new developments are to comply with this Code. Variation from the Code is permitted at the discretion of NSW Ports, however, justification for any variation is required to be provided.

1.4 Relationship with Other Documents

This Code is to be considered together with other NSW Ports' guidelines and lease requirements as well as the requirements of other relevant statutory authorities and relevant legislation and standards.

In addition, the management of all impacts associated with construction of new development at the Port is to be assessed as part of any development proposal and is to be prepared in accordance with relevant guidelines and best practice techniques.

2 Development Footprint

2.1 Objective

- A. Provide for flexible and efficient layouts of port facilities and associated infrastructure.
- B. Optimise the use of port land and existing infrastructure before investing in new infrastructure.

2.2 Criteria

1. The layout and design of facilities must consider options to minimise the footprint of the development and consider the location of activities and facilities based on the type of access required (i.e. water or landside access).
2. Operators developing infrastructure on common user berths must implement loading/unloading facilities which allow for minimal impacts on the operation of the wharf for other users.
3. Pipeline(s), conveyor systems and services (power, water, fire fighting, etc) must be safe and designed to minimise impacts on other port operators.
4. The layout and design of facilities should maximise productivity rates of port infrastructure (pumping rates, discharging / loading rates).
5. A minimum 40m setback from the wharf edge to any permanent structure is required at common user berths, and greater where a turning circle for B-double trucks on the wharf is required. All vehicles are required to leave a site in a forward direction.

3 Visual Amenity and Built Form

3.1 Objectives

- A. To improve the overall appearance of port development.
- B. To enhance the visual amenity of the Port through the quality design of buildings and structures, and the use of materials and colour which reinforce the industrial maritime nature of Port Kembla.

3.2 Criteria

- 1. Buildings are to be oriented towards the primary street frontage. The office component of a building is to address the street so as to provide an attractive frontage, easily identifiable building entry and the potential for surveillance of the street.

3.2.1 Specific Criteria – Built form

- 2. The built form should be designed to minimise the perception of bulk and scale and add visual interest to the development.
- 3. Façade treatments and building heights should be varied to reduce the bulk and scale of the development and to add visual interest (**Figure 1**).

Figure 1

Façade treatments and building heights should be varied to reduce the bulk and scale of the development and to add visual interest.



4. Expressive and distinctive roof forms are encouraged. Roof forms which express the industrial maritime character of the Port should be used (**Figure 2**).
5. The use of external structural framing systems or changes in colour and building materials are encouraged on long elevations to create visual interest and reduce the scale of the building form (**Figure 3**).

Figure 2

Expressive and distinctive roof forms are encouraged. Roof forms which express the industrial maritime character of the Port should be used. Flat roof structures should be avoided.



Figure 3

The use of external structural framing systems or changes in colour and materials are encouraged on long elevations to create visual interest and reduce the scale of the building form.



6. Port buildings, silos and covered loading areas are to be integrated into a consistent design solution, which includes the use of a complementary palette of colours and materials, to promote the type, location and function of the tenancy (**Figure 4**).
7. Ancillary structures (e.g. loading areas, conveyors, hoppers) that are detached or connected to the tenant's main building should be highlighted through the innovative use of colour, structure, screening and material (**Figure 5**).
8. Varying materials and colours should be used throughout the Port (see *Specific Criteria 3.2.2*).
9. Air-conditioning units, telecommunications equipment or mechanical plant are to be concealed within screened enclosures or positioned behind the roofline to minimise their visibility from main port road frontages.

Figure 4

Port buildings, silos and covered loading areas are to be integrated into a consistent design solution, which includes the use of a complementary palette of colours and materials, to promote the type, location and function of the tenancy.



Figure 5

Ancillary structures (e.g. loading areas, conveyors, hoppers) that are detached or connected to the tenant's main building should be highlighted through the innovative use of colour, structure, screening and material.



10. Windows in new buildings are to be sited, where possible, in locations which provide overlooking opportunities to adjacent roads, walkways and open space areas (i.e. passive surveillance opportunities).
11. Garbage bins and waste recycling areas shall be accommodated on site, appropriately screened and accessible to the users of the building and service vehicles.

3.2.2 Specific Criteria – Materials, finishes and colour

12. A variety of material and colours are to be used to minimise the perception of the building mass and scale. An indicative palette of colours for building structures is shown at **Figure 6**.

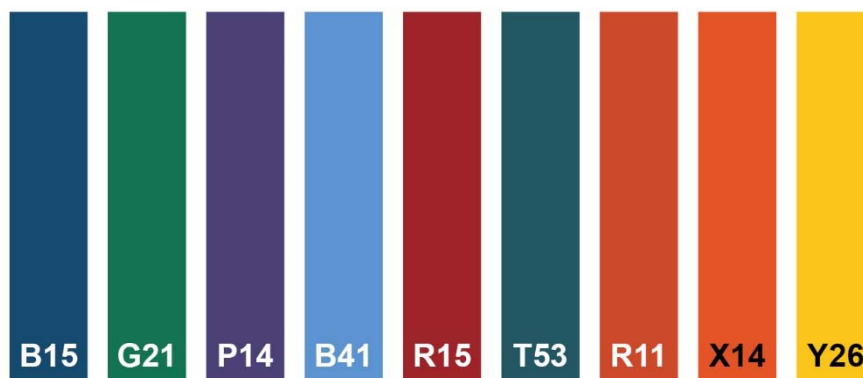
Figure 6

An indicative palette of colours for building structures (refer to *Australian Standard AS 2700 Colour Standards for General Purposes* for colour code details).

Main building structure indicative colour palette



Highlight indicative colour palette



13. A complementary colour palette should be used for port buildings, structures and silos. Recessive colours should be used for the majority of building elevations, while highlight colours should be used to emphasise structural and other articulated elements.
14. The selection of materials should reinforce the industrial maritime character of the buildings, create visual interest and be appropriate for the proposed use. Preferred materials include

timber, brick, steel, concrete, corrugated metal, lightweight cladding and other contemporary materials.

15. External structural systems, sun shading devices and patterned screens are to be a different colour and/or material to the primary elevation material (**Figure 7**).
16. The visibility of conveyors, pipelines, hoppers, rail mounted gantries and silos is to be reinforced through the use of highlight colours and/or pattern designs and innovative structural design. The colour selected is to be submitted as part of the application for development.
17. Materials and colours for buildings and roofs are to minimise reflectivity. All glazing is to have a reflectivity coefficient of less than 20%.
18. All tanks are to be painted white or light grey. Industrial maritime artwork features are encouraged on tank elevations visible from port common user roads and public viewing locations (**Figure 8**).

Figure 7

Sunshading devices and patterned screens should be a contrasting material and colour to the main building elevation.



Figure 8

Industrial maritime artwork features are encouraged on tank elevations visible from port common user roads and public viewing locations.



4 Sustainable Development

4.1 Objectives

- A. To encourage new development to incorporate sustainability measures into design and operational phases of the development.
- B. To improve the energy efficiency of new buildings and minimise energy consumption in Port operations.
- C. To encourage the reduction of potable water usage and reuse of water.
- D. To encourage the utilisation of materials and equipment with low energy inputs.
- E. To minimise waste generation and to facilitate reuse and recycling and the safe handling of hazardous waste.
- F. To minimise the risk of climate change impacts on new and existing port facilities, and to minimise greenhouse gas contributions from new port facilities.

4.2 Criteria

- 1. All development should incorporate as many of the suggested measures contained in NSW Ports' *Green Port Checklist* as practicable. As a minimum, all development proposals are to be accompanied by a completed *Green Port Checklist*.
- 2. All buildings are to achieve a minimum 4 Star Green Star rating from the Green Building Council of Australia (or the equivalent) for the latest applicable version. This applies to buildings where Green Star rating tools are applicable.
- 3. Buildings (including sheds and workshops) are to be designed and constructed to maximise the use of natural ventilation and natural lighting, and to minimise energy consumption associated with heating, cooling and lighting (**Figure 9**).

Figure 9

Skylights aligned within the aisles of the storage system of the warehouse, utilising natural lighting to supplement conventional lighting.



4. Mechanical ventilation must be installed in cargo sheds which contain operational diesel plant and equipment.
5. Development is to collect sufficient rainwater for reuse on site, such as for use in container wash down facilities and the like, toilet flushing and irrigation of landscaping.
6. Low maintenance and robust materials are to be used.
7. All developments are to assess the type and quantity of waste to be generated from the development. Identify and assess options to minimise waste generation and facilitate reuse / recycling.
8. All sites are to provide a dedicated storage area for the separation, collection and recycling of waste with adequate access for waste collection.
9. A climate change risk assessment is to be provided as part of an application for all new developments. The assessment is to consider design aspects relating to sea level rise and extreme weather events including flooding, high wind, high temperatures and storm surges.
10. All development is to incorporate measures to minimise greenhouse gas emissions.

5 Access, Parking and Loading

5.1 Objectives

- A. To encourage the use of sustainable transport modes to move freight to and from the Port.
- B. To ensure that all access, parking and loading facilities and the traffic generated by developments do not impact upon the operation of the Port or the surrounding road network.
- C. To ensure that all leased areas have adequate and appropriately located driveway access, on-site parking and queuing areas, vehicle manoeuvring space and loading areas.
- D. To prevent queuing of vehicles outside leased areas.
- E. To provide appropriate landscaping within car parking areas to improve visual amenity and provide shade for car parking spaces.
- F. To ensure that the design of driveway access, parking and loading areas and waste management facilities are efficient, safe, convenient and do not detract from the visual amenity of the Port.
- G. To provide convenient and safe pedestrian and bicycle access and bicycle parking facilities within leased areas.

5.2 Criteria

- 1. Utilise sustainable transport options to move freight to and from the port (e.g. rail, higher productivity vehicles, pipelines, etc) to minimise truck movements and / or vehicle kilometres travelled on the road network.
- 2. All development proposals are to assess both on and off-site traffic impacts and are to be accompanied by a Traffic Management Plan.
- 3. All vehicles must enter and exit the site in a forward direction.
- 4. All site vehicular access / egress points and paths are to be located and designed to avoid conflicts between pedestrians, light vehicles and truck movements.
- 5. Port facilities are to provide separate access points to an adjoining roadway for light vehicles and trucks.
- 6. Designated pedestrian paths should be clearly delineated as separate walkways from the site's internal vehicular roads and parking areas, by means of a perceivable change in material and / or colour.
- 7. All proposed internal roads, pavement areas, driveways and crossovers, and car parking areas must be appropriately designed and constructed for the expected intensity of use.
- 8. All employee and visitor parking are to be accommodated within the leased area. Car parking areas (i.e., parking bays and loading areas) are to:
 - be designed in accordance with *Australian Standard AS 1428:1-4 Design for Access and Mobility*, *Australian Standard AS 2890.1 Car Parking Facilities* and *Australian Standard AS 2890.2 Commercial Vehicle Facilities*;

- provide a minimum rate of one (1) parking space per staff member and contractor plus 10% (calculation to be based on the maximum number of staff members and / or contractors on site at any one time);
- provide for at least two (2) visitor parking spaces however for those sites with less than 10 staff members and contractors provide at least one (1) visitor parking space;
- provide for at least one (1) mobility impaired parking space, to be located adjacent to building entries and clearly delineated;
- be paved with concrete or bituminous surfacing designed and drained to the approved stormwater drainage system; and
- incorporate landscaping to reduce surface water runoff, provide visual screening and shade for parked vehicles (**Figure 10**).

Figure 10

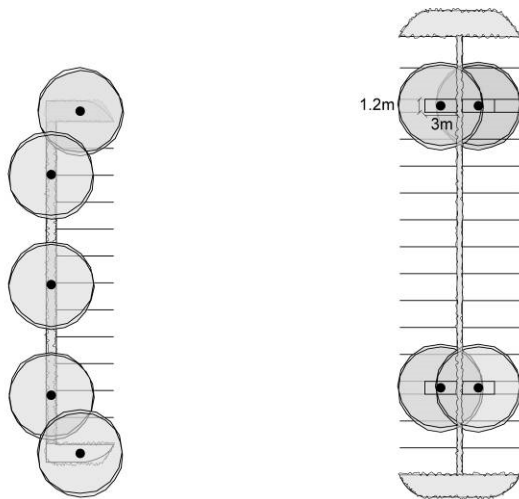
Example of landscaped parking areas



9. For sites with less than 20 car spaces, screen planting to the perimeter of the car park is to be provided. For sites with more than 20 car spaces, additional tree bays (1.2 x 3m minimum) are to be incorporated at a rate of one (1) bay for every 10 spaces, except where bays abut rear or side walls of buildings (**Figure 11**). The suggested planting palette is set out at **Appendix A**.
10. The site layout is to ensure that all vehicles being loaded and / or unloaded (or awaiting loading and / or unloading) are able to stand entirely within the leased area to avoid queuing of vehicles outside of leased areas.
11. As a minimum, truck entry (security gates and check point facility) to a site must be set back 30m from the lease boundary so as to enable at least one (1) B-double truck to queue entirely within the site (**Figure 12**). Light vehicle entry which includes a gate or a security entry point to a site must be set back as a minimum 6m from the lease boundary.
12. Bicycle parking spaces must be provided. Bicycle parking facilities should be located in highly visible, illuminated areas and securely anchored to the site surface to prevent removal and shall be of sufficient strength to resist vandalism and theft.

Figure 11

Required perimeter screen planting (left) and tree bays within car parking areas (right)

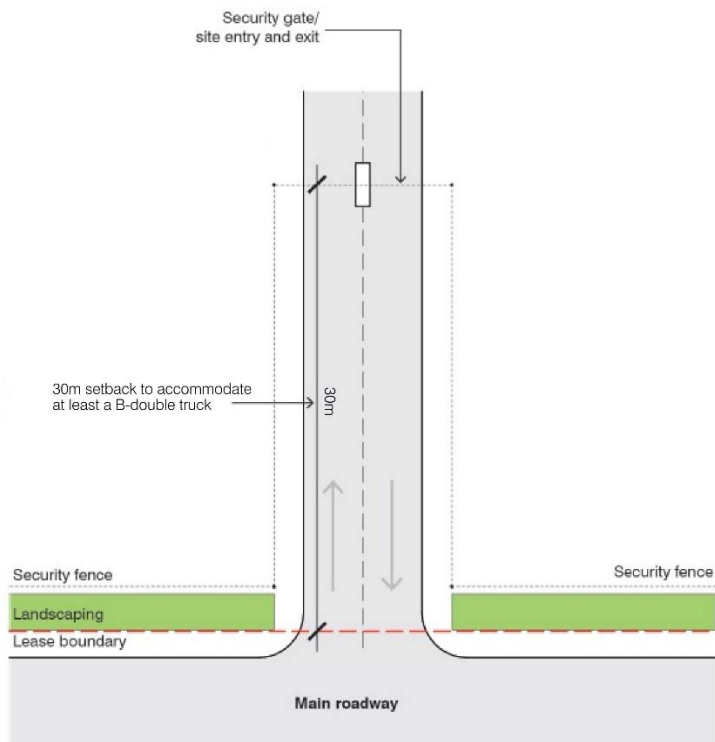


Perimeter screen planting

Tree bays within car park
(for over 20 spaces)

Figure 12

Truck entry (security gates and check point facility) to a site must be set back at least 30m from the lease boundary so as to enable at least one (1) B-double truck to queue entirely within the site



Landscaping

5.3 Objectives

- A. To enhance the visual quality of the Port.
- B. To ensure that all landscaping maintains opportunities for visual surveillance and does not compromise the safety and security of the Port.
- C. To ensure that all landscape planting uses appropriate, good quality, predominately local native plant species to achieve low maintenance, durability and drought tolerance landscaped areas.

5.4 General Criteria

1. A Landscape Plan, including a maintenance program, is to be prepared and submitted as part of an application for development and is to consider landscaping of areas including car parking areas, road frontages and site entry points. **Appendix A** outlines the suggested planning list for the Port. Species with pollen should be avoided, particularly near dry bulk facilities.
2. Establish a 5 metre landscaped buffer strip within the lease area, facing port access roads (excluding internal site access roads). The buffer strip is to have a flush timber edging with the security fencing located behind the landscaping.
3. Develop a layered bedding pattern with a progression from smaller species at the front edge to larger species at the back (near the fence line, excluding trees).
4. Ensure a high level of security and passive surveillance is maintained, including:
 - No tree planting within 2.5 metres of the fence line; and
 - Under prune trees to minimum 2.5 metres above ground level and maintain adequate branch clearance from the security fencing.
5. Landscaped areas are to be planted to achieve a minimum of 75% planting density once fully matured.
6. Suitable local native plant species are to be used within landscaped areas. The minimum plant container sizes are to be as follows:
 - Trees – 25 litres;
 - Accents – 5 litres; and
 - Groundcovers – 100mm.
7. All landscaping, in particular within car parks and along pedestrian paths, is to take into account the need to maintain passive surveillance.
8. Landscaping areas are to be watered regularly for a minimum of 12 months to ensure vegetation establishment, preferably with captured stormwater runoff / rainwater. Ongoing maintenance and management of landscaped areas is required to be undertaken including replacement of plant species if required.

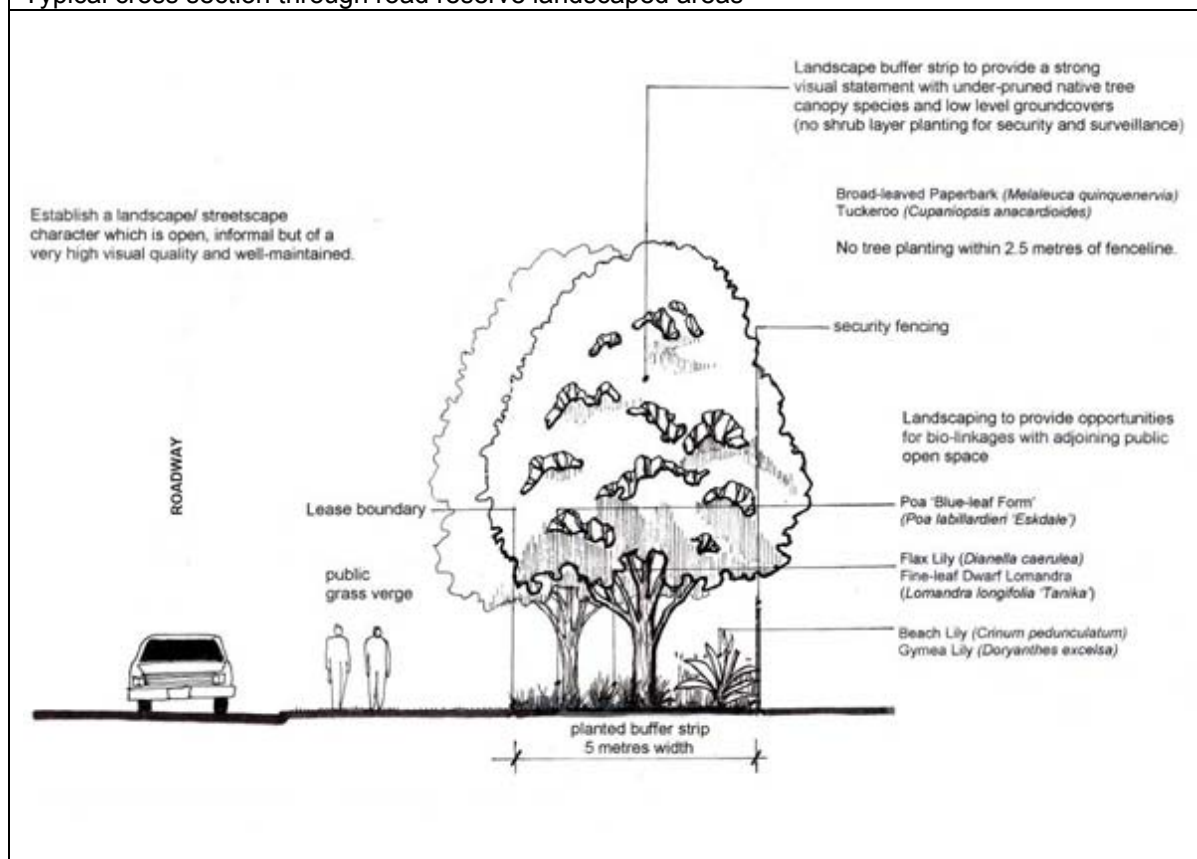
5.4.1 Specific Criteria – Road reserve landscaped areas

The following criteria apply to landscaped areas that face roads external to leased areas and that are not affected by potential fire risk (**Figure 13**).

9. Develop and maintain a consistent pattern of selected native planting including:
 - layered and banded ground stratum planting (up to 0.5 – 0.7m high),
 - accent planting with large perennials (up to 1.4m high),
 - clustered and individual small to medium tree planting up to 8 – 12m in height, and
 - clusters to have a maximum spacing of 15m between groups.
10. Existing landscape areas that do not comply with the above controls are encouraged to be removed and replaced with landscaping that complies with the above controls.

Figure 13

Typical cross section through road reserve landscaped areas



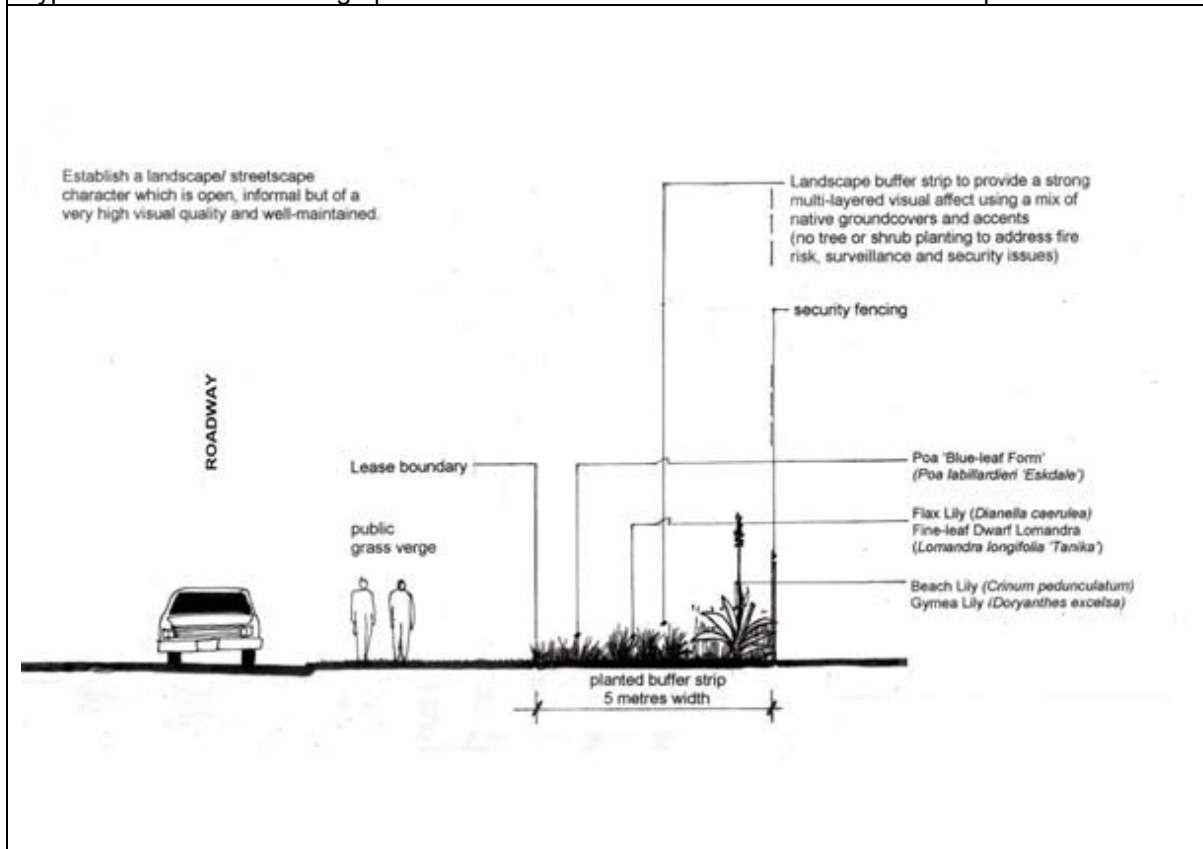
5.4.2 Specific Criteria – Potential fire risk landscaped areas / non-active water front landscaped areas / service corridor areas

The following criteria apply to sites that are considered to be potential fire risk (e.g., bulk liquids berth, bulk liquid storage facilities and along pipeline corridors), non-active water fronts and existing utility / service corridor areas (**Figure 14**).

11. Continue repetition of form, texture and colour to create a strong multi-layered, rhythmic pattern in the landscape as follows:
 - layered and banded ground stratum planting (0.4 – 0.7m high), and
 - introduce highlights within the landscape buffer strip using grouped accent planting with large perennials (up to 1.4m high).
12. Use local native or indigenous plant species suited to site-specific environmental conditions with a low fire risk (i.e. low combustion or fire retardant properties).
13. Existing landscape areas that do not comply with the above controls are encouraged to be removed and replaced with landscaping that complies with the above controls.

Figure 14

Typical cross section through potential fire risk and non-active water front landscaped areas.



6 Security

6.1 Objectives

- A. To ensure that maritime security requirements of the Port are maintained in compliance with the Commonwealth *Maritime Transport and Offshore Facilities Security Act 2003*.
- B. To encourage opportunities for passive surveillance so as to discourage vandalism and criminal activity.
- C. To provide security infrastructure that enhances the visual quality of the Port through the use of consistent materials and finishes.

6.2 Criteria

1. All leased areas are to be appropriately fenced for security purposes.
2. The maximum fence height permitted is 3.5m
3. All fencing including posts, rails and gates are to be either chain wire or palisade and are required to be black in colour (i.e., black PVC, powder coated or the like) (**Figure 15**).
4. All access points to leased areas are to be secured with durable gates, and checkpoint facilities, where appropriate. Gates are to comprise either chain wire fencing set within a framed rim (with optional 3-strand barbed wire on top), or palisade gates (with optional spikes or barbed wire on top) (**Figure 15**).

Figure 15

Security chain wire gates and security palisade gates and spiked caps



7 Signage

7.1 Objectives

- A. To provide clear information and / or directions for port users, operators and visitors.
- B. To ensure all signage is compliant with the relevant authority's requirements.
- C. To provide easily identifiable site entrances and exit points for port users and visitors.
- D. To provide Port related businesses the opportunity of identifying their location and activity.
- E. To manage signage in a manner that does not detract from the visual quality of the Port.
- F. To ensure that all public notice and directional signage is effective and consistent in design and character.

7.2 Criteria

1. All directional signage outside or on the lease area fence (**Figure 16**) excluding the relevant road authority's street signage:
 - is to be located in a prominent position and clearly visible;
 - is not to be located above a roadway;
 - is to be of a size and location so as to not obscure vehicle sightlines;
 - is to be positioned where it does not obstruct walkways and pathways;
 - is to consist of similar colours to that of the NSW Ports colour scheme comprising dark blue, orange, red, white, black and grey, or is to be consistent with colours of typical safety / warning signage (i.e., to comply with applicable Australian Standards);
 - may incorporate the lessee logo where it is located for directional purposes at the entrance to a leased area. The colours of the logo are to be lessee corporate colours, and
 - for car parking areas, loading and delivery areas and the like, is to be located close to the main access of a site.
2. All signage installed in the Port is to be consistent with government authority requirements and Australian Standards.
3. No advertising signs is to be erected within the port estate upon the buildings, structures or tanks other than business identification signage.
4. Business identification signage:
 - is to be located outside the lease area fence and located on NSW Ports' standard Blade Sign;
 - should not obscure vehicle sightlines or control signs;
 - is permitted on one elevation of the primary building, except where a site has two main road frontages or where there are multiple occupants within a building;
 - may comprise text, illustrations, and/or both, to ensure clear identification of the sign and its intent;

- is not to be illuminated or comprise any form of flashing signage;
 - is not to occupy more than 10% of any facade or elevation of a building; and
 - is to identify visitor entrance points to lease areas.
5. Business identification signage on the side of tanks is limited to one sign per leased area or site (in the case of multiple lease areas being operated as a single site). The sign should be subordinate to the elevation of the tank (**Figure 17**).

Figure 16

All directional signage is to be placed on the outside or on the lease area fence excluding the relevant road authority's street signage:

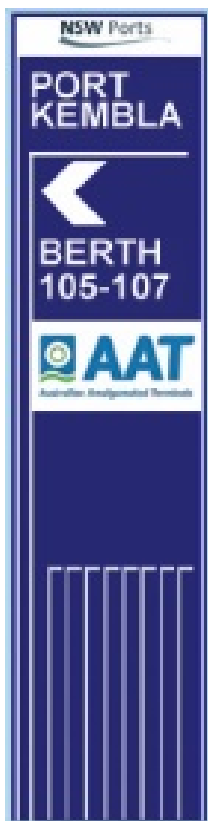


Figure 17

Appropriate examples of business identification signage for buildings



8 Lighting

8.1 Objectives

- A. To ensure that all external lighting provides a safe and attractive environment that meets the operational requirements of the Port.
- B. To ensure port developments do not interfere or impact the safe pilotage of ships or any navigation aids or leads.
- C. To minimise the impact of light spill on the surrounding environment, community and operational activities of the waterways.

8.2 Criteria

- 1. Lighting levels are to be provided in a manner just sufficient to meet operational requirements and to the relevant Australian Standards.
- 2. Appropriate lighting should be provided at key locations such as pedestrian paths, driveways, parking areas and building entries, so as to identify and provide safe access routes for both employees and visitors.
- 3. Lighting is to be positioned so as to not cause distraction to vehicle drivers on internal or external roads, the occupants of adjoining sites or the users of the waterways.
- 4. Developments should be constructed and operated to prevent any impacts or interference on navigation aids or leads.
- 5. Light spill outside the site boundary and sky lighting is to be avoided through the adoption of measures such as:
 - Focussing lights downwards;
 - Installing cut-offs or shields on lights;
 - Minimising the light mast height; and
 - Using low mounting height poles to light non terminal operational areas, including access / egress routes.

9 Heritage and environmental sensitive locations

9.1 Objectives

- A. To minimise any adverse impacts of development on identified items of heritage significance within and immediately adjacent to the Port.
- B. To minimise any adverse impacts of development on environmentally sensitive areas within and immediately adjacent to the Port.

9.2 Criteria

- 1. Any development proposal which has the potential to impact on a heritage item (refer to **Appendix B**) or a heritage item's significance, is to be accompanied by a heritage impact statement.
- 2. Development in the vicinity of a heritage item is to be designed to respect and complement the heritage item.
- 3. All developments are to consider potential impacts on flora and fauna including known habitat areas (refer to **Appendix B**) and identify management measures to minimise impacts and disturbance.

10 Safety, Risk and Hazard Management

10.1 Objectives

- A. To provide a safe working environment for all users and visitors associated with the operation of facilities at Port Kembla.
- B. To ensure the design and layout of structures and equipment within common user areas considers safety.
- C. To ensure that port infrastructure such as bulk hazardous storage facilities and pipelines are designed and located so as to minimise risk to surrounding land uses and the environment both within the Port Kembla precinct and adjacent land uses to the Port.

10.2 Criteria (all port facilities)

1. All new development is required to undergo a risk assessment of the construction and operational phases of the development including consideration of impacts on current and / or known future adjoining activities and occupiers.

Specifically for hazard facilities, the risk assessment is to demonstrate:

- that all foreseeable hazards that may arise from a development, that have a potential to harm the health and safety of any person, the environment, or impact the safety of buildings, equipment, plant and facilities have been clearly identified;
- that potential for propagation of hazardous incidents to the neighbouring facilities is identified and is, in accordance with the "So Far As Is Reasonably Practicable" (SFARP) principle;
- that the risks associated with the identified hazards at the development have been appropriately analysed and assessed;
- that the assessed risks comply with the relevant risk criteria published by the regulatory authorities;
- that all identified risks will be controlled and minimised by protection and mitigation;
- the Risk Assessment for the proposed development is to include the quantitative analysis of incident impacts relating to consequence severity and risk and include risk contours. The impacts are not to exceed acceptable published risk criteria; and
- the industrial premises risk contour for the development (including existing site development) must remain within the lease boundary.

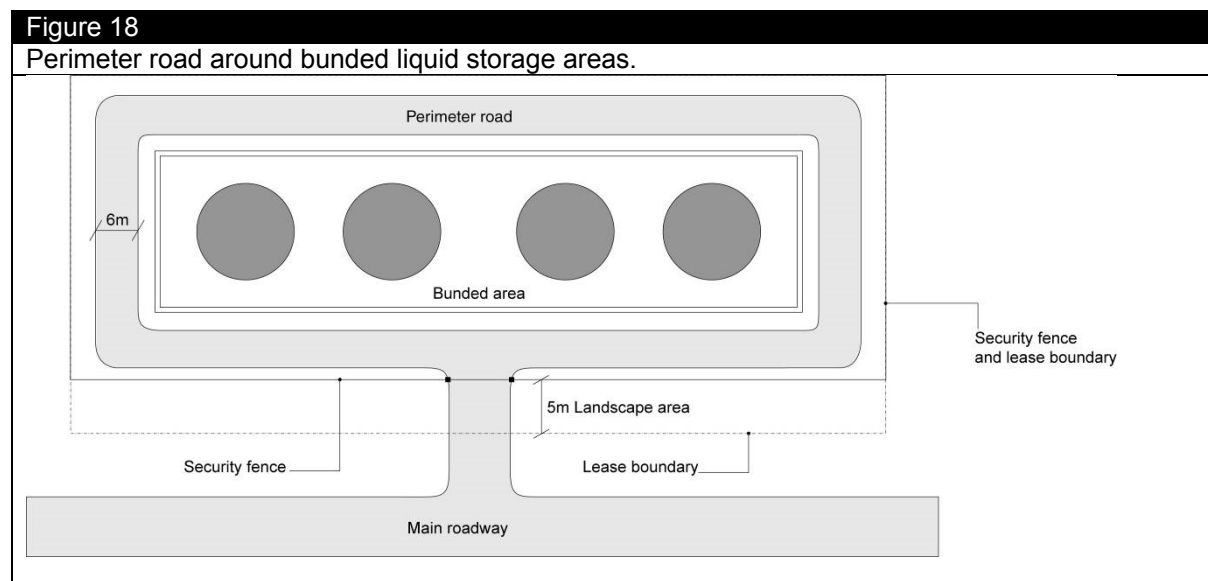
The risk assessment is to be submitted as part of the application for development.

2. A site Safety and Emergency Management Plan is to be prepared which takes into consideration any existing Port precinct plan(s) and adjoining land uses.
3. For any structure (permanent or temporary) located within common user areas a safety in design assessment is required to be undertaken which considers matters such as, but not limited to, the location of structures along the wharf, clearance heights of loading and unloading equipment, traffic management, signage, worker and pedestrian safety.
4. Areas where petroleum, petroleum products, petro-chemicals and other liquid chemicals are handled or stored are required to be bunded in accordance with the relevant standards.
5. The area within all bunded enclosures is to be impervious so as to prevent the percolation of any spilled materials through the paving into the underlying soil. The surface of the paving in bunded

areas shall be graded so as to permit the flow of surface water to the drainage system via a treatment system. This surface shall be maintained to prevent ponding. The development is to include bund management systems and procedures which prevent overflows and leaks from the bund.

10.3 Specific Criteria – Bulk liquid storage facilities

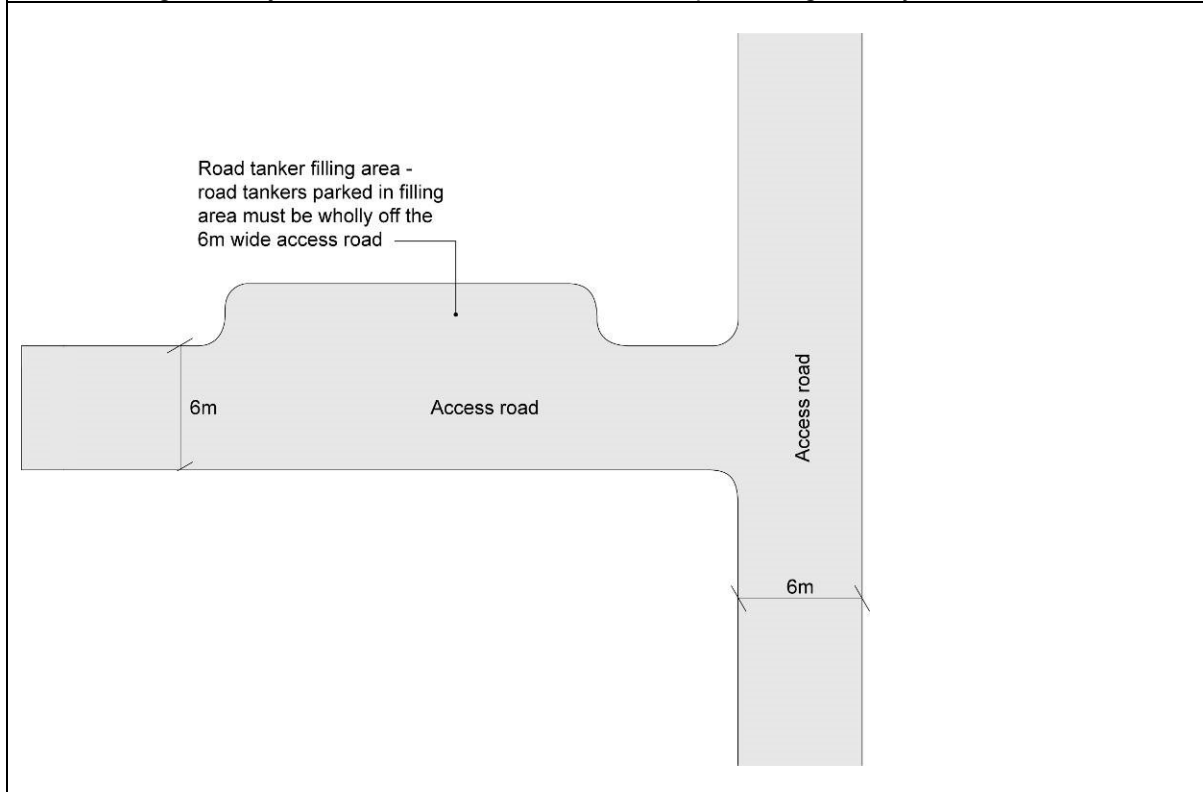
6. Separation distances within and between bulk liquid storage hazardous facilities (i.e. separation distances between facilities on the subject site or adjoining sites) is to be provided in accordance with the relevant Australian Standard(s) or the criteria listed in this section of the Code, whichever is the greater.
7. A perimeter roadway is to be provided around all bulk liquid storage areas within the lease area. A bulk liquid storage area consists of bulk liquid tanks contained within a bunded area. **Figure 18** shows the minimum acceptable roadway layout around a bulk liquids storage area. The perimeter roadway is to be provided with the following:
 - 6m clear road width;
 - Corners designed to accommodate the turning of emergency vehicles / trucks;
 - Connected to the main roadway at the front of the site, either directly or by an internal site road no less than 6m wide; and
 - Unobstructed access along the full length of the road.



8. Where a bulk liquid storage facility operates a road tanker filling area within the lease area, the road tanker filling area shall be located wholly off any access road that passes the filling area to allow for safe vehicle access within the site. **Figure 19** provides an example of a bulk liquids tanker filling area located adjacent to an access road. The filling area shall be located so that no part of a truck in the filling bay extends into the access road.

Figure 19

Tanker filling area adjacent to an access road at a bulk liquid storage facility.



10.3.1 Specific Criteria – Pipelines

9. All pipelines proposed within the Port Kembla Port precinct are to be located in the following manner:
- Exposed above ground level or in an open culvert lined with impermeable material so as to prevent the percolation of any spilled materials through the paving into the underlying ground. The paving and any jointing materials to be used shall be resistant both to heat and the corrosive effects of the range of the products to be transported in the pipeline;
 - Fenced / barricaded for above ground pipelines;
 - Underground pipelines are to be avoided unless absolutely necessary;
 - Where underground pipelines are used they are to be installed with a leak detection system (e.g. differential flow device, inventory measurement, etc);
 - Underground pipelines are to be suitably protected against corrosion, considering (but not limited to) the following:
 - expected lifetime of the pipeline;
 - soil conditions;
 - potential acid sulfate soils; and
 - water table level.

Details of the leak detection system and corrosion protection are to be provided in the risk assessment documentation.

10. All above ground bolted flanged joints, associated with the pipeline outside the main storage bund area, are to be provided with the following:

- A bunded pit to retain any product leaks;
- Protection to prevent leaks from flanges and joints spraying beyond the confines of the pit;
and
- Leak detection within the pit and an alarm system to notify of potential flange/joint leaks.

It is noted that the pit may require a cover to prevent the ingress of rain water causing false leak detection alarms.

11 Water Quality and Stormwater

11.1 Objectives

- A. To protect the water quality of Port Kembla's waterways by managing the quality of stormwater runoff into these waters.
- B. To provide specific protection for chemical, bulk liquid and dry bulk product storage areas so as to minimise the risk of product spills entering Port Kembla's waterways.
- C. To prevent stormwater ponding near berth facilities to prevent biosecurity issues.

11.2 Criteria

1. Design and construct the site to ensure stormwater runoff is managed appropriately and in accordance with the aims and principles of water sensitive urban design.
2. The one in 20 year storm event (i.e. 5% Annual Exceedance Probability (AEP) for duration which corresponds to the time of concentration of the catchment) is to be accommodated within a piped stormwater system. Where the site does not drain directly to an adjacent waterway, the one in 100 year storm event is to be retained on site.
3. The design and layout of leased / licensed areas, including the siting of buildings and the positioning of bunded areas and other infrastructure, is to take into consideration the need to provide unobstructed stormwater overland flow paths during a Probable Maximum Flood (PMF) event.
4. A water quality assessment is to be undertaken to assess the nature and degree of water quality impacts from the development on receiving environments. The assessment is to include:
 - characterisation of potential pollutants;
 - evaluation of options to avoid discharge of polluted waters (e.g. capture, treat and re-use); and
 - details of any proposed discharge points and the likely volume, quality and frequency of discharge.
5. Stormwater from impervious and unsealed operational areas, including bunded areas, is to be captured and treated to prevent pollutants from entering Port Kembla's waterways. Pollutants to be removed must include but are not limited to sediments, litter, rubbish, oils, greases and other chemicals used/stored onsite.
6. Stormwater leaving the site is not to create erosion at the point of discharge.
7. Measures to contain spills and prevent them from discharging through the stormwater system are to be identified and spill response procedures documented. Staff are to be trained in the spill response procedures. Incident Plans are required to be prepared for all facilities.
8. The development is to be designed to ensure that water does not pond on site to prevent biosecurity issues.

12 Air Quality

12.1 Objectives

- A. To minimise emissions of air pollutants and odours from port operations and development.
- B. To provide suitable indoor air quality for the health and safety of workers.

12.2 Criteria

1. Site areas which are trafficked by light vehicles and trucks are, as a minimum, to be sealed to minimise dust generation. Dust suppression capability is to be provided for any unsealed operational areas on-site.
2. Vehicles, plant and equipment are to be maintained and operated in good working condition and are to be turned off when not in use to minimise emissions to air.
3. Information regarding the products to be stored and/or handled on the premises is to be provided as well as the proposed storage area for such products. Products handled on site which have an offensive odour or have the potential to generate dust are to be handled in a closed circuit or sealed system.
4. All developments are to assess the operational air quality impacts within the Port precinct and on sensitive receivers.
5. All development is to incorporate measures to minimise emissions that adversely impact on local air quality.
6. Bulk material handling equipment / bulk material storage is to incorporate:
 - Covered storage of all hazardous cargoes and, where practicable, cargoes that are likely to generate dust;
 - Dust suppression spray systems for any open stockpiles of potentially dusty materials;
 - Covered or enclosed conveyors with dust removal or suppression systems at transfer points; and
 - Ship loaders fitted with delivery chutes as appropriate to minimise dust.
7. Building materials that may potentially contribute to poor internal air quality are to be avoided.
8. Air filters are to be installed in all ventilation systems to remove particulate matter and other pollutants.
9. Where fumigation of cargo is required, the air quality impacts and health risks of fumigant emissions must be assessed. Systems and procedures should be implemented to minimise fumigant emissions (e.g. capture and recovery) and protect human health and the environment.

13 Noise and Vibration

13.1 Objectives

- A. To minimise the noise and vibration impacts of development and operations in the Port, including road and rail uses, on the surrounding environment, in particular residential areas and other sensitive land uses.
- B. To ensure acceptable levels of noise and vibration for workers and visitors at the Port of Port Kembla.

13.2 Criteria

1. For all new developments, proponents are to identify:
 - relevant noise and vibration criteria based on the relevant authority's guidelines;
 - all sources of noise and vibration;
 - noise and vibration emission levels; and
 - proposed mitigation measures.
2. All buildings, equipment and operational processes are to be selected or designed to minimise the emission of noise and vibration.
3. Noise reduction measures for mobile equipment, trucks, other vehicles and machinery are to be implemented, such as through insulation and 'engine off' policies. Audible movement alarms must not be used unless a safety risk assessment has been undertaken to confirm it is impracticable to avoid using audible movement alarms without compromising safety. Tonal audible movement alarms are not permitted in areas where they are likely to be audible at a sensitive receiver location.
4. Noisy plant and equipment should be located as far as possible from noise sensitive areas.
5. The location of activities, plant and equipment should optimise attenuation effects through measures such as topography, natural and purpose built barriers.

14 Contamination and Potential Acid Sulfate Soils (PASS)

14.1 Objectives

- A. To ensure that an adequate soil/groundwater contamination assessment, and an appropriate level of remediation, if required, is undertaken.
- B. To prevent soil and groundwater contamination.
- C. To minimise the risks to human health and the environment from the development of contaminated land or disturbance of contaminated groundwater or Potential Acid Sulfate Soils (PASS).

14.2 Criteria

1. For all development an assessment of potential for and likelihood of, soil and groundwater contamination is to be undertaken as part of the application for development. Where a contamination risk is identified, appropriate mitigation / remediation measures are to be identified and implemented. This is to be generally in accordance with the Environment Protection Authority guidelines made or approved under the *Contaminated Land Management Act 1997*.
2. For potentially contaminating dry bulk cargoes (e.g. mineral concentrates), the development is to demonstrate:
 - Land transport to/from the port will be in sealed containers;
 - All cargo is to be covered and stored to prevent dispersion of the cargo from the site;
 - Conveyor systems will be enclosed with suitably designed transfer points to prevent dust and spillage; and
 - Measures to contain spills and prevent them from contaminating soil and groundwater are to be identified and spill response procedures documented.
3. For all development an assessment of PASS present on site is to be undertaken as part of the application for development. Where PASS could be encountered, mitigation measures are to be undertaken.

Appendix A – Preferred Landscape Planting Species

Road Reserve Landscaped Areas:

- Trees: Tuckeroo (*Cupaniopsis anacardioides*), Coast Banksia (*Banksia integrifolia*), Lilly Pilly (*Syzygium smithii*)
- Accents: Red Spider Grevillea (*Grevillea oleoides*), Australian indigo (*Indigofera australis*) and Beach Lily (*Crinum pedunculatum*)
- Groundcovers: Flax Lily (*Dianella caerulea*), Spiny-headed Mat-rush (*Lomandra longifolia*), Tussock Grass (*Poa labillardieri* var. *labillardieri*), Dune Fan Flower (*Scaevola calendulacea*), Pigface (*Carpobrotus glaucescens*)

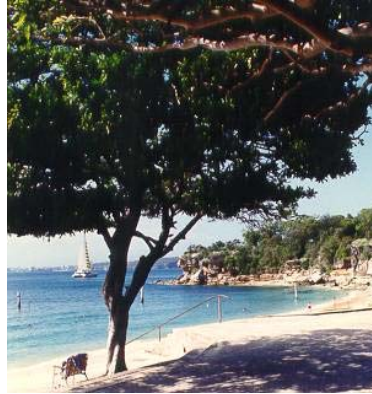
Potential Fire Risk Landscaped Areas:

- Accents: Beach Lily (*Crinum pedunculatum*)
- Groundcovers: Spiny headed Mat Rush (*Lomandra longifolia*), Tussock grass (*Poa labillardieri* var. *labillardieri*), Flax Lily (*Dianella caerulea*), Dune Fan Flower (*Scaevola calendulacea*), Pigface (*Carpobrotus glaucescens*)

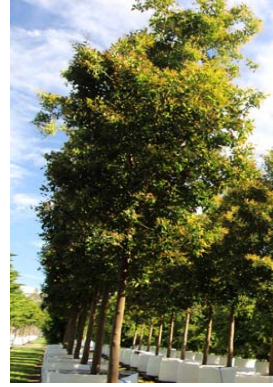
Illustrative Planting Palette



Coast Banksia (*Banksia integrifolia*)



Tuckeroo (*Cupaniopsis anacardioides*)



Lilly Pilly (*Syzygium smithii*)



Red Spider Grevillea (*Grevillea oleoides*)



Beach Lily (*Crinum pedunculatum*)



Australian Indigo (*Indigofera australis*)



Pigface (*Carpobrotus glaucescens*)



Flax Lily (*Dianella caerulea*)



Tussock grass (*Poa labillardieri*) (foreground) and *Lomandra longifolia* (background)

Appendix B – Heritage items & environmentally sensitive areas



Key

- Port Kembla Port Area
- Ecosystems/Habitats
- ★ Heritage Items

Location of Port Kembla heritage items and other environmental sensitive locations

Number	Item/Area	Details
1	Historical Military Museum, Heritage Park (Local Significance)	Listed under Wollongong City LEP 2009. Heritage Reference Number: 2700585
2	Break Water Battery, Heritage Park (Local Significance)	Listed under Wollongong City LEP 2009. Heritage Reference Number: 2700586
3	Concrete Tank Barriers, Heritage Park (Local Significance)	Listed under Wollongong City LEP 2009. Heritage Reference Number: 2700587
4	Mobile Block Setting Steam Crane, Heritage Park (Local Significance)	Listed under Clause 31 of State Environmental Planning Policy (Three Ports) 2013
5	Battery Point	Aboriginal shell middens, Green and Golden Bell Frog (GGBF) habitat
6	Morgan Cement Frog Ponds	GGBF habitat
7	Darcy Rd Drain Corridor	Potential GGBF habitat
8	Darcy Rd Frog Ponds	Potential GGBF habitat
9	Old Port Rd Frog Ponds	Potential GGBF habitat
10	Salty Creek Corridor	Coastal saltmarsh, Potential GGBF habitat
11	CRM Drain	Potential GGBF habitat
12	South Yard Drain	Potential GGBF habitat
13	Steelhaven Frog Ponds	GGBF habitat
14	Gurungaty Waterway	Mangroves, riparian vegetation, potential GGBF movement corridor
15	Tom Thumb Lagoon	Coastal saltmarsh, mangroves, swamp oak forest. Ecological restoration site.
16	Greenhouse Park	Ecological restoration site, coastal vegetation communities, potential GGBF habitat

Disclaimer: Whilst every effort has been made to ensure that information contained in this report is accurate, NSW Ports gives no guarantee regarding this information and accepts no responsibility for any inconvenience, or any direct or consequential loss, arising from information disclosed herewith. Readers should undertake their own enquiries in relation to any of the facts referred to before acting on them.

NSW Ports' Port Kembla Development Code – June 2016

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