Attachment D – Predicted Noise Impacts at Non-Residential Receivers

Predicted Noise Impacts at Non-Residential ReceiversAttachment D

Receiver	External Operational Noise Limit Db(A)	Predicted L_{Aeq} Noise Levels, Db(A)	Predicted Exceedance Db(A)
	When In use	When In Use	When In Use
St Patrick's Primary School	45	39	-
Church – Fitzwilliam Street and Kembla Street	50	40	-
Church – Church Street and Military Road	50	39	-

Attachment E – Correspondence

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20 September 2010

Mr Glenn Snow
Major Infrastructure Assessment
Department of Planning
23-33 Bridge St
Sydney NSW 2000

Dear Glenn

Port Kembla Outer Harbour Development
Revised Air Quality and Noise/Vibration Impact Assessments

1.0 Introduction

AECOM acts on behalf of Port Kembla Port Corporation (PKPC) in relation to the Environmental Assessment (EA) for the Port Kembla Outer Harbour development.

The purpose of this letter is to summarise our response to the various issues raised by Department of Environment Climate Change and Water (DECCW) and Department of Planning (DoP) following review of the EA and the Submissions Report for the project over the past few months. In particular our response relates to the following correspondence received from both agencies:

- Memorandum from Peter Bloem of DECCW to Daniel Keary of DoP dated 16 July, 2010 responding to the Submissions Report;
- Email from Rebecca Newman of DoP to Trevor Brown of PKPC dated 10 August, 2010 providing comments on the air quality and noise assessments from the EA and the Submissions Report.

As part of our response we also enclose revised copies of:

- The revised Air Quality Impact Assessment (AQIA) prepared by AECOM and dated 10 September 2010; and
- The revised Noise and Vibration Impact Assessment (NIA) prepared by AECOM and dated 20 September 2010.

These reports have been revised to address the issues raised in the agencies comments.

2.0 Response to DECCW Comments

Listed below is our response to the various issues raised by DECCW in its memo dated 16 July 2010. The sub-headings below correspond to the headings used by DECCW in that memo.

2.1 Air Quality

2.1.1 Remodelling

A revised AQIA dated September 2010 has been prepared to address the various issues raised by the agencies (DECCW and DoP) in their review of the EA and Submissions Report. In addressing these issues, a number of the underlying assumptions and methodologies were revisited, in particular those relating to ship and train movements. This refined the input information in the model to better reflect operational characteristics and also to correct some inconsistencies noted in the original emissions inventory.

The modifications made to the emissions inventory are summarised below:

- The throughput volume of stockpile areas was reduced to exclude materials that are not stockpiled or that are stored in enclosed areas such as bulk liquids and cement clinker (both fully enclosed);
- Allowing for the density of fill material to convert figures for fill volume to fill tonnage;
- Averaging total construction fill over the 8 year construction period to result in an average annual figure;
- Revising the number of trains per day to accurately reflect train movements for the Major Project construction and operation phases;

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- Modelling of train emissions as stack rather than volume sources while trains are stationary or moving slowly through the South Yard;
- Refining train throttle levels and times based on updated information available from the consultant recently appointed by PKPC to undertake the Rail Masterplan;
- Applying ship emission rates to each individual berth in the Concept Plan;
- Adjusting expected truck numbers per year during the construction phase to accurately reflect the traffic report;
- Applying the correct SO_2 emission factor for ship auxiliary power engines.

These changes have been discussed in more detail in Sections 1.2, 6.2 and 6.3 of the revised AQIA. Appendix B of the revised AQIA provides a detailed Comparison of Original and Revised Emissions Inventories and Mass Emission Rates.

2.1.2 Sulphur Oxide Emissions

Sulphur Dioxide (SO_2) impacts have been revised based on accurate SO_2 emissions from the ship auxiliary engines. Originally the benzene emission factor was mistakenly applied to SO_2 for the ship auxiliary power engines and this has now been corrected. A comparison of the Original and Revised Emissions Inventories and Mass Emission Rates is detailed in Appendix B of the revised AQIA.

No SO_2 exceedances (10 minute, 1 hour, 24 hour or annual) are predicted for the 3 scenarios modelled:- Major Project Construction, Major Project Operation or Concept Plan Operation as detailed in Sections 7.2, 7.3 and 7.4 of the revised AQIA.

2.1.3 Prediction of Peak Emissions from Ship Auxiliary Engines

The emissions inventory has averaged the emissions from ships based on the expected hours per day ships will be at berth (on average 14 hours per day) and assuming all 7 ship berths will be occupied. Ships are not expected to be at berth 24 hours per day and nor will they be at berth every day of the year. It is also highly unlikely that all 7 ship berths would be occupied simultaneously. Therefore the assumptions used are considered to be conservative.

It is considered that applying the maximum hourly emission rate to all 24 hours of the day, rather than averaging over a 24 hour period, will overestimate the likely air quality impacts from the ships at berth.

Nonetheless, as a theoretical exercise if the maximum 1 hour SO_2 Ground Level Concentrations (GLCs) for the Concept Plan operations of 216 ug/m3 (refer Table 34 in the revised AQIA) was multiplied by a factor of 1.7 as suggested by DECCW, the isolated SO_2 GLCs would be 367 ug/m3 and the cumulative GLCs would be 519 ug/m3. Both of these results comply with the relevant SO_2 criteria of 570 ug/m3.

2.1.4 Metals in Slag

AECOM has undertaken a screening assessment of heavy metals concentrations in slag dust during construction using the maximum average concentrations for characterisation as described in the DECCW resource recovery exemption for blast furnace slag.

The results of this screening assessment are provided in Appendix D and discussed in Section 8.2 of the revised AQIA. Note that no data or DECCW screening criteria are available for Boron.

The screening assessment for Major Project Construction suggests that all of the metals potentially present in the blast furnace slag meet the one hour maximum and annual concentration under the relevant DECCW assessment criteria.

2.2 Noise

2.2.1 Predicated Operational Noise Impacts

The following worst case meteorological conditions have been adopted for the modelling:

- Source to receiver (north east) wind speed of 3 m/s during the daytime (note that these conditions occur on average for approximately 17% of the time);
- F-class thermal inversion during the night time (note that these conditions occur on average for approximately 34% of the time).

Adoption of the source to receiver (north east) wind speed of 3 m/s for the day time period actually results in a slightly higher predicted noise level at the sensitive receivers by comparison to the night time f-class thermal inversion. This is unusual as the night time thermal inversion would normally represent a worst case noise modelling scenario.

Revised Noise Contour Plots have been provided in Appendix A of the revised NIA for the following scenarios:

- Major Project Operations – Day time and Night time (No mitigation and with mitigation from South Yard Barrier);
- Concept Plan Operations – Day time and Night time (No mitigation, with mitigation from South Yard Barrier and also with mitigation from South Yard Shed).

The purpose of including mitigation at this stage is illustrative and demonstrates that appropriate mitigation can reduce the predicted noise impact at noise sensitive receivers. The noise mitigation proposed is not intended as the final mitigation design however, this will be addressed as part of the Noise and Vibration Management Plan (NVMP) for the project.

The scales used for the noise contours for day time and night time periods are different to reflect the relevant operational noise criteria that is applicable at each of these times. However, the noise contours are comparable on the one hand for the Major Project and Concept Plan for each of the day time and night time periods.

2.2.2 Modifying Factor Corrections

Modifying factor corrections, through the addition of a 5 dB(A) tonality penalty, have been applied for the impact of container clang in the sleep disturbance assessment in the revised NIA.

The addition of a 5 dB(A) tonality penalty for conveyor drives is considered to be overly conservative and unnecessary at this stage. In the revised NIA mitigation options including the possible use of shrouds for conveyor equipment and the sourcing of acoustically considerate equipment have been recommended.

It is recommended that when plant is chosen that the acoustic performance of the conveyor system is considered and suitable mitigation measures included (if necessary). This can be addressed as part of the NVMP for the project

2.2.3 Sleep Disturbance

The use of train horns during night time operations has been assessed in further detail as part of the revised NIA. This includes recommended alternatives to the use of train horns which involves use of a shorter train horn toot as opposed to a longer train horn blast.

The revised assessment includes a discussion of when train horns are used in the South Yard and the Port Kembla balloon loop, the frequency of train horn use at night time (existing and proposed), the length of train horn use. PKPC has indicated that it will commit to the investigation and development of all feasible and reasonable mitigation measures to reduce the predicted sleep disturbance impacts including possible alternatives such as the use of shorter train horn toots, closing the Foreshore Road crossing and grade separation at Old Port Road.

In the revised assessment sleep disturbance is discussed in respect of night time train operations for both the Major Project and Concept Plan. However, it is noted that further investigation of sleep disturbance from train operations will be carried out as part of the project approvals for Stages 2 and 3 of the Concept Plan.

Discussion of the issue of sleep disturbance from night time train operations, including proposed mitigation measures, has been included in Sections 4.5, 5.4.1 and 5.4.2 of the revised NIA.

2.2.4 Rail Construction – Stabling Yard

Works associated with the construction of new rail sidings in the South Yard are predicted to exceed daytime construction criteria by up to 13 dB(A) under adverse weather conditions. This exceedance is primarily associated with noise generated by equipment such as demolition saws and mobile plant such as dump trucks and bulldozers.

It should be noted that work in the South Yard will occur over a relatively limited time period (approximately 6 months) and use of the noisiest equipment, such as demolition saws, will only occur for a small percentage of this time.

Nonetheless mitigation measures have been put forward which include use of a temporary noise barrier around the work area when such equipment is in use and this is expected to reduce the predicted noise impact by up to 5

dB(A). A range of other mitigation strategies have also been discussed (eg. community notification, careful management of operating plant or other noise minimising work practices) for possible inclusion as part of the Construction Noise and Vibration Management Plan (CNVMP).

Discussion of the issue of noise from construction works in the South Yard and proposed mitigation measures has been included in Sections 4.3.1, 4.3.2 and 5.3 of the revised NIA.

2.2.5 Rail Movements – Number of Train Movements

The assessment has been revised so that it accurately reflects train operations associated with the Major Project and Concept Plan with details as follows:

- Major Project Construction – 1 train per day (1 fill train);
- Major Project Operation – 4 trains per day (4 multi- purpose trains);
- Concept Plan Operation – 21 trains per day (16 container trains and 5 multi-purpose trains).

Discussion of the use of best practice rolling stock has been included in Section 5.4.1 of the revised NIA under the sub-heading of Rail Noise.

2.2.6 Container Storage

The only container storage area associated with the project is within the container terminal area. Noise emissions associated with operation of the container terminals have been included in the Concept Plan operations scenario.

Reference to the "inland storage facilities" for containers in the Submissions Report does not relate to any such facility being developed as part of the Port Kembla Outer Harbour development.

The "inland storage facilities" referred to are intermodal facilities which are in locations remote from Port Kembla. Such facilities exist or are proposed at locations such as Moss Vale, Maldon, Enfield or Moorebank where there is available land and good rail/road connectivity. Separate approvals have or will be obtained by proponents for these facilities at the appropriate time. Such facilities have no noise implications for the Port Kembla Outer Harbour development.

2.2.7 Construction Noise

The construction scenario modelled as part of the revised NIA was agreed in discussion with PKPC and AECOM's port and maritime engineers and is considered to represent the likely worst case construction methodology. There have been some changes to the plant modelled over time primarily because PKPC's understanding of the likely construction methodology has increased as the planning for the project has progressed.

PKPC is prepared to accept a suitably worded condition of approval that requires the development and implementation of a Construction Noise and Vibration Management Plan (CNVMP) to ensure that construction noise impacts are appropriately managed and comply with relevant noise limits.

2.2.8 Construction Period Overlap – Stages 1 & 2

The cumulative impact of construction activities during the overlap period for Stage 1 and 2 of the Concept Plan has now been assessed. This assessment includes construction activities associated with Stage 1 dredging and reclamation, Stage 1 and 2 berth construction and Stage 1 rail works in the South Yard.

The assessment is conservative and assumes that all plant is operating simultaneously and there is an adverse source to receiver (north east) wind speed of 3 m/s.

The cumulative construction noise impacts are discussed in Sections 4.3.3 and 5.3 of the revised NIA.

2.2.9 Road Traffic Noise

The revised NIA has examined all reasonable and feasible traffic noise mitigation measures as detailed in the ECRTN including:

- Use of private roads - which is not feasible as trucks will be transporting cargo to and from sites which are well beyond the port boundaries and therefore public roads must be used;
- Regulating the time of use – any attempt to restrict vehicle movements to certain times of day would effectively restrict the efficiency and capacity of the port. Efficient port operations require 24/7 movement of cargo to ensure the optimal use of equipment, vehicles and space;

- Noise barriers – the use of noise barriers along Five Islands Road at Cringila would restrict access to, and visibility of, the industrial/commercial properties which front that road which is unacceptable. The use of noise barriers adjacent to Masters Road is not considered to be justified given that the worst case predicted increase in traffic noise levels at this location is in the order of 0.3 dB(A) (refer to Table 31 in Section 4.6 of the revised NIA);

Also, the predicted traffic noise levels do not take into account the likely progress in the development of "quiet" vehicles over the next 25 years. It is arguably sensible to assume that the typical truck vehicles that are likely to service the Outer Harbour development over the extended life of the Concept Plan will be quieter than the vehicles assumed in the traffic noise model.

The issue of traffic noise is discussed in some detail in Sections 4.6 and 5.6 of the revised NIA.

2.3 Threatened Species – Green and Golden Bell Frog (GGBF)

2.3.1 GGBF Master Plan

We note DECCW's intention to draft an appropriate commitment regarding the preparation of a GGBF Master Plan. PKPC remains committed to the preparation of the plan subject to the conditions proposed in the Submissions Report (refer to Table 2, Reference No. 7-AD).

2.3.2 Proposed Access Road

PKPC staff have discussed with DECCW officers the 4 options for continued public access to the Boat Ramp and Harbour referred to in the Submissions Report (Table 2, Reference number 7-AE). The options are summarised as follows:

Option A: Do nothing and retain existing access via Foreshore Road. This will significantly increase safety risks at the Foreshore Road level crossing due to increased number of train movements over the crossing. Note that it is not feasible to create grade separation at this point due to the proximity of the crossing to the Old Port Road intersection.

Option B: Build a new road from Darcy Road to the Boat Ramp car park via the disused rail corridor between Morgan Cement and Orrcon (as per the Concept Plan Figure 5-3 in the EA). This would require removal of trees, shrubs and noxious weeds (i.e. lantana) along the corridor. GGBF are known to inhabit this corridor. There is sufficient width to have a GGBF movement route along the corridor by retaining the existing open channel or providing an appropriately vegetated drainage swale adjacent to the road. This route is unlikely to result in significant disturbance of heritage items such as the Mobile Steam Block Setting Crane or the Pillbox.

Option C: Extend Gloucester Boulevard through the Heritage Park to the Boat Ramp car park. PKPC has undertaken preliminary site survey to identify potential alignments for this road. While this option retains much of the vegetation in the rail corridor as described above, it would still require disturbance of GGBF habitat features including:

- Earthworks adjacent to the northern section of the drainage channel where exposure to sunlight and cumbungi growth offer the best GGBF habitat;
- Loss of, or disturbance adjacent to, the Heritage Park pond which has proven to be successful GGBF breeding habitat in the 2 years since its installation; and
- Removal of existing rock mounds which offer sheltered over-wintering habitat for GGBF.

Other potential issues of concern with Option C include:

- the need to move or reconfigure the Mobile Block Steam Setting Crane to accommodate some potential alignments;
- widening of the existing bitumen driveway access and potential impacts on Aboriginal heritage values associated with shell middens at the northern end of MM Beach; and
- the gradient of the road as it drops from the upper portion of the Heritage Park to the Boat Ramp car park below.

Option D: Build a new road within the Boom Sidings corridor adjacent to the rail line that will service the proposed container terminal. In order to eliminate the need for a level crossing it would be necessary to relocate the rail tracks to the north-western side of the corridor to make space for the road along the south-eastern side. The

Boom Siding corridor is constrained by its relatively narrow width at the southern end. It may be necessary to provide additional rail tracks in this corridor to service the container facility. This option cannot be considered until the Rail Master Plan is completed and the rail requirements for the container terminal are known.

Option B is the preferred option at this stage, but PKPC will consider all options prior to seeking approval for Stage 2 of the development. While noting that DECCW does not support this option at this time, PKPC is committed to undertaking a comprehensive assessment of threatened species impacts prior to undertaking any works in areas of known GGBF habitat and proposing appropriate measures to mitigate and offset any significant impacts.

The GGBF Master Plan will provide opportunities to strategically plan for a range of measures to conserve and enhance GGBF habitat in areas adjacent to the Outer Harbour while allowing for the proposed development. Following discussion with DECCW officers it is clear that most of the PKPC-owned land for with potential GGBF habitat measures is located within freight rail corridors and associated lands that were transferred to PKPC by RailCorp in 2008. Therefore PKPC has proposed to prepare the GGBF Master Plan after completing the Rail Master Plan to ensure compatibility with rail requirements for future stages of the development. DECCW has recommended completion of the GGBF Master Plan prior to commencement of construction of Stage 1 of the development which would effectively pre-date the Rail Master Plan. PKPC is not supportive of any attempt to "lock in" GGBF habitat areas prior to understanding the rail infrastructure requirements for the Outer Harbour.

PKPC is willing to commit to:

- Preparing a GGBF Management Plan prior to commencement of construction with a view to minimising the impact of construction works on GGBF;
- Preparing a plan which identifies areas of existing and potential new GGBF habitat for consideration in the Rail Master Plan; and
- Preparing a GGBF Master Plan following completion of the Rail Master Plan and prior to commencement of operations in Stage 1 of the development.

3.0 Response to DOP Comments

Listed below is our response to the various issues raised by DoP in its email dated 10 August 2010. The sub-headings below correspond to the headings/points used by DoP in that email.

3.1 Air Quality

3.1.1 Operational Air Quality Assessment

As suggested by DoP, the revised AQIA has included an assessment of both "peak" and "normal" operating conditions for the Concept Plan operations and the results of this assessment are detailed in Appendix C of the revised AQIA.

The results indicate that short term SO_2 GLCs, both in isolation and when combined with background levels, comply with the relevant criteria at all sensitive receptors under both the peak and normal operations.

The results indicate that short term PM_{10} GLCs, in isolation at one receptor and when combined with background levels at all receptors, exceed the relevant criteria under both the "peak" and "normal" operations. In fact there is only marginal improvement in PM_{10} GLCs between the "peak" operations and"normal" operations scenarios. This is because PM_{10} GLCs are primarily associated with the stockpile areas which remain unchanged under either the "peak" or "normal" operations scenarios.

3.1.2 Mitigation Measures

The mitigation measures which have been incorporated into the air quality modelling, such as water sprays to the stockpile areas, are detailed in Sections 6.2.3 and 6.3, and more particularly in Table 22 of the revised AQIA.

Other recommended mitigation measures are detailed in Section 8.3 and Table 37 of the revised AQIA although it has not been possible to estimate the potential air quality gains that would be achieved if each mitigation measure was adopted.

3.2 Noise

3.2.1 Construction Traffic Noise Impacts

The construction traffic noise assessment has been based upon worst case truck movements during the early period of construction (within the first 2 years) when trucks will be transporting fill to the site from local destinations such as Mount Prosser. It is predicted that on average there will be up to 23 trucks per hour during this early period of construction with construction traffic reducing significantly after this period (refer to Tables 4.13 and 4.14 in the Traffic and Transport Assessment in Appendix I of the EA document).

Furthermore, the operational traffic noise assessment for the Concept Plan has been based upon higher predicted truck numbers of 31 trucks per peak hour (refer to Table 4.4 of Traffic and Transport Assessment in Appendix I of the EA). This is predicted to result in only marginal increases in traffic noise of between 0.3 and 0.6 dB(A) for sensitive receivers at Five Islands Road, Cringila and at Masters Road (refer to Table 31 of revised NIA).

In the unexpected event that fill cannot be transported to the site by rail or barge in the volumes envisaged in the EA, and as a result truck traffic increases beyond the levels predicted and modelled in the EA, then further assessment of the potential impacts associated with such an increase in construction traffic would be required. This could be addressed by inclusion of a suitably worded consent condition.

3.2.2 Rail Noise Impacts

The NIA has been revised so that it accurately reflects train operations associated with the Major Project and Concept Plan with details as follows:

- Major Project Construction – 1 train per day (1 fill train);
- Major Project Operation – 4 trains per day (4 multi- purpose trains);
- Concept Plan Operation – 21 trains per day (16 container trains and 5 multi-purpose trains).

3.2.3 Sleep Disturbance

In the revised assessment sleep disturbance is discussed in respect of night time train operations for both the Major Project and Concept Plan. However, it is noted that further investigation of sleep disturbance from train operations will be carried out as part of the project approvals for Stages 2 and 3 of the Concept Plan.

The revised assessment includes a discussion of when train horns are used in the South Yard and the Port Kembla balloon loop, the frequency of train horn use at night time (existing and proposed), the length of train horn use. PKPC has indicated that it will commit to the investigation and development of all feasible and reasonable mitigation measures to reduce the predicted sleep disturbance impacts including possible alternatives such as the use of shorter train horn toots, closing the Foreshore Road crossing and grade separation at Old Port Road.

Discussion of the issue of sleep disturbance from night time train operations, including proposed mitigation measures, has been included in Sections 4.5, 5.4.1 and 5.4.2 of the revised NIA.

3.2.4 Detail for All Operating Scenarios

Further detail has been provided in the revised NIA in relation to all operating scenarios and particularly the operational noise levels associated with Stage 1 (Major Project).

The issue of operational noise is discussed in some detail in Sections 4.4 and 5.4 with supporting information provided in Appendix A and D of the revised NIA.

AECOM

4.0 Conclusion

We believe that the above material is a comprehensive response to the various air quality and noise issues raised by DECCW and DoP following review of the EA and Submissions Report.

Should you have any further queries or require any further information in relation either to this letter or the revised AQIA and NIA reports please contact me on the phone numbers listed below.

Yours faithfully

Andrew Cook
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Cook, Andrew C. (Sydney)

From: Phillips, Danielle
Sent: Friday, 9 July 2010 3:37 PM
To: Rebecca.Newman@planning.nsw.gov.au
Cc: ARD@portkembla.com.au; THB@portkembla.com.au; Skinner, Bruce; Bowden, Deborah; Cook, Andrew C. (Sydney)
Subject: Port Kembla Outer Harbour - Response to DoP

Hi Rebecca,

I am sending this email on behalf of Andrew Cook, Deb Bowden and PKPC.

Please find below a response to the 3 issues raised in your email dated 25 June.

1. Rail Infrastructure Plan

As detailed in Table 5-2 of the EA document, the timing for commencement of operations the various berths during Stage 2 and Stage 3 of the Concept Plan are as follows:

Stage of Concept Plan	New Operational Berth	Cumulative Operational Berths	Cumulative Trains per day	Year
Stage 1	Multi-purpose berth 1	1 x multi-purpose	4	2014
Stage 2a	Container berth 1	1 x multi-purpose 1 x container	8	2019
Stage 2b	Container berth 2	1 x multi-purpose 2 x container	12	2021
Stage 2c	Multi-purpose berth 2	2 x multi-purpose 2 x container	12.5	2025
Stage 3a	Multi-purpose berth 3	3 x multi-purpose 2 x container	13	2029
Stage 3b	Container berth 3	3 x multi-purpose 3 x container	17	2035
Stage 3c	Container berth 4	3 x multi-purpose 4 x container	21	2037

This dictates the timing for the necessary rail infrastructure upgrades required for Stage 2 (prior to 2019) and Stage 3 (prior to 2029). There is therefore ample time for the necessary rail upgrades to be identified and implemented.

The rail infrastructure upgrades envisaged for Stages 2 and 3 of the Concept Plan include local infrastructure upgrades in the immediate vicinity of the port (considered to be the responsibility of PKPC) and regional infrastructure upgrades across the wider rail network (considered to be the responsibility of the State and Federal governments and rail infrastructure corporations).

The local rail infrastructure upgrades are likely to include items such as:

- rail connection to the container berth including road bridge over the railway line at the intersection of Foreshore Road;
- rail sidings on the container berth to allow for efficient handling of container cargoes;
- provision of a bulk materials dump station on the rail siding adjacent to the multi-purpose terminal.

The Concept Plan construction cost estimate is given as A$700m (section 5.11 of EA). The cost of the rail infrastructure indicated above is not significant in comparison to these development costs. For example a road bridge over the railway line is estimated to cost A$5m. Hence the cost of this rail development is not a critical factor, however as mentioned below, rail is critical to the success of the terminal.

The rail masterplan will be focussed on identifying all local rail infrastructure upgrades required to support the development of the Outer Harbour as detailed in the Concept Plan. The masterplan will focus on the rail network within the port area, specifically between the Outer Harbour and the Railcorp line at Conniston Junction. It will outline a staged development and investment strategy for the provision of the required rail infrastructure to support Stages 2 and 3 of the Concept Plan. The masterplan will also assess the wider rail network as it affects the Outer Harbour at a more general level, but will not make detailed recommendations for infrastructure upgrades on this part of the network.

The rail masterplan is to commence in mid/late 2010 and be completed in early 2011 well before the commencement of operations of the container and multi-purpose berths associated with Stage 2 and 3. The masterplan will be prepared in consultation with Transport NSW, Railcorp, ARTC, Pacific National, Bluescope Steel and other rail users and land owners in the port area. PKPC will commit to implementing the recommendations from the rail masterplan prior to commencement of operations for Stage 2 and 3 as appropriate.

The regional rail infrastructure upgrades necessary to support Stage 2 and 3 of the Concept Plan have been discussed in the EA document and are subject to further investigation to be undertaken prior to seeking approval for these stages. The two options identified in Section 19.5.1 of the EA for improving regional rail connections to the port are:

1. Upgrade of the Moss Vale to Unanderra Line
2. Completion of the Maldon to Dombarton Line

The works likely to be required to upgrade the Moss Vale to Unanderra line include:

i. Extension of passing loops on the Moss Vale to Unanderra rail line although these are unlikely to be required until after 2020 at the earliest when the 2nd container berth becomes operational;
ii. Curve easing or route re-alignment on the Moss Vale to Unanderra rail line, although these are unlikely to be required until after 2034 at the earliest when the 3rd container berth becomes operational or, alternatively, the Maldon to Dombarton rail link could be required but again not until 2034 at the earliest when the 3rd container berth becomes operational.

A pre-feasibility for the Maldon to Dombarton Rail Link has already been completed in 2009. The Maldon to Dombarton Rail Link Feasibility Study has recently commenced and is expected to be completed by 2011, well before the commencement of Stage 2 operations. This study will inform future Government decision making about the project. The terms of reference for the Maldon to Dombarton Rail Link Feasibility Study can be provided for information if required.

PKPC has, and will continue to, liaise with rail infrastructure providers in the region to promote strategic alignment between rail infrastructure plans and forecasted trade growth associated with port developments, including the Outer Harbour Development.

Road transport has an advantage over rail transport particularly for short distances such as Port Botany to destinations within the Sydney metropolitan area but this advantage is less pronounced for longer distances such as Port Kembla to the Sydney metropolitan area. This pricing advantage is likely to change over time depending on a range of variables such as:

- cost of diesel fuel;
- government's pricing structure for road freight;
- upgrades of the regional rail network such as those being considered for the Moss Vale to Unanderra line and the Maldon to Dombarton link would reduce transport time and costs between Port Kembla and Sydney metropolitan area.

PKPC also has the option of introducing a pricing impost on truck transport to make rail transport more cost competitive by comparison with road.

It is important to note that the Port Kembla Outer Harbour development has been specifically designed to accommodate a high modal split to rail. Primarily this is because there is limited landside area available to support the more extensive container storage areas required for truck transport. If road transport was to operate efficiently then significantly wider terminal areas would be required thereby restricting ship access and the capacity of the port. The efficiency of the terminal operations, and the container terminal in particular, would be significantly impacted if not supported by rail freight services as proposed.

Finally, PKPC has committed to progressively assess the volume of truck movements associated with the Project applications for each stage of the Outer Harbour development to ensure that they are consistent with the

volumes predicted in the EA. The assessment would take into account actual truck volumes generated from the Outer Harbour development at that point of time. If the volume of truck movements is predicted to exceed the volumes assessed in the EA as a result of any change to the underlying assumptions (eg. cargo volumes, staging timeframes or modal split) then further assessment of the likely impacts associated with any additional truck traffic on the road network will be required.

2. Sourcing of Fill Material

The reclamation area will be filled using a combination of dredged material, fill from local sources (such as uncrushed blast furnace slag from Mt Prosser) and fill imported to the site from construction projects in the wider Sydney metropolitan area.

As detailed in Table 5-2 of the EA document, the reclamation and dredging works are scheduled to occur progressively over an 8 year timeframe (2011-2018). This will commence with the dredging and reclamation works for the first part of the multi-purpose terminal (known as Stage 1A) between 2011 and 2013. The Stage 1A area will be reclaimed using imported fill from local sources (as detailed in Section 6.4.4 and table 6-3 of the EA document).

There are a number of significant construction projects planned for the wider Sydney metropolitan area which could potentially provide fill for Stages 1B and 1C of the Port Kembla Outer Harbour reclamation. These include projects such as:

- planned upgrade of the M5 East Motorway
- planned extension of the M4 Motorway
- the Western Express Rail project
- the South West Rail Link project
- the North West Rail Link project

This is quite apart from any number of large private sector construction projects that may arise.

Given that the infrastructure projects listed above are in the early planning stages, it is not likely that PKPC will source fill from the wider Sydney metropolitan area until after 2013. PKPC will liaise with proponents of projects in this area to identify potential sources of suitable fill materials and promote the transport of these materials to Port Kembla by rail or barge for beneficial re-use within the reclamation.

PKPC would commit to providing detail of the sources of the fill and method of transport to the site for approval by the Director General before such filling operations commence.

It should also be noted that a major fill source would likely come from a Part 3A development that would be assessed by the Department of Planning. The environmental impacts of transporting fill materials from the source would be assessed by the proponent and considered in conjunction with the Environmental Assessment for the Outer Harbour Development.

3. Carparking

As detailed in Section 6.3.7 of the EA document, there is expected to be an indicative workforce of 90 employees during Stage 1 construction activities (dredging, reclamation and berth construction). Assuming that employees are on site at the same time and allowing for a conservative carparking rate of one space per employee, then a total of 90 spaces would be required on-site during Stage 1 construction. Allowing an area of approximately 25-30m^2 per carparking space, these spaces would occupy a site area of approximately 2,250-2,700m^2. This area can be easily accommodated within the largely vacant 10 ha Outer Harbour land area.

The carparking spaces would be located in two areas of the site:

- one adjacent to the site compound area shown on Figure 5-5 of the EA document;
- the second adjacent to the new construction road link which provides access to the site from Foreshore Road.

The car park adjacent to the site compound will be accessible either from Christy Drive to the north or Foreshore Road to the south. The choice of access would depend upon the operational and construction activities occurring at the time.

The car park adjacent to the proposed new construction road will be accessible from Foreshore Road.

Please be advised that Andrew Cook is now the main AECOM contact point for correspondence regarding the PKOH project, therefore if you would like to discuss this response please contact Andrew on 0417 317 409.

Kind regards,
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Attachment F – Final Statement of Commitments

1.0 Final Statement of Commitments

1.1 Introduction

This section provides the Final Statement of Commitments (SoCs) for the proposed Port Kembla Outer Harbour development in accordance with section 75F(6) of the *EP&A Act*. The commitments for Concept Plan and Major Project have been presented in separate tables.

The draft Statement of Commitments has been revised following consideration of the submissions received during the public exhibition period of the EA.

This section describes the general commitments made as part of this Environmental Assessment for both Concept Plan and Major Project. The Statement of Commitments (SoC) identify a combination of matters that will be dealt with in the next stage of the Major Project (detailed design) and implemented during both construction and operation phases. The SoC for Concept Plan also includes matters that require further assessment and/or that must be dealt with during subsequent stages of the development, based on current knowledge and design resolution.

Tables 1-1 and **1-2** describe the commitments identified by this Environmental Assessment to avoid or minimise adverse impacts on the environment during the Concept Plan and Major Project, respectively.

Table 1-1: Final Statement of Commitments for Concept Plan

Concept Plan	
Issue	**Environmental Commitment**
Environmental Management	The proposed Outer Harbour development will be constructed and operated generally as described in the *Port Kembla Outer Harbour Development, Environmental Assessment*, prepared by AECOM and dated February 2010 and portrayed in **Figure 5-3** (Concept Plan) and in **Figure 5-5** (Major Project). The proponent will prepare and implement a suite of Environmental Management Plan (EMP) Framework documents that will be developed for construction (including dredging and reclamation) and operation for Stages 1, 2 and 3 of the Concept Plan. Each discrete phase of construction activity will have its own CEMP. Similarly, discrete operating units (e.g. terminals) will each have their own OEMP. All CEMPs and OEMPs will include appropriate strategies and management measures to control and manage environmental risks, assess environmental performance and comply with relevant statutory requirements that are applicable to activities to be undertaken within that stage of the Concept Plan. Sub-plans will be included in the CEMP and OEMP Framework and will be included in each relevant stage of the project as appropriate. Sub-plans that will be required to be prepared for either construction or operation of at least one of the stages of the project will include the following: • Soils and Water Management Plan (SWMP). • Stormwater Management Plan (STMP). • Acid Sulfate Soil Management Plan (ASSMP). • Spoil Management Plan (SPMP). • Dredging Environment Management Plan (DEMP). • Site Management Plan (SMP). • Hazardous Substance Management Plan (HSMP). • Emergency Response Plan (ERP). • Green and Golden Bell Frog Management Plan (GGBFMP). • Traffic Management Plan (TMP). • Noise and Vibration Management Plan (NVMP).

Concept Plan	
Issue	**Environmental Commitment**
	• Air Quality Management Plan (AQMP). • Safety Management Plan (SFMP). • Landscape Management Plan (LMP). • Conservation Management Plan (CMP). • Waste Management Plan (WMP). • Demolition Management Plan (DMP). • Refuelling Management Plan (RMP).
Soil Erosion and Sedimentation	Controls and measures to mitigate soil erosion and sedimentation construction and operation impacts as a result of Stage 1 of the Concept Plan are detailed within the Major Project SoC (**Table 1-2**). A *Soils and Water Management Plan* (SWMP) would be prepared prior to the commencement of construction activities and will be included as a sub-plan in the relevant CEMP for that stage. The SWMP will be prepared in accordance with Landcom's *Managing Urban Stormwater; Soils and Construction Manual 2004* and will be maintained for the duration of the construction process and operational period. A *Stormwater Management Plan* (STMP) would be prepared prior to the commencement of operation of activities. Potential impacts to soil erosion and sedimentation as a result of Stages 2 and 3 of the Concept Plan will be identified during environmental assessments undertaken to support project applications for those stages. Controls and measures to mitigate impacts will be incorporated into SWMPs and STMPs to be implemented during construction and operation phases for Stages 2 and 3, respectively.
Hydrology and Water Quality	A SWMP would be prepared prior to the commencement of key project components and will outline specific measures to ensure impacts to water quality and hydrology during construction of each stage of the Concept Plan are minimised. Monitoring programs for water quality and biology will be developed, in consultation with DECCW and the Port Kembla Harbour Environment Group, and implemented for each stage of the Concept Plan. These monitoring programs will outline monitoring frequencies and testing procedures and results will be used to identify emerging trends or problems, provide data for measuring the impact of operational activities, determine whether pollution controls are working and provide a basis for efficient response to emergencies such as spills. PKPC will ensure that hydrological and ecological considerations are taken into account in the stormwater design for terminals for all stages of terminal construction. Water sensitive urban design (WSUD) will be utilised where ever practicable to reduce the volume, velocity and contaminants associated with stormwater runoff. Inclusion of pollution control devices on the future paved surfaces of the development.
Contaminated Sediments	Mitigation measures proposed to manage contaminated sediment impacts associated with Stage 1 will be included within a DEMP and are presented in the Major Projects SoC (**Table 1-2**). A DEMP will also be prepared prior to dredging activities for Stage 3 and will broadly include the following: • Description of extraction methodology and machinery to be employed. • Identification of dredge areas. • Identification of disposal (reclamation) areas. • Turbidity control devices (floating booms, silt curtains). • Erosion and sediment control measures. • Water and air quality monitoring locations.

Concept Plan	
Issue	**Environmental Commitment**
	Additional Contaminated Sediment Investigations will be undertaken as part of subsequent project applications for Stage 3. The additional investigations will assess potential contaminated sediment impacts associated with the following: • Area to be dredged north of Port Kembla Gateway to accommodate the third multi-purpose berth. • Dredging for expansion of the existing ship turning circle located south of the northern breakwater. • Reclamation for northern portion of the multi-purpose terminals. Mitigation measures that are proposed to manage contaminated sediments that are located in these areas will be included in the SMPs for those stages.
Contaminated Soils and Groundwater	Mitigation measures proposed to manage contaminated soil and groundwater impacts associated with Stage 1 will be included within a SMP and are presented in the Major Projects SoC (**Table 1-2**). Additional Contaminated Land Investigations will be undertaken as part of subsequent project applications for Stages 2 and 3. The additional investigations will assess potential contaminated soil and groundwater impacts associated with the following: • An extension of the road link from Christy Drive to connect with the container terminals. • Reconfiguration of rail in the South Yard to enable efficient operation of the western and eastern container facilities (this is in addition to the rail infrastructure upgrade required as part of Stage 1). • An extension of an existing rail siding into and along the length of the container terminals. • New road link from Darcy Road to boat harbour. • Hard stand of landward extent of development west to existing rail lines and south to Foreshore Road. Any contamination 'hot spots' that are identified during subsequent investigations for Stages 2 and 3 will be included within SMPs for those stages. Develop a groundwater monitoring program to be conducted at the site prior to the commencement of the works and regularly thereafter. This program will be designed and undertaken so as not to impede construction or operation of the development. In developing the groundwater monitoring program PKPC will review and utilise the results for the existing groundwater monitoring program being undertaken for the Outer Harbour.
Human Health and Ecological Risk	Measures proposed to mitigate potential risks for Stage 1 are presented in the Major Project SoC. Where applicable, these measures will also be applied to Stages 2 and 3 of the Concept Plan. *Site Management Plan* PKPC will prepare a SMP for each stage of the Concept Plan which will set our procedures to manage potential risks identified to human receptors and ecological receptors during land based construction works. *Dredging Environment Management Plan* PKPC will prepare a DEMP prior to dredging activities for Stage 3. *Hazardous Substance Management Plan* An HSMP will be prepared for each Stage of the Concept Plan and will contain the following information where it is relevant to the proposed activities: • Work methods to safeguard against hazards such as spills. Any fuel spillage will be reported, documented and immediately remediated. • Appropriate methyl bromide management procedures for the container terminals.

Concept Plan	
Issue	**Environmental Commitment**
	• Separation of the flammable solids and flammable liquids storage areas. • Ammonium Nitrate (AN) storages at the container terminal will be sited and designed to comply with the relevant Australian Standard (AS) in respect to both storage quantities and siting (distance separation). • Transport risk assessment studies which will be conducted for future development at each facility will include an assessment of the transport requirements and risks associated with the transport of Dangerous Goods. • Appropriate training and qualifications for staff involved in the handling of chemicals and in emergency spill response procedures. • Diagrams and descriptions of access and unloading locations will be developed as well as procedures for drivers of vehicles delivering chemicals. • A program of regular monitoring and maintenance of equipment used in the transportation and handling of chemicals. • A register of equipment, responsibilities and procedures for responding to spills. • A program of monitoring of the condition of bunding. *Emergency Response Plan* An Emergency Response Plan (ERP) will be prepared as part of the OEMP for each of the general cargo terminals and container terminals. The ERP will be prepared in accordance with the HIPAP No.1 Emergency Planning Guidelines. *Additional Assessments* A further qualitative risk assessment will be undertaken once dredging methodology has been confirmed, prior to the commencement of dredging tasks in Stage 1 and Stage 3, and will include: • A further qualitative risk assessment of contaminated sediment dispersal to assess potential risks to ecological receptors. • Recommendations and mitigation measures that arise from these additional assessments will be incorporated into the DEMP.
Potential Hazard	*Hazardous Substance Management Plan* PKPC will ensure that the risks that may be associated with potential hazards will be maintained within the permissible levels via mitigation measures included in a HSMP. Measures will include: • The container terminal will be designed with appropriate Methyl Bromide dosing and capture systems and operated in a manner that minimises the risk of release of potentially harmful gas. • The flammable solids storage area will be separated from the flammable liquids storage area by a minimum of 35m. • The risks associated with the potential storage of toxic gases will be specifically addressed in the individual environmental impact assessments conducted for the various terminal operators. Appropriate risk reduction measures that may be determined as a result of this assessment will be included in the terminal design and operational procedures, where applicable. A Final Hazard Assessment will be prepared as part of detailed project applications for operation of the container terminals.

Concept Plan	
Issue	**Environmental Commitment**
Flora and Fauna	*Compensatory Measures* Compensatory measures to offset the loss of soft substrate habitat in the Outer Harbour and the sandy beach area of Red Beach are proposed for Stage 1 of the Concept Plan. A summary of these measures is presented in the Major Project SoC. The need for additional compensatory measures for Stages 2 and 3 will be considered during environmental assessments prepared as part of project applications for those stages. *Green and Golden Bell Frog Master Plan* A GGBF Master Plan will be prepared to provide a strategic framework for how GGBF and its habitat will be managed across the Port Kembla Outer Harbour area. The GGBF Master Plan will focus upon sites with the greatest potential for GGBF habitat and connectivity, particularly freight rail corridors and associated land areas. The GGBF Master Plan will be prepared following preparation of the Rail Master Plan (so that it is compatible with the rail infrastructure requirements of the port) and prior to commencement of Stage 2 operations. PKPC will consult with DECCW and other relevant stakeholders during preparation of the GGBF master plan. *Green and Golden Bell Frog Management Plan* The GGBFMP framework prepared as part of this EA will be developed into a comprehensive GGBFMP in consultation with a suitably qualified ecologist and DECCW prior to the commencement of construction works for Stage 1. The GGBFMP developed for Stage 1 construction works will be reviewed and updated in association with the environmental assessments that will be undertaken as part of project applications for Stages 2 and 3. Each GGBFMP will include the following as a minimum: • Program of works and timeline for all key components of the project. • Undertake a conservation assessment ranking for any known or likely GGBF habitats in the study area, including but not limited to, identification and assessment of breeding, shelter, foraging, and movement habitat components. • Identify any actual or potential threats from construction and operations. • Identify appropriate actions to prevent or minimise actual or potential threats. • Include details of how the proponent will monitor and report on the ongoing effectiveness of the GGBFMP. • A program of works and timeline for planting and landscaping in appropriate areas with vegetation suitable for GGBF foraging and shelter as well as installing structures (such as logs and concrete pieces) to facilitate movement and over wintering habitat. • A feasibility assessment of retaining and/or enhancing shelter, foraging and movement habitat or potential breeding habitat along the proposed road corridor off Darcy Road. Further mitigation measures that will be implemented in relation to the proposed road corridor off Darcy Road during Stage 2 include: • Pre construction frog surveys. • Careful, staged clearing of site and provision of proximate alternate habitat to encourage frogs to seek shelter. • Installation of permanent 1 metre high frog exclusion fencing. • Careful direction of surface water runoff.

Concept Plan	
Issue	**Environmental Commitment**
	• Appropriate signage at entrance and exit of the proposed road alerting staff and visitors that an endangered species has been found in this area and to exercise caution. • Site inductions to educate workers. • Monitoring and regular review of performance of mitigation measures. Mitigation measures proposed to manage impacts on GGBFs for Stage 1 construction works are detailed in the Major Project SoC. The need for additional breeding ponds to be constructed to offset impacts to potential foraging habitat for populations of GGBF (particularly adjacent to Site 8) will be assessed as part of project applications for Stage 2 and Stage 3 of the Concept Plan. Ecological impacts of the Concept Plan will be reviewed as part of project applications for Stages 2 and 3 including impacts on threatened species, populations and ecological communities, and riparian and stream ecology (Salty Creek).
Rail	Recommendations for rail infrastructure upgrades and arrangements for Stage 1 are presented in the Major Project SoC. Adequacy of the existing rail infrastructure and capacity of the regional network will need to be reassessed prior to the construction and operation of Stages 2 and 3. The following commitments are proposed to assess rail infrastructure and network capacity for Stages 2 and 3: • PKPC will provide Department of Planning with updates regarding the demand for rail freight to/from the port and the progress of planned regional rail infrastructure upgrades prior to commencing the later stages (i.e. Stage 1b and 1c) of the dredging and reclamation works. • PKPC will participate in the Maldon Dombarton Study, ensuring that the Outer Harbour is included as a main destination for goods in the Maldon - Dombarton Study. • PKPC will liaise with RailCorp regarding access from the Outer Harbour to the Unanderra Line (a distance of 4km). PKPC will prepare a rail master plan prior to the commencement of construction of Stage 2 to identify rail infrastructure requirements for Stages 2 and 3 of the Concept Plan.
Traffic	A Traffic Management Plan (TMP) will be prepared by PKPC in accordance with Traffic Control at Worksites (RTA, 2003), prior to construction of Stage 1 in order to minimise impact on pedestrian and vehicle movements. The TMP will include control measures such as designated haulage routes and driver code of conduct to encourage safe driving practices. The proposed content of the TMP is detailed in the Major Project SoC. Future traffic and transport assessments will be undertaken as part of project applications for Stages 2 and 3. This will include an assessment of the traffic impacts associated with the changes to the road network and to separate port related traffic and public traffic accessing the boat harbour. PKPC will progressively assess the volume of truck movements associated with the Project applications for each stage of the Outer Harbour development to ensure that they are consistent with the volumes predicted in the EA. The assessment will take into account actual truck volumes generated from the Outer Harbour development at that point of time. If the volume of truck movements is predicted to exceed the volumes assessed in the EA then further assessment of the likely impacts associated with any additional truck traffic on the road network will be required. All roads constructed as part of the development would be designed to accommodate the number and type of vehicle movements projected and would satisfy relevant design

Concept Plan	
Issue	**Environmental Commitment**
	standards and would consider local guidance publications including the Wollongong City Council's Subdivision Policy for Road Construction. PKPC will ensure that any new road infrastructure required for Stages 2 and 3 of the Concept Plan is planned and designed to ensure adequate access is retained for existing premises and will consult with affected businesses and the wider community in this regard. Car park facilities will be established within dedicated construction areas internal to the site. Car parks will be designed to cater for the number of construction vehicles to reduce or avoid potential overflow impacts on the local road network, such as Foreshore Road.
Noise	*Noise and Vibration Management Plans* A Construction Noise and Vibration Management Plan (CNVMP) will be prepared by PKPC prior to the commencement of construction of Stage 1 in line with DECCW "Draft Construction Noise Guidelines". The content of the CNMP is detailed in the Major Project SoC. PKPC will prepare an Operational Noise and Vibration Management Plan (ONVMP) prior to the commencement of operation of each stage of the Concept Plan. The ONVMP should be prepared in accordance with the relevant DECCW guidelines and should incorporate best practice mitigation measures, *Rail Noise and Sleep Disturbance* An assessment of the acoustic impact arising from changes to the rail infrastructure associated with Stages 2 and 3 of the Concept Plan will be undertaken following completion of the Rail Master Plan when more information is known about the likely train movements in the Outer Harbour. Operational noise and sleep disturbance impacts arising from increased rail movements associated with Stages 2 and 3 of the Concept Plan will be investigated and, if required, appropriate noise mitigation measures will be recommended. To mitigate the potential sleep disturbance impacts associated with the use of train horns, PKPC will commit to use shorter train horn toots rather than standard longer train horn blasts. In addition, for Stages 2 and 3 of the Concept Plan PKPC will investigate the feasibility of further mitigation measures such as: • The removal of the Foreshore Road rail crossing; • Grade separation at the Old Port Road rail crossing. Noise and vibration assessments will be undertaken as part of applications for project applications for Stages 2 and 3 to assess both construction and operation impacts.
Air Quality	An AQMP will be prepared for inclusion in the CEMP and OEMP for each stage of the Concept Plan. The AQMP should include a requirement for on-going dust monitoring during the construction of Stage 1 of the project (for further details refer to Major Project SoC – **Table 1-2**). Site specific best practice mitigation measures for the management of particulate emissions during construction and operation of each of the stages of the Concept Plan will be included in AQMPs. Mitigation measures to be included in the AQMP for Stage 1 are detailed in the Major Project SoC (**Table 1-2**). PKPC will assess future operations at the site on a case by case basis, for potential impacts on the local air shed, with consideration of the regional and local pollution findings of the revised Air Quality Impact Assessment prepared by AECOM dated 10 September 2010. Further analysis and atmospheric dispersion modelling will be undertaken for Stages 2 and 3 of Concept Plan. The reporting of this modelling will be included in separate project applications for Stage 2 and 3 of the Concept Plan.

Concept Plan	
Issue	**Environmental Commitment**
Socio-Economic	Throughout the progressive development of the Concept Plan PKPC will ensure that access to the existing small boat harbour and associated facilities is not affected during either the construction of operational activities of each stage. In addition, PKPC will include appropriate measures in a SFMP to ensure that safe access is provided for recreational boaters entering and exiting the small boat harbour. PKPC will continue to liaise with community groups to inform them about project status throughout the development of the Concept Plan.
Landscape and Visual Amenity	PKPC will prepare a Landscape Management Plan to ensure visual impacts associated with Stage 1 are minimised. The content of the LMP is detailed in the Major Project SoC. LMPs will be prepared as part of CEMPs and OEMPs for each stage of the Concept Plan and will include the following: • Lighting used for evening and night time work will be projected downward and onto the proposed works. • Construction timing should be programmed to ensure efficiency of works and minimise period of disturbance. • Construction areas and plant/machinery and materials storage areas will be clearly designated and clearly defined. • Lighting for terminals and other operational areas, including the new road link, will be carefully selected to minimise light spill. • A Landscape Management Plan (LMP) will be prepared to guide any landscaping works that are proposed across the area of development. Suitable colours and materials will be selected for the terminal pavement, buildings and other structures to minimise reflectivity and contrast. Landscape and Visual Amenity assessments will be undertaken as part of project applications for Stages 2 and 3.
Heritage	*Archival Photographic Recording* An archival photographic recording will be prepared prior to demolition of No. 3 and No. 4 Jetties (part of Stage 1) and a comprehensive history of the jetties prepared. An archival photographic recording will be prepared prior to demolition of No. 6 Jetty (part of Stage 3) and a comprehensive history of the jetty prepared. *Historical Shipwrecks* Should any evidence of shipwreck material be encountered during dredging or other activities during Stages 1 and 3, works in the immediate vicinity will cease, the Heritage Branch will be contacted immediately and a suitably qualified maritime archaeologist will be contacted to assess the discovery and provide advice on mitigation and recording. *Other Heritage Items or Archaeological Relics* Should unidentified European heritage items and/or archaeological relics be encountered during construction, works in the immediate vicinity will cease, the Heritage Branch will be contacted immediately and a suitably qualified heritage consultant will be contacted to assess the discovery and provide advice on mitigation and recording. The environmental assessment to be undertaken as part of a project application for Stage 2 will further consider the intrusion of the new road link connecting Darcy Road with the boat harbour on accessibility between the concrete pillbox and the Historic Military Museum. PKPC will ensure the design of the new road limits intrusion on the listed heritage items including consideration of the use of landscaping to ensure that any visual impact is

Concept Plan	
Issue	**Environmental Commitment**
	minimised. PKPC will prepare a Conservation Management Plan (CMP) for the Mobile Block Setting Crane prior to commencing construction activities within the proximity of the item during Stage 2. PKPC will restore the crane in accordance with the recommendations of the CMP, relocate the crane to a safe and prominent location nearby and provide interpretive signage for the public.
Waste	*Waste Management Plan* WMPs will be prepared for inclusion in relevant CEMPs and OEMPs for all stages of the Concept Plan and will emphasise potential for recovery and reuse of waste, minimise waste generation, and include specific requirements for each of the waste types identified. *Demolition Management Plan* A Demolition Management Plan (DMP) will be prepared to include appropriate management measures for the dismantling, removal and disposal of structures and materials during Stages 1 and 3. Waste assessments will be undertaken for Stages 2 and 3 as part of project applications for these stages.
Sustainability	Throughout all stages of the Concept Plan PKPC is committed to the following: • Consider the potential for incorporating local renewable power generation (e.g. from micro and large scale wind turbines) as part of future design and construction works. • Consider the potential for power generation from the sun by encouraging future tenants and lessees to install panels on structures to take advantage of the solar potential. • Investigate the potential for water capture and reuse during the detailed design of terminals. Recommendations and mitigation measures to manage sustainability issues identified during this environmental assessment will be reviewed as part of environmental assessments for Stages 2 and 3, and revised to incorporate new technological innovations that could be considered and implemented as part of the total development. The design of berths and terminal areas will include allowance for the provision of alternative marine power (AMP) for vessels while at berth to allow for possible future use of ship to shore power.
Climate Change	Throughout all stages of the Concept Plan PKPC is committed to the management of the impacts of a variable climate and extreme weather conditions as follows: • The proposed reclamation and pavement levels will be set above predicted extreme sea level rises (i.e. including storm surges and extreme events) for the 100 year design life, with a freeboard suitable to cater for further sea level rise beyond that time. • Risk management strategies will be in place for extremely hot days to manage potential rail buckling. • Maintenance regimes will take accelerated degradation of infrastructure into account. Assessments for Stages 2 and 3 will review the findings of this assessment in light of the latest climate change projections and statistics.

Table 1-2: Statement of Commitments – Major Project

Major Project	
Issue	**Environmental Commitment**
Construction Phase	
Major Project - General	The proposed Outer Harbour development will be constructed and operated generally as described in the *Port Kembla Outer Harbour Development, Environmental Assessment*, prepared by AECOM and dated February 2010 and portrayed in **Figure 5-3** (Concept Plan) and in **Figure 5-5** (Major Project). The proponent will prepare and implement a suite of Environmental Management Plan (EMP) Framework documents that will be developed for construction (including dredging and reclamation) and operation for Stage 1. Each discrete phase of construction activity will have its own CEMP. Similarly, discrete operating units (e.g. terminals) will each have their own OEMP. All CEMPs and OEMPs will include appropriate strategies and management measures to control and manage environmental risks, assess environmental performance and comply with relevant statutory requirements that are applicable to that part of Stage 1. A number of sub-plans will be included in relevant CEMPs and OEMPs and will include the following, where relevant: • Soils and Water Management Plan (SWMP) • Stormwater Management Plan (STMP) • Acid Sulfate Soil Management Plan (ASSMP) • Spoil Management Plan (SPMP) • Dredging Environment Management Plan (DEMP) • Site Management Plan (SMP) • Hazardous Substance Management Plan (HSMP) • Emergency Response Plan (EMP) • Green and Golden Frog Management Plan (GGFMP) • Traffic Management Plan (TMP) • Noise and Vibration Management Plan (NVMP) • Construction Noise and Vibration Management Plan (CNVMP) • Operational Noise and Vibration Management Plan (ONVMP) • Air Quality Management Plan (AQMP) • Safety Management Plan (SFMP) • Landscape Management Plan (LMP) • Conservation Management Plan (CMP) • Waste Management Plan (WMP) • Demolition Management Plan (DMP) • Refuelling Management Plan (RMP)
Soil Erosion and Sedimentation	*Soils and Water Management Plan* SWMPs will be prepared by PKPC prior to commencement of construction of Stage 1 and will be included where relevant in the CEMPs for that stage. The SWMPs will be prepared in accordance with Landcom's *Managing Urban Stormwater; Soils and Construction*

Major Project	
Issue	**Environmental Commitment**
	Manual 2004. *Erosion and Sedimentation Controls* Management controls aimed at containing, redirecting, and stabilising soils that are unavoidably disturbed by construction activities will include: • Installing water diversion structures to ensure surface water runoff does not enter zones of exposed soils during construction, particularly in the vicinity of the new road link from Christy Drive, and rail infrastructure upgrade in the South Yard. • Installation of erosion and sedimentation control devices prior to excavation at the site, that will remain in place until the bare soils and surfaces are stabilised temporarily or permanently (by suitable surface materials, revegetation or other means) and removed when redundant. • Installing sediment traps around areas of soils that will be exposed as a result of construction activities to protect downstream water quality. Sediment traps will be maintained and will remain in place until all works are finalised and surfaces are stabilised. • Installing buffers to the riparian zone, for example sediment fences, to prevent sediment laden water from entering Salty Creek, Darcy Road Drain, and the Outer Harbour. • Installing filter rolls at stormwater drain locations to minimise potential for sedimentation of drains and subsequent flooding during heavy rainfall. • Implementation of site management procedures including watering or covering of unsecured stockpiles of reclamation material (if stockpiles contain fines) anticipated to be exposed and unused for a period longer than two continuous weeks. • Limiting the area of disturbance to those locations necessary to construct the new roads, reclamation area and rail infrastructure upgrade. • Disturbed areas will be restored (sealed or covered with pebbles/gravel or vegetated, as appropriate) upon the completion of the works in that area to ensure that soils are exposed for as short a time as possible. • Daily visual inspections of erosion and sediment control devices to determine the condition and effectiveness of control measures. Immediate action will be taken to repair any control devices that have failed to work adequately. Emergency procedures will be detailed for high rainfall events that could increase soil erosion during construction. *Fill Materials, Dredging and Reclamation* • Environmentally suitable fill materials will be used for reclamation only. • Appropriate soil enhancement procedures and treatments will be implemented, as required, to facilitate consolidation of soft material and minimise slumping. • Soils confirmed to be Actual ASS will be handled in accordance with the Acid Sulfate Soil Management Plan (ASSMP). • PKPC will carefully consider the disposal/placement of potential ASS and preference will be given to disposal/placement of Potential ASS in locations beneath the water to avoid exposure to oxygen. • Where feasible, reclamation will be undertaken with a material which will allow for a similar groundwater flow to the current flow regime into the Outer Harbour.

Major Project	
Issue	**Environmental Commitment**
	Terminal Hardstand and Temporary Unpaved Surfaces • The surface material of reclaimed areas that are to remain unpaved until Stage 2 will be selected and prepared to minimise potential erosion. If surface fill material is susceptible to erosion a suitable surface layer with low erosive qualities will be laid.
Hydrology and Stormwater Design	*Soil and Water Management Plan* A SWMP will be prepared to document mitigation measures to manage hydrology and water quality impacts associated with construction of Stage 1. The SWMP will include the following measures: • A control system to ensure that bulk material stockpiles and materials within handling areas are contained onsite, through the use of containment walls, bunding, stormwater and dust controls. Any excess sediment laden runoff will either be contained within the bunded storage areas or directed to a land based treatment area. A program of regular monitoring and maintenance of the storage and handling of bulk materials will be implemented. • Measures to minimise excess materials being deposited offsite during loading and transportation of bulk materials from the material handling area. Controls such as vehicle shaker pad, use of vacuum road sweepers, covering loads during transport and dust suppression. • Emergency spill response procedures will also be included in the Emergency Response Plan (ERP). *Dredging Environment Management Plan* A DEMP will be prepared and implemented for all stages of Stage 1, incorporating: • Description of extraction methodology and machinery to be employed. • Identification of dredge areas. • Identification of disposal areas. • Turbidity control devices (floating booms, silt curtains). • Erosion and sediment control measures. • Water and air quality monitoring locations. *Salty Creek and Darcy Road Drain* PKPC will design and size channel structures or culverts to convey flows from Salty Creek and Darcy Road Drain through the reclamation area for flood events up to the 100 year ARI design storm event. The design of these structures will consider: • Potential climate change impacts due to increasing sea levels and rainfall intensities. • Possible hydraulic impacts due to flows greater than the 100 year ARI storm and up to the Probable Maximum Flood and/or due to blockage of the structure. • Fish passage. Consideration should be given for the incorporation of a V-shaped recess in the floor of the culverts to facilitate movement of fish and other mobile aquatic species during periods of low flow. • Water sensitive urban design (WSUD) will be utilised where ever practicable to reduce the volume, velocity and contaminants associated with stormwater runoff.

Major Project	
Issue	**Environmental Commitment**
	Potential Pollutants Handling The handling of oils and fuels, washing of all equipment, (including all concreting equipment) will be undertaken within bunded areas or containers and pollutants trapped in bunded areas will be disposed of in accordance with the waste management section of the CEMP. Any fuel spillage will be reported, documented and immediately remediated. Collected contaminated material will be disposed of as per the management section of the CEMP and in accordance with the NSW Waste Classification Guidelines 2008. *Water Quality and Biological Monitoring Pprograms* PKPC will develop water quality and biological monitoring programs, in consultation with the Port Kembla Harbour Environmental Group and DECCW, during construction and operation. The water quality and biological monitoring programs will form part of the CEMP and will: • Identify monitoring parameters. • Identify representative monitoring locations and frequency of monitoring. • Identify testing procedures (ensuring chemical testing is undertaken by NATA accredited laboratory). • Outline the framework and format for reporting monitoring results.
Contaminated Sediments	*Acid Sulfate Soils* An ASSMP will be prepared prior to the dredging and reclamation works. Measures for the appropriate management of Acid Sulfate Soils, in line with the ASSMAC. These measures will either ensure that future works avoid exposing Potential Acid Sulfate Soils (PASS) to air or provide for appropriate management of the PASS. *Dredging Environmental Management Plan* A DEMP will be prepared based on the measures recommended by the AECOM Sediment Investigation, 2010 and will include: • Procedures for sediments to be dredged and emplaced in the reclamation area at essentially the same time (to avoid the need for land storage and wastewater management, and avoid the exposure of PASS). • Dredged sediments deposited as part of the proposed reclamation will be contained and effectively encapsulated and confined in an engineered containment structure which will be constructed of clean imported fill. • Dredged sediments will be placed at depth, below the depth of wave action at the base of the reclamation fill. • Dredging and reclamation will be undertaken within the protection of parallel silt curtains encompassing the dredging and placement areas. • Dredging technologies will be selected in consideration of their ability to minimise the generation of turbidity. • Turbidity monitoring will be employed in conjunction with twice daily observations by personnel undertaking the dredging and reclamation activities to assist in early identification of problems and proactive implementation of mitigation measures. • Regular monthly flyovers will be undertaken to assess the presence of potential sediment plumes and algal blooms from the dredging or placement areas. • Contingency measures will be implemented immediately in the event visible turbidity and harbour water quality impacts are identified during routine monitoring.

Major Project	
Issue	**Environmental Commitment**
	The DEMP will refer to the ASSMP and will include appropriate management measures for: • Handling and transportation of PASS below water. • Any PASS dredged material will be encapsulated and confined within an engineered containment structure (bunded area) at a lower harbour depth within the reclamation. • The removal of PASS from dredged material to land (if encapsulating and confining the material underwater is not possible). • Any mobilisation of disturbed soils that are confirmed to be AASS. Twice-daily manual measurements of turbidity will be carried out in conjunction with observations by personnel undertaking the dredging and reclamation activities to assist in early identification of problems and proactive implementation of mitigation measures. *Human Health Risk Assessment* The risk to human health and the environment associated with the contaminated sediment (in particular the identified sediment contamination hotspots) should be evaluated by a further qualitative risk assessment. If the risk assessment concludes that the contamination hotspots present an unacceptable risk to the environment, a Remedial Action Plan will be prepared to appropriately manage the identified materials of concern. *Groundwater Considerations* The reclamation will be designed to ensure that the existing groundwater flow regimes are not significantly altered and that there is no increased risk of harm associated with groundwater contamination.
Contaminated Soils and Groundwater	*Site Management Plan* PKPC will prepare a SMP prior to the commencement of construction to manage excavation works and to address the following: • Contamination 'hotspots' based on visual observations and through detailed soil sample analysis if required. • Appropriate management of contamination including selective excavation (to minimise quantities), stockpiling, characterisation and disposal (likely to an off-site soil remediation facility) assuming that the material is not suitable for inclusion within the reclamation area. • Develop a groundwater monitoring program to be conducted at the site prior to the commencement of the works and annually thereafter. This program will be designed and undertaken so as not to impede construction or operation of the development. In developing the groundwater monitoring program PKPC will review and utilise the results for the existing groundwater monitoring program being undertaken for the Outer Harbour. *South Yard* A Limited Phase Two Environmental Site Investigation will be undertaken prior to the commencement of works at the proposed site for the extension of the railway siding at the South Yard, to assess potential contamination issues in this area.

Major Project	
Issue	**Environmental Commitment**
Human Health and Ecological Risk	*Dredging Environment Management Plan* Prior to commencing dredging a further qualitative assessment will be undertaken to address potential risks to ecological receptors associated with contaminated sediment dispersal. The assessment will consider the following: • Potential indirect effects or risks to marine ecosystem or communities outside the heavily impacted PKOH area. • Potential indirect risks to human health due to toxic dinoflagellate blooms or bioaccumulation of contaminants into edible fish or shellfish. • The extent to which protected or recreationally important species are present within the PKOH. This assessment should be based on detailed design of the dredging works and specific environmental management safeguards aimed at minimising and containing contaminated sediment dispersal. Recommendations and mitigation measures that arise from the additional assessment will be incorporated into the DEMP. PKPC will prepare a HSMP for construction of Stage 1 that will address the following: • Handling of oils and fuels and the washing of all equipment, including all concreting equipment, in accordance with the following DECCW Bunding and Spill Management Guideline documents: - Storing and Handling Liquids: Environmental Protection - Participants Manual; and - Environmental Compliance Report: Liquid Chemical Storage, Handling and Spill Management - Part B Review of Best Practice and Regulation. • Disposal of any pollutants trapped in bunded areas in accordance with the waste management section of the CEMP and DECCW waste guidelines. • Any fuel spillage will be reported, documented and immediately remediated. *Refuelling Management Plan* PKPC will prepare a Refuelling Management Plan (RMP) which will address on site refuelling if required and which will identify appropriate refuelling locations, proximity to infrastructure, bunding required, location, use of spill kits and monitoring.
Flora and Fauna	*Compensatory Measures* Compensatory measures to offset the loss of soft substrate habitat in the Outer Harbour and the sandy beach area of Red Beach are proposed for Stage 1. A summary of these measures is presented below: • Hard substrate habitat in the form of new berth faces, pile-supported desk areas and rock revetments will be increased as a result of the development. Habitat features that will be incorporated into the design of the hard structures will include: - Boulder-sized rocks placed without cement to offer crevices in the inter-tidal and sub-tidal zones for the use of fish and invertebrates. - Artificial rock pools in revetments to provide habitat for species such as sea-hares, sea urchins and octopus. - Objects such as concrete knobs, or similar, attached to vertical wall structures to add texture and form for the benefit of colonising organisms. • Soft substrate habitat measures will be implemented as part of habitat improvement projects proposed for Tom Thumb Lagoon and Garungaty Waterway (refer **Section 16** and **Appendix G** of the EA for additional detail). The measures proposed are intended to complement the existing restoration programs in these areas by increasing fish

Major Project	
Issue	**Environmental Commitment**
	passage, tidal exchange and promoting estuarine communities such as saltmarsh, mangroves and seagrass. The measures are consistent with Wollongong Council's *Estuary Management Plan* (2007) and the *Plan of Management* prepared for Conservation Volunteers Australia in 2006. The habitat improvement projects will be undertaken over the next 10 years and will include ongoing monitoring and maintenance to ensure that effective habitat outcomes are achieved and sustained on the site. *Dredging Environment Management Plan* The DEMP will address the following: • Ways in which the generation of shockwaves through the water column associated with underwater rock blasting can be reduced as far as it is practicably achievable. • Measures to reduce or minimise negative impacts on marine mammals will be included in the DEMP and will be based on available and relevant guidelines. • Protection of migratory marine mammals. Specific mitigation measures may include a marine mammal observer program to be implemented and stop blasting provisions if whales are sighted within specified distances from the development area. *Green and Golden Bell Frog Management Plan* Prior to any works which involve the clearing of vegetation and debris within the development area of Stage 1, a suitable and targeted survey will be undertaken by an ecologist in order to allow for the detection of any GGBF. If GGBF are detected, no clearing works will commence until the GGBF response provisions in the GGBFMP have been implemented. A comprehensive GGBFMP will be prepared prior to the commencement of construction works for Stage 1. The GGBFMP will be prepared by a suitably qualified ecologist and in consultation with DECCW and will be in accordance with the following plans and previous studies: - *Draft Recovery Plan: Green and Golden Bell Frog* (Lesson 1829) *Recovery Plan* (DECCW, 2005) - *Best Practice Guidelines: Green and Golden Bell Frog Habitat* (DECCW, 2008) - *The Green and Golden Bell Frog Key Population at Port Kembla Management Plan* (DECCW, 2007) - *Assessment of Habitat, Dispersal Corridors and Management Actions to Conserve the Port Kembla Key Population of Green and Golden Bell Frog 2007-2008* (Gaia Research, 2008). The GGBFMP will include the following as a minimum: • Program of works and timeline for all key components of Stage 1. • Undertake a conservation assessment ranking for any known or likely GGBF habitats in the study area, including but not limited to, identification and assessment of breeding, shelter, foraging, and movement habitat components. • Identify any actual or potential threats from construction and operations, including but not limited to: - Habitat loss, modification and disturbance - Fragmentation and isolation of habitat - Water quality and pollutant issues - Road mortality - Exotic weed control and application of herbicides containing glyphosate - Slashing and mowing

Major Project	
Issue	**Environmental Commitment**
	- Invasion by *Chrysanthemoides monilifera* - Predation and disease (refer detailed mitigation measures below). • Identify appropriate actions to present or minimise these actual or potential threats, including, but not necessarily limited to: - Scheduling works to coincide with activity cycles where practicable - Construction of any compensatory habitat prior to proposed habitat loss - Frog fencing - Engaging a suitably qualified ecological consultant to be onsite during construction - Development of response protocols in the event that frogs are found in the active construction areas - Signage - Measures outlined in the frog hygiene protocol. • Include details of how the proponent will monitor and report on the ongoing effectiveness of the GGBFMP including, but not necessarily limited to: - Including the objectives of the monitoring program - Method of monitoring - Data return to DECCW - Licensing - Reporting framework - Duration - Frequency. • A program of works and timeline for planting and landscaping in appropriate areas with vegetation suitable for GGBF foraging and shelter as well as installing structures (such as logs and concrete pieces) to facilitate movement and over wintering habitat. Mitigation measures to minimise the spread of deadly pathogens and disease to the GGBF include the following: • Frog exclusion fencing will be installed around construction sites in close proximity to known or potential GGBF breeding habitats. • The construction works site and any open trenches within the development area should be checked each morning during construction for the presence of any Frogs which should be released into nearby ground cover. Handling the species should be minimised. Frog Hygiene Protocol (NPWS, 2001) should be followed to avoid the spread of chytrid spores or other pathogens between aquatic habitats and frog sites. • If necessary, earth-working equipment and vehicles will be cleaned of excess soil by brushing or hosing when they enter and exit the site in order to minimise the likelihood of the spread of weed seeds and plant pathogens. • If it is likely that vehicle tyres will result in mud and water being transferred to other bodies of water or frog sites, they should be sprayed with a disinfecting solution as per the Frog Hygiene Protocol (NPWS, 2001). This should be carried out at a safe distance from water bodies, so the disinfecting solution can infiltrate the soil instead. • The importation of water should avoid known areas of breeding habitat in close proximity to construction activities (such as Site 18). • The use of imported mulch or compost should be avoided in any rehabilitation works in the vicinity of known breeding areas and associated dispersal avenues.

Major Project	
Issue	**Environmental Commitment**
Rail	During reclamation activities, PKPC will review the need to install a material handling system to unload fill from trains at the area dedicated to stockpiling imported fill material. PKPC will provide Department of Planning with updates regarding the demand for rail freight to/from the port and the progress of planned regional rail infrastructure upgrades prior to commencing the later stages (i.e. Stage 1b and 1c) of the dredging and reclamation works.
Traffic	*Traffic Management Plan* PKPC will prepare a TMP in accordance with Traffic Control at Worksites (RTA, 2003), prior to construction and operation of Stage 1 in order to minimise impact on pedestrian and vehicle movements. The TMP will outline and manage the transportation routes to the site for heavy vehicles during construction of Stages 1a, 1b and 1c of the Major Project. The TMP will also include: • Access arrangements for heavy vehicle to the site. • Procedures for the delivery and dispatch of products. • Preference for the use of larger trucks in order to minimise vehicular movements. • Haulage routes to and from the site. • Driver protocols including a Code of Conduct to encourage safe driving practices. • Use of truck turnaround areas. • Financial penalties. • Truck movement hour restrictions. Car park facilities will be established within dedicated construction areas internal to the site. Car parks will be designed to cater for the number of construction vehicles to reduce or avoid potential overflow impacts on the local road network, such as Foreshore Road. All roads constructed as part of the development would be designed to accommodate the number and type of vehicle movements projected and would satisfy relevant design standards and would consider local guidance publications including the Wollongong City Council's Subdivision Policy for Road Construction. *Sources of Fill Material* Prior to the commencement of filling operations for Stages 1b and 1c, PKPC will provide detail of the sources of the fill material which is to be imported to the site for the reclamation, including the method of transport, for approval by the Department of Planning.
Noise	*Construction Noise and Vibration Management Plan* A Construction Noise and Vibration Management Plan (CNVMP) will be prepared by PKPC prior to the commencement of construction of Stage 1 in line with DECCW "Interim Construction Noise Guidelines'" in order to minimise the noise impact at sensitive receivers. The CNVMP will include: • Notification of and maintaining regular contact with noise-affected neighbours. • Maintaining a complaints register and complaints handling. • Operating plant in a quiet and efficient manner. • Adoption where practicable of alternative work practices which generate less noise. For example, the use of hydraulic rock splitters instead of rockbreakers, or electric equipment instead of diesel or petrol powered equipment, amongst other management measures. PKPC is committed to the selection of acoustically considerate plant where possible and

Major Project	
Issue	**Environmental Commitment**
	the use of noise reducing measures such as silencers, multi-frequency reversing alarms, visual system reversing warnings, enclosures and shrouds. The construction noise level emission and the potential annoyance to sensitive receptors will depend on the final selection of equipment, type of operation, activity duration and the time of day at which works are conducted. Additional noise impact assessment will be carried out if the construction plant to be used on site differs significantly from that assumed for modelling purposes in the revised Noise and Vibration Impact Assessment prepared by AECOM and dated 20 September 2010). *Rock Blasting* PKPC will ensure that site specific data gathered during trial blasts (to refine and determine methods for the blasting of bedrock) is used to refine and calibrate the calculations prior to any blasting taking place. *South Yard* The need for mitigation measures to address construction noise associated with the South Yard rail siding upgrade will be carefully considered at the construction planning stage. Potential mitigation measures may include review of the construction schedule, working hours, type of plant used and the use of temporary noise barriers. .
Air Quality	*Air Quality Management Plan* PKPC will prepare an AQMP and mitigation measures will include but not be limited to: • Transport loads and materials will be covered to avoid generating wind-blown dust. • Site surfaces will be wetted down during dry weather including excavation sites, haul roads, spoil stockpiles and other exposed areas. • Vehicular access will be confined to designated access roads. • Shaker pad facilities will be provided for construction trucks and machinery leaving site. • Instantaneous dust monitoring will be undertaken at the site boundary. Regular checks on exhaust emissions from construction equipment, trucks, plant and machinery will be undertaken. • Construction site speed limits will be implemented. The AQMP will include a dust monitoring program designed to assess the impact of particulate emissions from construction works undertaken as part of the project. Monitoring will be undertaken in accordance with *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
Landscape and Visual Amenity	*Landscape Management Plan* PKPC will prepare a LMP for construction of Stage 1 which includes site specific measures and controls including: • Projection of lighting used for evening and night time work will be downward and toward site works to minimise light spill on adjacent areas. • Clear definition of materials storage areas, compounds and construction areas and boundaries. • Construction timing will be programmed to minimise period of disturbance.
Heritage	*Archival Photographic Recording* An archival photographic recording will be prepared prior to demolition of No. 3 and No. 4

Major Project	
Issue	**Environmental Commitment**
	Jetties (part of Stage 1) and a comprehensive history of the jetty prepared. *Historical Shipwrecks* Should any evidence of shipwreck material be encountered during dredging or other activities during Stage 1, works in the immediate vicinity will cease, the Heritage Branch will be contacted immediately and a suitably qualified maritime archaeologist will be contacted to assess the discovery and provide advice on mitigation and recording. *Other Heritage Items or Archaeological Relics* Should unidentified European heritage items and/or archaeological relics be encountered during Stage 1 construction, works in the immediate vicinity will cease, the Heritage Branch will be contacted immediately and a suitably qualified heritage consultant will be contacted to assess the discovery and provide advice on mitigation and recording.
Waste	*Waste Management Plan* PKPC will ensure that appropriate general and hazardous waste identification, handling, storage, transportation, disposal and monitoring measures, to be followed on-site during construction for Stage 1 are included in a WMP which is to form part of all relevant CEMPs. PKPC will ensure these management measures as well as on site waste management activities are undertaken in accordance with the relevant NSW and Commonwealth Regulations and Guidelines. *Demolition Management Plan* The DMP for Stage 1 will include appropriate management measures for the dismantling, removal and disposal of structures and materials from No. 3 and No. 4 Jetties.
Operation Phase	
Hydrology and Water Quality	*Operation Environment Management Plan* The OEMP will include the following measures to ensure the appropriate management of materials handled at the first multi-purpose berth: • A control system to ensure that bulk material stockpiles and materials within handling areas are contained onsite, through the use of containment walls, bunding, stormwater and dust controls. • Any excess sediment laden runoff will either be contained within the bunded storage areas or directed to a land based treatment area. • Implementation of a program of regular monitoring and maintenance of the storage and handling of bulk materials will be implemented. • Measures to minimise excess materials being deposited offsite during loading and transportation of bulk materials from the material handling area. • Implementation of controls such as vehicle shaker pads, use of vacuum road sweepers, covering loads during transport and dust suppression. • Inclusion of emergency spill response procedures in the ERP. • Inclusion of pollution control devices on the future paved surfaces of the development. *Water Sensitive Urban Design* WSUD will be utilised where ever possible to reduce the volume, velocity and contaminants associated with stormwater runoff. *Stormwater Management Plan* A STMP will be prepared to appropriately manage the accumulation of surface water from rainfall, storm events and stockpile watering. The STMP will outline the management of

Major Project	
Issue	**Environmental Commitment**
	surface water for operation of Stage 1 (central portion of the multi-purpose terminals) and measures for treatment such as a first flush stormwater capture system. Management of surface water will be considered and confirmed during detailed design but is likely to include harvesting of water from roofs of buildings and other roofed structures.
Potential Hazards	*Emergency Response Plan* PKPC will prepare an ERP in accordance with the HIPAP No.1 Emergency Planning Guidelines as part of the OEMP of the multi-purpose terminal. *Hazardous Substance Management Plan* PKPC will prepare a HSMP as part of the OEMP that will be implemented during the operation of the first berth including as a minimum, the following measures to prevent and respond to spills: • A system to ensure that all staff involved in the handling of chemicals are suitably qualified and trained in emergency spill response procedures. • Diagrams and descriptions of access and unloading locations and procedures for drivers of vehicles delivering chemicals. • A program of regular monitoring and maintenance of equipment used in the transportation and handling of chemicals. • A register of equipment, responsibilities and procedures for responding to spills. • A program of monitoring of the condition of bunding. • Procedures for maintenance activities for the Sulphuric acid pipeline that will be relocated from Berth 206.
Flora and Fauna	*Green and Golden Bell Frog Master Plan* A GGBF Master Plan will be prepared to provide a strategic framework on how GGBF and its habitat will be managed across the Port Kembla Outer Harbour area. The GGBF Master Plan will be prepared prior to commencement of operations of Stage 1. PKPC will consult with DECCW during preparation of the GGBF master plan.
Traffic	*Traffic Management Plan* A TMP will be included in the site OEMP. The Plan will address work practices on site, designated haulage routes to and from the site, driver protocols (including a Code of Conduct to encourage safe driving practices), financial penalties and hours of operation amongst other measures.
Rail	Recommendations for rail infrastructure upgrade and arrangements for network paths for construction and operation of Stage 1 are as follows: • Rail infrastructure upgrade in the South Yard required for operation of Stage 1 will comprise extension of siding No. 13 by 120m to 780m and turnout installation and removal. • Agreement will be sought from ARTC to allow the use of five train paths per day (one train for transport of fill material and four trains for the multi-purpose berth), in each direction on the Unanderra Line. PKPC will provide Department of Planning with updates regarding the demand for rail freight to/from the port and the progress of planned regional rail infrastructure upgrades prior to commencing the later stages (i.e. Stage 1b and 1c) of the dredging and reclamation works.
Noise	*Operational Noise and Vibration Management Plan* PKPC will prepare an ONVMP as part of the OEMP, prior to the commencement of operation of Stage 1 of the proposed development. The ONVMP should be prepared in

Major Project	
Issue	**Environmental Commitment**
	accordance with the relevant DECCW guidelines and should incorporate best practice mitigation measures, The ONVMP will recommend noise mitigation measures required to address operational noise and sleep disturbance impacts arising from increased rail movements associated with Stage 1 of the project. To mitigate the potential sleep disturbance impacts associated with the use of train horns in Stage 1, PKPC will commit to use shorter train horn toots rather than standard longer train horn blasts. PKPC will carry out an additional noise impact assessment, if it is found, after detailed design and operations planning, that the finalised operational scenario differs significantly from that used for modelling purposes in the revised Noise and Vibration Impact Assessment prepared by AECOM and dated 20 September 2010).
Air Quality	*Air Quality Management Plan* PKPC will ensure that the AQMP includes appropriate site specific best practice mitigation measures for the management of particulate emissions during the operation of the proposed development such as: • Sealing roads and areas susceptible to windblown dust impacts. • Covering of transport loads. • Watering and/or using surfactants on stockpiles. • Covering of bulk cargo stockpiles (where necessary practicable). • Instantaneous dust monitoring at the boundary of the site most affected by dust impacts. • Reclaimed areas for future terminal development to be covered with suitable compacted materials to ensure fugitive dust emissions are minimised. • Site specific mitigation measures for the management of particulate emissions during the operation of the proposed development's night time operation.
Landscape and Visual Amenity	*Landscape Management Plan* PKPC will ensure that the LMP includes appropriate site specific measures and controls to mitigate potential visual impacts on the immediate, local, and regional landscape including: • Lighting for the portion of the dry bulk/multi-purpose terminal that will be operational as part of Stage 1 and other operational areas, including the new road link, will be carefully selected to minimise light spill on surrounding areas outside the terminal boundaries and minimise visual impact when viewed from adjacent premises. • Selection of suitable colours and materials for the terminal pavement, buildings and other structures to minimise reflectivity and contrast.
Sustainability	As per Concept Plan
Climate Change	As per Concept Plan
Waste	*Waste Management Plan* PKPC will ensure that appropriate general and hazardous waste identification, handling, storage, transportation, disposal and monitoring measures, to be followed on-site during operation of the proposed development, are included in a WMP which is to form part of the OEMP. PKPC will ensure these management measures as well as on site waste management activities are undertaken in accordance with the relevant NSW and Commonwealth Regulations and Guidelines. The following measures will be included as a minimum in the WMP: • Incoming vessels to the Port will be subjected to assessment in accordance with the Quarantine Act 1908. Australian Quarantine Inspection Service (AQIS) manages

Major Project	
Issue	**Environmental Commitment**
	quarantine controls at our borders to minimise the risk of exotic pests and diseases entering the country. Incoming vessels will have to apply to the AQIS: form s20AA Permission to Enter an Australian Non-Proclaimed First Port of Entry and/or Application for s33 Permission to Enter Subsequent Ports of Call. • The OEMP should incorporate requirements as in the National Ballast Water Management Arrangements under the Australian National System for the Prevention and Management of Marine Pest Incursions.
Socio-Economic	PKPC will ensure that access to the existing small boat harbour and associated facilities is not affected during either the construction or operational phase of Stage 1. PKPC will include appropriate measures in a SFMP for Stage 1 to ensure that safe access is provided for recreational boaters entering and exiting the small boat harbour, particularly during reclamation and dredging activities. PKPC will continue to liaise with affected businesses and local community groups during Stage 1 to inform them about project status and timing for construction key project components.