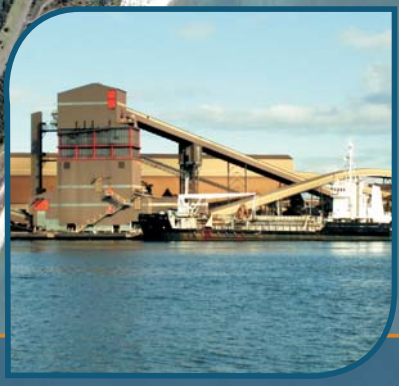
Newcastle Port Corporation



Capital Strategic Dredging Project, South Arm, Hunter River

Submissions Report

September 2013

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1. Introduction

1.1 Overview

Newcastle Port Corporation (NPC) proposes to facilitate the development of additional berths within the South Arm of the Hunter River, in the Port of Newcastle (referred to herein as "the Project"). The Project involves capital dredging of twelve berths, together with the construction of foreshore stability treatments. The Project is located adjacent to vacant industrial land at Carrington, Mayfield and Walsh Point. The development would assist NPC in meeting its objectives of increasing port capacity and diversifying trade and development options within the Port of Newcastle.

A Preliminary Environmental Assessment was prepared by Worley Parsons in February 2011 (Worley Parsons 2011) to identify preliminary environmental constraints of the Project. The PEA was prepared to accompany the Project's application for assessment under Part 3A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) to the NSW Department of Planning and Infrastructure. This was later transitioned into State Significant Infrastructure, and is now being assessed under Part 5.1 of the EP&A Act.

Director General's Requirements (DGRs) were issued for the PEA by the Department of Planning and Infrastructure under Part 5.1 of the EP&A Act. The DGRs identified key issues recommended to be included in further environmental assessments.

In order to adhere to the DGRs, an environmental impact statement (EIS) was prepared by GHD and finalised in 2013. The EIS examined potential impacts of the Project and focused on the potential impacts of key issues identified by the DGRs. The EIS was prepared under Part 5.1 of the EP&A Act as a State Significant Infrastructure project.

Section 115Y(2) of the EP&A Act stipulates that an EIS must be prepared and that the matters listed under Part 3 of Schedule 2 of the Environmental Planning and Assessment Regulation 2000 apply. These matters relate primarily to the form and content of an environmental impact statement. The EIS has been prepared in a form and content consistent with the regulations.

Following adequacy review of the EIS by the NSW Department of Planning and Infrastructure, it was placed on public exhibition on 2 April 2013 for 46 calendar days by the NSW Department of Planning and Infrastructure. The EIS was exhibited on the NSW Department of Planning and Infrastructure's website and Newcastle City Council's office.

1.2 Purpose of this report

NPC are required respond to submissions received following the exhibition of the EIS. This report has been prepared in response to issues to issues raised in the submissions. It will be submitted to the NSW Department of Planning and Infrastructure so that the EIS can be further assessed and determined.

Ten submissions were received from government agencies and local organisations listed in Section 3. GHD has sorted the comments under relevant headings for each issue, analysed the issues raised and assisted NPC to prepare a response.

1.3 Scope and limitations

This report has been prepared by GHD for Newcastle Port Corporation and may only be used and relied on by Newcastle Port Corporation for the purpose agreed between GHD and the Newcastle Port Corporation as set out in section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than Newcastle Port Corporation arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

GHD has prepared this report on the basis of information provided by Newcastle Port Corporation and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

1.4 Project overview

1.4.1 Project summary

A detailed description of the Project is provided in the EIS (Section 2) and is briefly summarised in the following sections of this Submissions Report. The key features of the Project that are the subject of the EIS, and for which NPC is seeking approval from the NSW Department of Planning and Infrastructure under the NSW *Environmental Planning and Assessment Act 1979* are:

- Dredging of approximately 1,870,000 cubic metres of sediments from 12 proposed berths in the Hunter River South Arm.
- Construction of 12 berths including foreshore improvement works and limited landside excavations.
- If required, stockpiling, dewatering, treatment and transport for reuse or disposal to an approved landfill of up to approximately 30,000 cubic metres of potentially contaminated sediments at Walsh Point. A previous investigation at Walsh Point identified that there was a low possibility of a contaminated sediments ‘hotspot’, However all subsequent testing has not been able to find any significant contamination at this location so the likelihood of requiring stockpiling at Walsh Point is low.
- If required, stockpiling, dewatering, treatment and transport for reuse or disposal to an approved landfill of up to approximately 2500 cubic metres of potentially contaminated landside material at Mayfield (adjacent to berths M1 and M2).
- Associated activities as described in the EIS.

NPC is separately seeking approval for disposal at sea of all suitable dredged sediments from the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) under the Commonwealth *Environment Protection (Sea Dumping) Act 1981* in the form of a Sea Dumping Permit. This is subject to a separate assessment process which is still underway.

1.4.2 Project location and purpose

NPC proposes to facilitate the development of 12 additional berths in the South Arm of the Hunter River, within the Port of Newcastle. There are seven berths proposed in the area of Mayfield, on the riverfront adjoining the former BHP Steelworks site. Four berths are proposed at Walsh Point, located at the eastern end of Kooragang Island. One berth is proposed at Dyke Point, adjacent to Carrington (Figure 1-1).

Approximately 1,870,000 cubic metres of river sediment would be removed from the berths for sea disposal. The Project would also involve constructing sheet pile walls and other foreshore treatment works to stabilise the river banks adjacent to the berths.

The Project will assist to increase port capacity, diversify trade and meet the demand for non-coal exports. Approval of the Project will assist proponents who seek to develop adjoining industrial land, allowing access to shipping for imports and exports.

1.4.3 Project design

The Project's design has been developed to a concept level and has considered a range of factors. Requirements such as depth and width of the berths were determined by examining the intended use for each site. This included assessing the likely vessel types that would use each berth. A geotechnical analysis was used to understand constraints at the sites and assist in refining the design. Constraints include types and volumes of material to be dredged, suitability of the material for disposal, likely dredging methods, and engineering required to stabilise the foreshore at each site.

Sediment sampling was undertaken to determine the most appropriate location for disposal of the dredged material. It was generally found that the riverbed consists of fine grained, soft silty clay sediments overlying sand. The sampling indicated that the sediment may be suitable for disposal at sea.

Project design also included consideration of foreshore stability and design of the channel batters, including the geometric constraints of each berth.

1.4.4 Staging

A number of different proponents may develop the berths at different times. The proponent at the time would determine the timing, scale and nature of the landside facilities. This would affect the timing and scale of the dredging activities. Dredging at some berths may be deferred until these berths are required to support the adjacent landside development. Consequently, the order in which the berths are to be dredged will depend on a number of factors such as market forces, detailed design and environmental approvals.

However, in undertaking the EIS, the assessment of potential impacts was based on the scenario that all 12 sites are to be dredged during a single campaign. This allowed for the range of impacts, and potentially cumulative impacts of the works, to be assessed holistically.

1.4.5 Dredging

The dredging program would involve the following events (subject to detailed design):

- Establish the site and identify the installation of environmental control provisions.
- Install bank stability improvement measures.
- Remove and manage contaminated sediments.
- Excavate the shorelines using land based plant.
- Remove overlying marine silts and clays.
- Remove sand and underlying stiff clays.
- Progressively place batter protection rock.

There are a number of dredging methods available for construction of the Project as listed below:

- Backhoe dredge and barge- an excavator mounted on a purpose-built barge fitted with a grab that minimises water turbidity.
- Trailer suction hopper dredge- a self-propelled, ocean-going vessel with an onboard hopper (container) for carrying dredged material that can be loosened and released from the harbour bed.
- Cutter suction dredge - similar to trailer suction hopper dredge but with a cutting head for harder materials.

Any excavated sediment that requires treatment due to contamination would be temporarily stockpiled and dewatered before it is transported for reuse or disposal. Two temporary stockpile areas may be required for the Project. Areas adjacent to dredging at Walsh Point and Mayfield are the likely locations.

LEGEND

- Berth Locations
- Existing Channel 15.2m (NHTG)
- Approved Channel Depth 15.2m to be dredged by others

1:13,000 (at A4)

0 50 100 200 300 400

Metres

Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 56

N

GHD CLIENTS | PEOPLE | PERFORMANCE

NEWCASTLE PORT CORPORATION

Newcastle Port Corporation
Capital Strategic Dredging Project

Job Number	22-16876
Revision	0
Date	01 JUL 2013

Berth Locations

Figure 1.1

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

G:\22\15683\GIS\Maps\Deliverables\166876\Deliverables\2216876_SR001_BerthLocations_20130701_0.mxd

Data source: LPI, DCDB/DTDB, 2012. Created by: fmackay, gmcdiarmid

2. Consultation activities

2.1 Consultation during the environmental assessment process

2.1.1 Overview

Consultation was undertaken according to the requirements of the DGRs which outlined relevant parties to be consulted with and the documentation process to be followed. NPC undertook a range of consultation activities during the preparation of the EIS in accordance with a Stakeholder Engagement Plan. The Stakeholder Engagement Plan was designed to provide information to the community and key stakeholders about the Project and the method of engagement to be used throughout the development and exhibition of the EIS. These consultation activities were documented in Chapter 4 of the EIS.

2.1.2 Government agencies

NPC consulted with the following government authorities:

- Newcastle City Council.
- NSW Maritime.
- NSW Office of Environment and Heritage.
- NSW Trade and Investment.
- NSW Office of Water.
- NSW Roads and Traffic Authority (now NSW Roads and Maritime Services).
- Heritage Council of NSW (formerly NSW Heritage Branch).
- Commonwealth Department of Sustainability, Environment, Water, Population and Communities.

NPC attended meetings with NSW Office of Environment and Heritage, NSW Environment Protection Authority, and NSW Department of Planning and Infrastructure in 2012 to discuss the outcomes of the adequacy review of the draft EIS.

2.1.3 Aboriginal stakeholders

NPC has consulted with Aboriginal stakeholders in accordance with the Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC, 2005) as required by the DGRs. Twenty Aboriginal stakeholders were consulted and a public notice was placed in the Newcastle Herald in May 2011 calling for expressions of interest from Aboriginal stakeholders. Responses were received from 10 stakeholders. In response to concerns raised by two Aboriginal corporations, NPC conducted a site inspection.

Registered Aboriginal stakeholders were sent a copy of the draft EIS in August 2012 and given 28 days to comment. No responses had been received from the stakeholders by the time of EIS exhibition or preparation of this Submissions Report.

2.1.4 Local community

NPC placed an advertisement in the Newcastle Herald in November 2011 seeking comments on the Project from community members. NPC also distributed community information flyers to residents in Stockton, Tighes Hill, Mayfield East, Maryville and Carrington, and sought comments from the community. Two community information sessions were held at Mayfield and Stockton where community members were able to meet with the Project team and ask for more information. Twelve people attended the sessions and a number of issues were raised. The issues were documented and addressed in the EIS.

2.1.5 Public exhibition

The NSW Department of Planning and Infrastructure placed the EIS on public exhibition on 2 April 2013 for 46 calendar days on the department's website. Any person was able to make a submission to the Director-General. The EIS was also on display in Newcastle City Council's offices. At the end of the public exhibition period, nine submissions were received from the agencies listed in Section 3.1

2.2 Consultation following exhibition

Following the exhibition of the EIS the Department of Planning and Infrastructure forwarded submissions to NPC. Refer to Section 3 for a summary of the submissions.

NPC attended meetings with the groups listed below to discuss their submissions in more detail:

- NSW Catchment Management Authority, Hunter-Central Rivers (19 June 2013).
- NSW Office of Environment and Heritage (19 June 2013).
- Newcastle City Council (26 June 2013).
- NSW Environment Protection Authority (18 July 2013).

NPC also met with the Department of Planning and Infrastructure (30 August 2013) to discuss comments from the Department and other agencies on the draft Submissions Report. A late submission was also received from the Heritage Council of NSW, which was also discussed at the meeting.

3. Submissions

3.1 Submissions received

A total of ten submissions were received as listed below:

1. NSW Office of Environment and Heritage.
2. NSW Roads and Maritime Services.
3. NSW Trade and Investment, Resources and Energy.
4. NSW Department of Primary Industries.
5. NSW Environment Protection Authority.
6. NSW Catchment Management Authority, Hunter-Central Rivers.
7. Newcastle City Council.
8. Incitec Pivot.
9. Hunter Bird Observers Club.
10. Heritage Council of NSW.

3.2 Issues raised

The submissions raised a number of issues as summarised in Table 3-1 along with a reference to where the issue has been addressed in this report. A detailed summary the issues raised by all submissions received is presented in Appendix A.

Table 3-1 Summary of issues

Issue	Where addressed in this report
General	Section 4.1
Stockpile management	Section 4.2
Biodiversity	Section 4.3
Water quality	Section 4.4
Sediments	Section 4.5
Tidal inundation	Section 4.6
Traffic	Section 4.7
Spoil disposal	Section 4.8
Environment Protection Licence (EPL)	Section 4.9
Contamination	Section 4.10
Noise	Section 4.11
Waste	Section 4.12
Air quality	Section 4.13
Heritage	Section 4.14

4. Response to submissions

4.1 General

EIS incorrectly states that the Hunter River prawn fishery was declared closed. The closure only relates to prawn numbers and is not a total closure. There is a seasonal closure to prawn fishing from the end of May until the beginning of November (Submission 4).

Noted. NPC continues to work with the prawn fishery industry and other river users to minimise potential impacts from maintenance dredging and for any potential impacts from capital dredging.

CMA incorrectly referred to as Catchment Management Area (Submission 6).

Noted. This was a typographical error and should refer to Catchment Management Authority.

Disagree with the EIS statement that "sea level rise is unlikely to impact the hydrology of the Hunter River to any great extent" (Submission 6).

Noted. This statement was a typographical error within the Environmental Risk Analysis (EIS Section 5) and was referring to potential implications for the proposed dredging. The hydrology study undertaken for the EIS clearly recognises the potential for sea level rise (EIS Section 10.3.4).

Questioned why an older aerial photo was used for the maps produced in the EIS (Submission 7).

NPC acknowledges that the aerial photo was out-dated but is still considered to provide an adequate visual representation for the EIS and does not affect the assessment.

NPC EIS does not consider the Incitec Pivot EIS for the proposed Ammonia Nitrate Facility on Kooragang Island, which went on exhibition in September 2012 (Submission 8).

The NPC EIS was well advanced by September 2012 and was in the process of being finalised. As a result the Incitec Pivot EIS (URS 2012) could not be included.

The Incitec Pivot proposed Ammonia Nitrate Facility on Kooragang Island is located at Walsh Point approximately 200 metres to the north east of berth K1. The site is located immediately to the north of the Orica site and immediately south of the Eastern Star site as shown on Figure 3.1 of the EIS. Key features of the proposed project are:

- Construction and operation of a manufacturing plant for the production and commercial sale Ammonium Nitrate and Nitric Acid in various forms.
- Importation of Ammonia by ship and road.
- Construction over a period of approximately 28 months, which was planned to commence in early 2013. At the peak approximately 340 construction staff would be employed at the site.

The potential cumulative impacts of the Project with other proposed projects in the vicinity have been assessed in the EIS (EIS Sections 3 and 16.7). These other projects include:

- Mayfield Concept Plan (Port Terminal Facilities).
- Intertrade Development.
- Marstel Terminals Bulk Liquids Storage Facility.
- ICL Cement Terminal Mayfield North.
- Extension/Deepening of Shipping Channels.
- Hunter River Remediation Project.
- Newcastle Coal Infrastructure Group Coal Terminal.
- Port Waratah Coal Services Terminal 4.
- Swing Basin.
- Orica – Kooragang Island Facility Expansion.
- Walsh Point – Eastern Star Gas.

This cumulative assessment identified that when taking into consideration the Project impacts and likely timing of all projects that the Project was unlikely to significantly contribute to any cumulative impacts but that NPC would work with other proponents and the community as and when required should concurrent construction be likely.

As stated in the EIS (Section 2.4) dredging and berth construction would be undertaken by individual proponents. The timing of development of individual berths is not known and could be staged over an extended period of time. Therefore any potential construction related cumulative impacts would only arise should projects be under construction concurrently.

While it has not been possible for NPC to fully assess the potential cumulative impacts of the Project with the proposed Incitec Pivot facility, it is possible to consider the potential cumulative impacts through extrapolation of the assessment already undertaken. As the proposed Incitec Pivot facility is a land based facility the potential cumulative impacts would primarily relate to construction impacts as discussed below.

- Noise and vibration – possibility of increased noise impacts due to concurrent construction activities and construction related road traffic noise.
- Air quality and odour – possibility of increased air quality impacts due to concurrent construction activities, construction related traffic movements and should stockpiling be required at Walsh Point.
- Traffic and access – possibility of increased construction related traffic movements at Kooragang Island and Walsh Point.
- Economic and social – possibility of increased social impacts related to noise, air quality and traffic. Possibility of increased economic benefits through employment and supply contract opportunities.

In all cases of potential cumulative impacts with any other proposed project, NPC has provided clear commitments within the EIS to work with the other proponents and other relevant stakeholders to minimise the potential cumulative impacts. NPC has also committed to a program of consultation with the community to ensure they are kept informed regarding the Project.

Should the Incitec Pivot facility be operational prior to construction of the Project any cumulative impacts are considered to be minimal and largely restricted to traffic and access. A Construction Traffic Management Plan for the Project would be prepared for the approval of RMS and Newcastle City Council. It must also be noted that the roads on Walsh Point (Greenleaf Road and Heron Road) are owned by NPC and are not classified as public roads. As such NPC has exclusive management control of those roads. If there was any traffic proposed on Walsh Point as a result of the disposal of material adjacent stakeholders would be informed of the works and the Traffic Management Plan will consider their requirements. This would consider the existing traffic situation in the vicinity at that point in time.

Assess the proposed dredging against the Hunter-Central Rivers Catchment Action Plan (Submission 6).

The EIS did not specifically include a reference to this document. The submission specifically references a number of strategies and outcomes from the plan which the author of the submission considers to be relevant to the Project. A response to each of these is provided below.

- *Governance and Planning*
  - *1.1: Consider and assess cumulative and long term impacts on natural resources and ecosystem services in decision making and landuse planning.*

The EIS has considered the cumulative and long term impacts of the Project on all relevant matters in accordance with the requirements of the NSW *Environmental Planning and Assessment Act 1979*. In particular potential impacts on flora and fauna, including potential changes to river hydrology have been considered in Sections 15 and 10 of the EIS respectively.

- *Biodiversity*
  - *6.1: Protect and improve habitat connectivity, quality and condition;*
  - *6.3 (g) The direct, combined and cumulative effects of threatening processes are considered and addressed through effective land use planning and decision making;*
  - *6.4 (e) Species and places covered by international conventions including World Heritage, Ramsar and JAMBA are protected, promoted and managed according to these agreements and to provide biodiversity benefits to the region (Brereton et al 2010).*

    As per the response to 1.1 above.
- *Estuaries and Marine*
  - *8.2 Protect and manage estuarine and marine habitats and connectivity.*

    As per the response to 1.1 above.
- *Aligned NSW Natural Resource Management Targets for Biodiversity especially with regard to the cumulative effect of dredging in the Hunter estuary:*
  - *By 2015 there is an increase in native vegetation extent and an improvement in native vegetation condition.*
  - *By 2015 there is an increase in the number of sustainable populations of a range of native fauna species.*
  - *By 2015 there is an increase in the recovery of threatened species, populations and ecological communities*

– *By 2015 there is an improvement in the condition of important wetlands, and the extent of those wetlands is maintained.*
– *By 2015 there is an improvement in the condition of estuaries and coastal lake ecosystems.*

These targets are not relevant to the Project, however based on the assessment and modelling carried out, the Project is not expected to detrimentally affect the targets.

Impacts on the project site due to future sea level rise predictions and associated impacts on coastal saltmarsh (Submission 6)

The CMA submission identified that '*current predictions anticipate a sea level rise of 90cm by 2100*' (NSW Chief Scientist 2012). Other issues include '*inundation of the development as a result of the combined forces of a major flood event, sea level rise and coastal setup'*.

Given that predictions of sea level rise are orders of magnitude greater than the predicted changes to water levels associated with the proposed dredging activities (which are predicted to be negligible, refer to Section 10 of the EIS), there would be no significant contribution to the effects of sea level rise as a result of the proposed dredging activities.

As stated in Section 10.3.4 of the EIS, whilst the proposed dredging works could theoretically provide beneficial reductions in peak flood levels, the impact of these benefits is likely to be negligible. This is a result of the relatively small nature of hydrodynamic changes when considered in the context of the Hunter River as a whole. Therefore the Project is unlikely to contribute to any increased flood inundation under a climate change scenario.

Concept design of the berths provides for a minimum berth deck height of 3 metres above the Newcastle Harbour Tide Gauge (NHTG) providing adequate allowance for the predicted sea level rise of 0.9 metres. Further to this the peak tidal range in Newcastle is up to +/- 2 metres which is significantly lower than other harbours worldwide where ships berth and therefore any possible sea level rise would not compromise the ability of ships to use the new berths.

The berths and retaining walls will be subject to further detailed design and the potential impacts of sea level rise on the wharf infrastructure will be considered at this time.

See Section 4.6 for discussion of tidal inundation impacts on Coastal Saltmarsh areas.

4.2 Stockpile management

Request further information regarding stockpile locations and management controls (Submission 1).

Any stockpiling of dredged material at Walsh Point and Mayfield may require dewatering and a Soil and Water Management Strategy will be required (Submission 5).

As noted in the EIS (Section 9) it is estimated that up to approximately 30,000 cubic metres (about 1.6% of the total material to be disturbed) may be contaminated at Walsh Point and require stockpiling and treatment prior to disposal or reuse. A previous investigation at Walsh Point identified that there was a low possibility of a contaminated sediments 'hotspot', However all subsequent testing has not been able to find any significant contamination at this location so the likelihood of requiring stockpiling at Walsh Point is low. Construction of berths at Mayfield (M1 and M2) may also require the excavation of up to approximately 2500 cubic metres of potentially contaminated landside material. This could also require stockpiling and treatment prior to disposal or reuse.

Concept design for the Project has minimised the potential for significant contaminated material to be disturbed by incorporation of elements such as vertical retaining structures. Mayfield and Walsh Point have been identified as potential stockpile locations given their proximity to the potential sources of contaminated material that may be disturbed.

As stated in the EIS (Statement of Commitments in Section 17), NPC has committed to the preparation of a Soil and Water Management Plan, which would detail the management controls for these areas.

4.3 Biodiversity

No stockpiles should be placed in the vicinity of Walsh Point Reserve which should be retained for its conservation value, mainly for shorebirds and other marine species. Tree planting of suitable species around the foreshore area to mitigate against any contamination from surface runoff if stockpiles proceed in this area (Submission 1).

Walsh Point is not a conservation reserve and is currently vacant land under the control of NPC that is zoned and identified for future port related industrial development. As described below the site is heavily modified and has limited conservation value.

As stated in Section 2.7 of the EIS and discussed throughout the report, the use of Walsh Point is one potential option for stockpiling of potentially contaminated material. The need for stockpiles and locations has not been confirmed.

Previous investigations have identified an area in the vicinity of Walsh Point as a potential contamination 'hotspot'. Investigations undertaken for this EIS did not locate this 'hotspot' despite sampling in the same location. If contaminated sediment is identified in this area during dredging works, a temporary spoil stockpile may be required in the Walsh Point area. An indicative location on the southwest corner of Walsh Point has been nominated in the EIS due to its close proximity to the proposed Walsh Point berth.

The duration of stockpiling would be short term and is not expected to have any significant impact on the environment. As noted in Section 15.2.5 of the EIS, Walsh Point contains a rocky intertidal area at the base of a severely eroded artificial bank. The area is reclaimed land and provides limited aquatic habitat. The rocky shoreline is exposed only during the outgoing tide and is dominated by rubble, small areas of exposed sand/mudflat, debris and rubbish. There are very limited areas of exposed sand at low tide that would provide marginal foraging habitat for shorebirds (including migratory birds). Hence, the Walsh Point berth does not contain any substantial or important habitats of relevance for shorebirds or other terrestrial fauna.

The terrestrial environment at Walsh Point is highly disturbed and is dominated by grasses and weeds providing very low ecological value. This area would provide marginal foraging habitat for a small selection of common and widespread bird species that are typical of urban environments, including those that were recorded during the site visit. Stockpiling sediment could affect nesting individuals of the Masked Lapwing, a species known to occupy playing fields and other modified grasslands of urban areas during their breeding season, although no individuals were recorded during the site visit. However, impacts would be localised and minor.

The Project would remove three juvenile mangroves that represent an opportunistic recolonisation of the area. The Project would not clear any native reeds. There would be no native vegetation removed or disturbed as a result of stockpiling. Stockpiling would be located away from native vegetation, and would utilise areas dominated by grasses and weeds.

A Construction Environmental Management Plan and Soil and Water Management Plan (EIS Statement of Commitments, Section 17) would be prepared which would detail the management controls for any stockpile areas for the protection of the environment, including any biodiversity values. These plans would include measures to mitigate against potential contamination from surface runoff.

Tree planting is not considered necessary due to the minimal impact stockpiling is expected to have on the environment, the limited conservation value of Walsh Point, and the mitigation measures that will be included in management plans.

Should Walsh Point be developed for industrial use in the future, appropriate mitigation measures, including tree planting if required, should be considered as part of any future development proposal for the site.

Request further information on impacts of mobilised contaminants on Coastal Saltmarsh, other areas of conservation significance, including shorebird areas at Walsh Point and Hunter Wetland National Park and other threatened estuarine and aquatic species (Submission 1).

Inadequate assessment of significance of impact on threatened estuarine and aquatic species (Submission 1).

The EIS included an assessment of the potential impacts on water quality (EIS Section 8) and hydrology (EIS Section 10) which included hydrodynamic modelling to predict potential changes in pollutant distribution (contaminants and turbidity), tidal inundation and salinity profile. The modelling was based on a worst case scenario in which all 12 berths would be dredged in a single campaign using a trailer suction hopper dredge and no turbidity curtains. The assessments concluded there would be negligible to minor localised impacts only in the vicinity of dredging operations. A water quality monitoring strategy would be developed (EIS Section 17) to monitor key parameters during construction of the Project.

The flora and fauna assessment was conducted using a range of methods described in detail in Section 15.2.15 of the EIS. The assessment included a review of existing studies in the area of the Project, database searches to determine threatened species and ecological communities that have been previously recorded in the area, and a site visit to assess the potential for the area to support habitat suitable for threatened species.

Based on the results of the water quality (EIS Section 8) and hydrology (EIS Section 10) assessments as described above the conclusion of the flora and fauna assessment was that the Project would have minor localised and short term impacts on threatened species and ecological communities. No areas of conservation significance would be impacted. This is described in more detail below.

Section 15.3.3 of the EIS discusses the potential impacts of the Project on Coastal Saltmarsh EEC. The EIS states that indirect impacts on downstream and upstream aquatic ecosystems, coastal saltmarsh communities and the Hunter Estuary Wetlands (Figure 4-1) (DSEWPaC 2013(b), and associated fauna species are likely to be negligible.

The Hunter estuary SEPP 14 and Ramsar wetlands are located upstream of the Project site. Sedimentation from dredging conducted during the incoming tide has limited potential to migrate upstream and enter these wetlands. However, wetlands are generally accumulators of finer grained sediments and recyclers of associated nutrients. As such, the potential impacts from any sediment migration and deposition in these wetlands are likely to be short term and minimal, if occurring at all.

Based on the results of the flora and fauna literature review, database searches and site inspection, an assessment of the likelihood of occurrence of endangered communities, threatened species and migratory species listed under the NSW *Threatened Species Conservation Act 1995* (TSC Act), NSW *Fisheries Management Act 1994* (FM Act) and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was undertaken. This is presented in the EIS (Appendix G) and summarised below.

No listed endangered ecological communities or threatened or migratory species were assessed as being likely to occur within the study area on a permanent basis due to the highly modified environment in the immediate vicinity of the berths and adjacent land areas resulting in either a total absence of suitable habitat, or presence of low quality marginal habitat.

It is important to note that the majority of listed communities and species from the database searches have been recorded predominantly within the vegetated areas on the northern and western parts of Kooragang Island or in the offshore marine environment. Any use of the area within the vicinity of the Project where negligible to minor impacts have been predicted would likely be primarily of a transitory nature.

Specifically in response to the list of species provided in the OEH submission, the assessment of the likelihood of occurrence presented in the EIS (Appendix G) addressed the majority of species with the exception of those listed below. These species were excluded from the assessment in the EIS for the reasons outlined below.

- Eastern Osprey, Southern Myotis and Eastern Freetail-bat are highly mobile and may occasionally occur flying through the study area to areas of more optimal habitat. They are unlikely to be impacted by the Project.
- There is no wetland or saltmarsh habitat available for Magpie Goose, Australasian Bittern, Black Bittern, Comb-crested Jacana, Australian Painted Snipe or White-fronted Chat within the study area. These species are unlikely to occur in the study area and are unlikely to be impacted by the Project.
- There is a very small area of tidal sand flat habitat available in the study area for Beach Stone Curlew, Sanderling and Curlew Sandpiper. These species are unlikely to occur in the study area and are unlikely to be impacted by the Project.

Assessments of significance according to the Draft Guidelines for Threatened Species Assessment (DEC & DPI 2005) have been conducted for two groups of marine species identified in the OEH submission:

- New Zealand Fur Seal, Australian Fur Seal, Loggerhead Turtle, Green Turtle and Leatherback Turtle
- Dugong, Southern Right Whale, Blue Whale, Humpback Whale and Sperm Whale

These assessments of significance are provided below.

New Zealand Fur Seal, Australian Fur Seal, Loggerhead Turtle, Green Turtle and Leatherback Turtle

How is the project likely to affect the lifecycle of a threatened species and/or population?

The Project is not likely to disrupt the lifecycle of these species, as there is no evidence for the presence of individuals within the study area. There are no records of these species under the NSW Wildlife Atlas within the 10 kilometre search area.

In relation to the life cycles of the New Zealand Fur Seal, Australian Fur Seal, Loggerhead Turtle, Green Turtle and Leatherback Turtle:

- The Project area is unlikely to represent suitable foraging habitat for seal species as it would not support local populations of marine fish species that form the diet of seals. The benthic environment of the Project area, could in theory, support benthic organisms (crustaceans, molluscs, etc) that form part of the diet of the Loggerhead Turtle, Green Turtle and Leatherback Turtle, although there is a lack of evidence that these species forage in the Hunter River estuary.
- The Project area does not constitute breeding habitat for these species and would not conceivably support local breeding populations of these species. The New Zealand Fur Seal, Australian Fur Seal, and Green Turtle do not breed in NSW (OEH, 2013). The Loggerhead Turtle breeds in south-east Queensland and on the mid-west coast of Western Australia and infrequently on the NSW north coast (OEH, 2013). The Leatherback Turtle rarely breeds in Australia, however there are occasional breeding records between Ballina and Lennox Head in northern NSW (OEH, 2013).
- These species migrate along the NSW coast. The Project area, being located in an estuarine environment on the lower reaches of the Hunter River, is located outside of the migratory pathways of these species. Hence, the Project will not be affect migratory behaviour of these species. These species are unlikely to disperse through the Project area due to the lack of habitat available.

Based on the above, the Project is unlikely to affect the lifecycle of these threatened species.

How is the project likely to affect the habitat of a threatened species, population or ecological community?

These species are ocean-dwellers found in coastal waters of Australia. The likelihood of occurrence table provided in Volume 2 of the EIS in Appendix G (GHD, 2013) concludes that these species are unlikely to occur within the study area due to the lack of suitable habitat present. There are no records of these species within the estuarine environment of the Project area and there is no suitable habitat within the Project area.

Does the project affect any threatened species or populations that are at the limit of its known distribution?

These species occur up and down the coast of Australia and are not at the limits of their known distributions within the study area.

How is the project likely to affect critical habitat?

There is no critical habitat relevant to these species or present within the study area or within the locality. Hence, critical habitat is not relevant to the current proposal.

Conclusion

Based on the consideration of the above factors, the Project is not likely to have a significant effect on the New Zealand Fur Seal, Australian Fur Seal, Loggerhead Turtle, Green Turtle and Leatherback Turtle listed under the TSC Act.

Dugong, Southern Right Whale, Blue Whale, Humpback Whale and Sperm Whale

How is the project likely to affect the lifecycle of a threatened species and/or population?

The Project is not likely to disrupt the lifecycle of these species, as there is no evidence for the presence of individuals within the study area. There is one Dugong record and one Humpback Whale record under the NSW Wildlife Atlas within the 10 kilometre search area.

These species do not breed in NSW. Hence the Project could not affect the breeding behaviour or breeding success of these species.

The Southern Right Whale, Blue Whale, Humpback Whale, and Sperm Whale utilise the NSW coast for migrating only. These species do not breed within NSW and only forage during migration on an opportunistic basis (DSEWPaC, 2013). These species are unlikely to disperse through the Project area, owing to its location in the lower reaches of the Hunter River (being outside of the migratory pathways of these whale species), and due to the lack of suitable marine habitat.

Dugongs are considered occasional visitors to NSW coastal and estuarine waters due to the presence of seagrass in some estuaries (OEH, 2013). Dugongs are unlikely to utilise the Project area due to the lack of suitable habitat in general and particularly a lack of seagrass.

Based on the above, the Project is unlikely to affect the lifecycle of these threatened species.

How is the project likely to affect the habitat of a threatened species, population or ecological community?

These species are ocean-dwellers found in coastal waters of Australia. The likelihood of occurrence table provided in Volume 2 of the EIS in Appendix G (GHD, 2013) concludes that these species are unlikely to occur within the study area due to the lack of suitable habitat present. There are no records of these species within the estuarine environment of the Project area and there is no suitable habitat within the Project area.

Does the project affect any threatened species or populations that are at the limit of its known distribution?

These species occur along the east coast of Australia and are not at the limits of their known distributions within the Project area.

How is the project likely to affect current disturbance regimes?

Dredging operations could affect current disturbance regimes, however any predicted changes are negligible to minor and short term and highly localised. However, as these species are unlikely to utilise the Project area, any changes to disturbance regimes are not likely to affect these species.

How is the project likely to affect habitat connectivity?

The Project is not likely to affect habitat connectivity, as it will not create a barrier to fauna movement and will not fragment or isolate any areas of aquatic habitat.

How is the project likely to affect current disturbance regimes?

Dredging operations could affect current disturbance regimes, however any predicted changes are negligible to minor and short term and highly localised. However, as these species are unlikely to utilise the Project area, any changes to disturbance regimes are not likely to affect these species.

How is the project likely to affect habitat connectivity?

The Project is not likely to affect habitat connectivity, as it will not create a barrier to fauna movement and will not fragment or isolate any areas of aquatic habitat.

How is the project likely to affect critical habitat?

There is no critical habitat present within the Project area or within the locality. Hence, critical habitat is not relevant to the current proposal.

Conclusion

Based on the consideration of the above factors, the Project is not likely to have a significant effect on the Dugong, Southern Right Whale, Blue Whale, Humpback Whale and Sperm Whale, as listed under the TSC Act.

Therefore it is considered that the EIS has adequately assessed the potential impacts to all relevant listed communities, species and areas of conservation significance.

LEGEND

- Indicative Reporting Site
- Berth Locations
- Watercourse
- Ramsar Wetland (Hunter Estuary Wetland)

1:75,000 (at A4)

0 312.5 625 1,250 1,875 2,500

Metres

Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 56

N

CLIENTS | PEOPLE | PERFORMANCE

Newcastle Port Corporation
Capital Strategic Dredging Project

Job Number 22-15683
Revision A
Date 09 SEP 2013

Important Wetlands

Figure 4-1

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

G:\22\15683\GIS\Maps\Deliverables\Environmental Assessment\Submissions Report\2215683_SR002_NotForPublicDisplay_ImportantWetlands_A.mxd

Data Source: LPMA: DTDB - 2007, Imagery - 2007. DSEWPaC: DIWA, - 2013. Created by: gmcdiarmid, fmackay, mabarnier, tmorton

4.4 Water quality

The EIS is not clear on the proposed method of dredging with possible methods being backhoe dredge, cutter suction dredge and trailer suction dredge. Hydrodynamic modelling has been based on the operation of a trailer suction hopper dredge which is the worst case scenario. The EPA supports the use of a backhoe dredge or cutter suction dredge in preference to a suction hopper dredge to minimise potential water quality impacts. NPC should clearly demonstrate that a suction hopper dredge is required (Submission 5).

As stated in the EIS (Section 2.6) the dredge type to be used during construction would be confirmed at the time of dredging. The dredge could be a backhoe dredge, trailer suction hopper dredge or a cutter suction dredge.

To ensure the potential impacts were adequately considered, a trailer suction hopper dredge was used in the hydrodynamic modelling to represent the worst case scenario (such as turbidity). The model also assumed that all 12 berths would be dredged in a single campaign. However, as discussed in the EIS (Section 2.4), the staging of dredging is yet to be determined and will be dependent on individual proponents seeking to develop landside facilities at the berth. Therefore the actual dredge to be used for each berth cannot yet be defined and will be subject to a number of factors to be considered at the time of dredging including nature of the material to be dredged, re-use / disposal option to be employed and availability of a suitable dredge. The proponent, in consultation with NPC, would select the most appropriate dredge when required.

Request further information regarding effectiveness of turbidity curtains (Submission 1).

Turbidity curtains are a widely accepted means of turbidity control in the vicinity of dredging operations. They assist to contain sediment plumes within the curtain and to facilitate the rapid deposition of suspended materials. This would only be implemented where required, and would be subject to the type of dredge used and the methodology of the Dredge Management Plan.

Modelling undertaken for the EIS (Section 8) represents the worst case scenario by assuming all 12 berths would be dredged in a single campaign by a trailer suction hopper dredge without any turbidity curtains. The model has predicted minor localised and short-term impacts.

Monitoring for turbidity plumes is standard practice during capital dredging operations and would be implemented as part of the proposed Project.

The EPA supports the EIS commitment to preparation of a water quality monitoring strategy. The EPA would include a real time monitoring requirement in an EPL and it would include contaminants of potential concern in addition to the parameters identified in the EIS. Additional monitoring is recommended when a visual plume of turbid water is observed outside the turbidity curtain (Submission 5).

As stated in the EIS (Section 8.4 and Section 17), a water quality monitoring strategy would be developed and implemented for the Project. The monitoring strategy would monitor water quality during sediment removal and handling in real time.

NPC is willing to undertake the monitoring proposed in the EPA submission.

Disagree with the EIS statement that "*excessive levels of nutrients are primarily due to point sources rather than diffuse catchment run-off sources*". The Incitec Pivot EIS concludes that the major inputs of nutrients are from upstream catchment run-off (Submission 8).

NPC notes that there are numerous contributors of pollutants, including nutrients, to the Hunter River catchment. The information presented in the NPC EIS is based on the combined results of a number of investigations as identified in the EIS Section 8.1.1 and is considered to be an accurate reflection of the existing environment.

4.5 Sediments

Request further information on distribution of contaminated sediments where dredging is proposed (Submission 1).

Sediment sampling presented in the EIS is not considered to be representative for the following reasons:

- **Maximum depth of sampling is 6.35 metres, while the proposed depth of dredging is 17 metres. The Hunter River Remediation Project site showed that contaminated sediments occur at depth and are overlain by clean sediments.**
- **There is a large spacing between sample points and samples are skewed towards the near surface. This is evident in that the previously reported Walsh Point hot spot was not encountered.**
- **No bioavailability testing was undertaken (Submission 5).**

The EIS incorrectly quotes a PAH criterion of 10,000 µg/kg as the low criterion from the Interim Sediment Quality Guidelines, however this should be 4000 µg/kg which appears to influence the EIS conclusions regarding PAH contamination of sediments (Submission 5).

Accordingly, the EPA does not agree with the reported conclusions that further (Phase 3) testing of sediments is not required in relation to PAH, TPH and BTEX.

Representative and adequate sediment investigations at berths W1, W2, W3, K1, M1, M2, D3 and adjacent to M7 (in Onesteel sediments) should be undertaken in order to assess the suitability of disturbance of the contaminated and potentially contaminated sediment and appropriateness for sea disposal. The sampling should include:

- **Detailed site history assessment.**
- **A sampling analytical and quality plan.**
- **Assessment of bioavailability.**
- **Re-sampling for the Walsh Point hot spot (Submission 5).**

Introduction

The issues raised by the above submissions collectively request clarifications to further explain the sediment sampling and analysis program in the context of the testing regime that is being implemented and usage of relevant criteria to determine the suitability of the material to be dredged and the associated potential impacts due to mobilisation of contaminants.

The following sections provide a detailed response to all of the issues to demonstrate that NPC has undertaken an appropriate level of assessment for the Project and in support of a separate Commonwealth approval process for a Sea Dumping Permit.

Overview of Sampling Program Requirements

A comprehensive program of sediment sampling is being undertaken for the Project. The sampling program is being undertaken in accordance with the Australian Government National Assessment Guidelines for Dredging 2009 (NAGD) to support a proposed application for a Sea Dumping Permit issued by the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) in accordance with a SEWPaC approved Sampling and Analysis Plan (SAP).

The NAGD is based on the Interim Sediment Quality Guidelines and is the contemporary standard to use for assessing the sediment sampling results. Refer to the discussion below for further information regarding the use of the NAGD as the contemporary standard.

The NAGD requires a regime of assessment including three key phases of sampling and analyses to assist SEWPaC to determine a SDP application as outlined below. In the event that the existing information or results of project specific sampling analysis are below the defined criteria at each phase the assessment process proceeds directly to the appropriate level of impact assessment by the proponent for determination of SEWPaC. Further only the identified contaminants that exceed the relevant criteria at each phase, and only in locations where the exceedance has been detected, are carried on through further testing phases as required.

- Phase 1 Evaluation of Existing Information – evaluate existing information to determine if sufficient information is already available to assess an application, otherwise further sampling and analysis is required.
- Phase 2 Sampling and Analysis of Sediments – prepare and submit a Sampling and Analysis Plan for SEWPaC approval, undertake sampling and analysis for identified contaminants of concern and compare to the NAGD screening levels.
- Phase 3 Elutriate and Bioavailability Testing – comprised of three further sub-phases:
  - Compare Phase 2 results with background (natural) levels and the NAGD screening levels.
  - Undertake elutriate testing for relevant contaminants and compare the results with the ANZECC (2000) water quality guidelines.
  - Undertake bioavailability testing and compare the results with the relevant NAGD criteria.
- Phase 4 Toxicity and Bioaccumulation Testing – undertake toxicity testing for relevant contaminants that are potentially toxic and undertake bioaccumulation testing for any relevant bioaccumulating substances where the levels exceed the NAGD (Sediment Quality Guidelines – high values).
- Phase 5 Weight of Evidence Assessment – if required, subject to identified contaminants of concern, undertake an assessment of potential impacts based on all available information and test results.

At the time of exhibition of the EIS all available results up to and including Phase 3 (elutriate testing) (preliminary results) were presented in detail in Section 9 (in particular refer to Table 9-2) and Appendix D of the EIS. Further information is now available and this is discussed below.

Justification for use of NAGD Guidelines and Comparison with SQG Guidelines

The Director General's Requirements for the EIS required "*sampling and characterisation of the distribution of contamination, taking into account the Sediment Quality Guidelines (CSIRO Handbook, 2000)*."

The Sediment Quality Guidelines (CSIRO Handbook, 2000) document has been superseded by the Handbook for Sediment Quality Assessment (CSIRO, 2005). The later version includes recommended sediment quality guidelines low and high threshold values (interim sediment quality guidelines (ISQG)) that are based on those presented in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ, 2000).

The ISQG (low and high) were updated by the CSIRO in 2008 and it is intended that the revised values would inform future updates to the ANZECC water quality guidelines.

The NAGD includes sediment quality screening levels (NAGD Table 2) that are the same as the ISQG – low values in ANZECC/ARMCANZ (2000) as updated in 2008 by the CSIRO (Simpson et al 2008). The NAGD also states that the previous ISQG-high values have been excluded as "…..*it is now recognised that they are of uncertain ecological relevance*." The CSIRO proposed revised ISQG – high values are also presented in the NAGD (Table 4).

The ISQG – low value for total polycyclic aromatic hydrocarbons (PAHs) presented in CSIRO (2005) and ANZECC/ARMCANZ (2000) is 4000 ug/kg. As outlined above this has now been superseded by the ISQG – low value for total PAH of 10,000 ug/kg, which is presented in the NAGD (2009).

As the Project is seeking separate approval from SEWPaC to dispose of all dredged material at sea (in a dedicated spoil disposal ground) in accordance with a SDP all sampling and analysis is being undertaken in accordance with the NAGD, dated 2009. This is clearly the most contemporary and relevant standard for dredging and sea disposal activities.

Sampling Extent, Density and Depths

The Project involves the dredging of 12 berths (as shown on Figure 1.1) as follows:

- Mayfield Berths – M1, M2, M2, M3, M4, M5, M6 and M7.
- Dyke Berth – D3.
- Walsh Point Berths – W1, W2 and W3.
- Kooragang Berth – K1.

The Project would involve the dredging of approximately 1,870,000 cubic metres of material from the 12 berths. Of this amount, up to approximately 30,000 cubic metres has been identified as potentially contaminated material at Walsh Point based on a previous study. As discussed further below testing undertaken for the EIS has not been able to find any significant contamination at this location.

As stated in the EIS (Section 9.4) sediments within the Port of Newcastle have been subject to numerous geotechnical and geochemical studies as part of routine monitoring and previous dredging assessments. A detailed literature review was undertaken to identify the likely sampling requirements and is presented in the EIS (Section 9.4.2 and Appendix D). This represents Phase 1 of the NAGD process outlined above. It should be noted that in accordance with the NAGD and in consultation with SEWPaC, the sampling extent, density and depths are determined with reference to previous information, whereby if a substantial amount of data is already available, as is the case in Newcastle Harbour, the sampling requirements are reduced.

The Project also involved sampling and analysis for a range of potential contaminants as part of a Pilot Study (EIS Section 9.4.4), which included berths M1, M2, W1, W2, W3 and K1. The Pilot Study identified a number of potential contaminants of concern which were then subject to more detailed analysis as part of the SEWPaC approved Sampling and Analysis Plan (NAGD process Phase 2). These investigations involved sampling and analysis at berths M2, M3, M4, M7 and D3, which were agreed with SEWPaC as being adequately representative of the material to be dredged taking into account the findings of the literature review and Pilot Study. A reference location at Fullerton Cove was also sampled to ascertain natural ambient levels.

Contaminated sediments in the vicinity of M5, M6 and M7 were remediated in the Hunter River Remediation Project (HRRP) to the depth of contamination (soft silty clays) and a further 0.5 m into underlying sands. This area has been completely tested, validated and signed off by a NSW EPA accredited contaminated lands site auditor. For berths tested in the HRRP, testing was undertaken to the depth of soft material. Even though berth M7 has been fully remediated it was subject to further testing as part of the SEWPaC approved Sampling and Analysis Plan for this Project in accordance with the requirements of the NAGD and SEWPaC to demonstrate that the material meets the relevant NAGD criteria for sea dumping.

For capital dredging, samples are needed from the full depth of contamination as well as potentially contaminated sediment (i.e. soft silty clays). Full depth is taken to mean at least the top one metre of sediment, and more if contamination could be found deeper (i.e. to the depth of soft material). It is not normally necessary to sample consolidated natural geological materials (i.e. stiff clays or bedrock). All sampling and analysis to date has been to the entire depth of soft material until refusal into stiff clays in accordance with the NAGD.

The SEWPaC approved Sampling and Analysis Plan requires testing against NAGD. As the Project is a capital dredging project, sample quantities are based on the volume of potentially contaminated material rather than the total dredge volume.

Sample locations have been selected following the methods described in the NAGD (Appendix D), whereby a square grid was laid over the dredge site, with each grid to ensure at least five times the number of grid squares as the number of sampling locations required. Grid squares were numbered and selected by random number generation.

Summary of Sediment Sampling Results and Status

At the time of exhibition of the EIS all available results up to and including Phase 3 (elutriate testing) (preliminary results) were presented in detail in Section 9 (in particular refer to Table 9-2) and Appendix D of the EIS.

With the exception of Lead and Zinc only in berths M2, M3 and D3 (see further discussion below) all other identified potential contaminants of concern have met the respective screening / trigger levels during earlier testing and no further assessment is required and the material is suitable for dredging and sea disposal.

Specifically with regards to total polycyclic aromatic hydrocarbons (PAH), total petroleum hydrocarbons (TPH) and BTEX (benzene, toluene, ethylbenzene and xylene) raised in the EPA submission the following summary is provided (as previously presented in the EIS, Table 9-2 and Appendix D):

- PAH – the concentrations of the sum of total PAH ranged from 12 µg/kg to 26,500 µg/kg. When normalised to total organic carbon (TOC), the sum of total PAHs ranged from 60 µg/kg to 7181.6 µg/kg. All values were less than the NAGD screening level of 10,000 µg/kg, with the 95 percent UCL being 9073 µg/kg. As such, Phase III testing was not required for total PAH.
- TPH – the sum of TPH from M3 and M4 ranged from <3 mg/kg to 327 mg/kg. When normalised to 1 percent TOC, the concentrations ranged from 15 mg/kg to 64.78 mg/kg. All values were less than the NAGD screening level of 550 mg/kg, with the 95 percent UCL being 65.79 mg/kg. As such, Phase III testing was not required for TPH.
- BTEX – all concentrations were less that the practical quantitation limit (PQL) for each respective analyte. Therefore, Phase III testing was not required for BTEX.

Therefore based on the assessment process under NAGD 2009 (which references the same threshold values as the ISQG (2005) and ANZECC (2000) water quality guidelines (as updated in 2008 by the CSIRO) all potential contaminants identified by the EPA have been shown to be below the threshold values and therefore no further testing is required.

The findings of the Phase 3 (elutriate testing) identified that further Phase 3 (bioavailability testing) was required for Lead and Zinc in M2, M3 and D3. In consultation with SEWPaC, NPC will be undertaking some additional sampling and testing for bioavailability of Lead and Zinc only in berths M2, M3 and D3. The results of this assessment will then inform whether the material is suitable for sea disposal, or if bioavailable, then further Phase 4 (toxicity) testing may be required.

However based on previous CSIRO investigations (Chemical and Ecotoxicological testing of dredged sediment from Newcastle Harbour) undertaken in 2001, Lead and Zinc were found not to be bioavailable.

Previous investigations have identified an area in the vicinity of Walsh Point (berth W2) as a potential contamination (PAH) ‘hotspot’. Investigations undertaken for the EIS did not locate this ‘hotspot’ despite sampling in the same location. The testing results at this location returned levels less than the ISQG – low values in the NAGD. Therefore the likelihood of encountering contamination at Walsh Point is considered low.

M7 is adjacent to the declared contaminated sediments of the Onesteel site (Declaration 15008) which is listed on the EPA Contaminated Land Register database. While the EIS states that dredging at M7 will not overlap the declared sediments, the potential for dredging to disturb the declared sediments as the river reaches hydraulic equilibrium is not considered (Submission 5).

This declaration area is located on land adjacent to Tourle Street bridge, which is approximately 1.5 kilometres to the west of the Project and is therefore not adjacent to M7.

There are no expected impacts to the declared contaminated sediments of the Onesteel site. As stated in the EIS (Section 10), it is expected that tidal currents in the vicinity of the berths post-dredging would decrease due to the increased depth of water thereby reducing any potential impacts. Based on the hydrodynamic modelling results at Tourle Street bridge (Section 10.3), no change in tidal velocity is expected.

4.6 Tidal inundation

The EIS does not consider the cumulative impacts of dredging on upstream areas of conservation. Deepening of the harbour by dredging has caused increased tidal inundation resulting in loss of Costal Saltmarsh areas due to Mangrove colonisation and is threatening shorebird roosting areas at Walsh Point and Kooragang Dykes (Submission 1, 6 and 9).

Overview of the Hydrodynamic Model

The EIS included a hydrology assessment (EIS Section 10) of the potential impacts of the Project. An existing hydrodynamic model for the lower reaches of the Hunter River that was developed for the South Arm Dredging Project EIS (2003) was updated and used for the EIS. The model was updated with the latest bathymetry of the lower Hunter River relevant to the Project to capture recent dredging works that have occurred, or are approved and proposed to occur.

The hydrodynamic model consists of one, two and three dimensional element models for flow in estuaries and streams. It includes the two and three dimensional hydrodynamic models, and a water quality model. The model has been developed for many decades and applied in thousands of estuary studies throughout the world. It can be considered as a robust modelling tool suitable for the simulation of hydrodynamics and water quality in the Hunter Estuary.

The development, assumptions and calibration of the model were described in full detail in Appendix F of the South Arm Dredging Project EIS (GHD, 2003), Consequently, the current EIS for this Project provides a description of the steps taken to update the model and cross-references the previous South Arm Dredging Project EIS (2003).

The model included the latest bathymetry for the South Arm of the Hunter River which included the dredging works associated with the NCIG and PWCS terminal expansion at Kooragang as well as the dredging works associated with the HRRP adjacent to the Mayfield berths. In addition, the bathymetry was also modified to reflect the proposed dredging associated with the K10 berth (adjacent to the K1 berth and also adjacent to M3 and M4 berths).

The current bathymetry was not modified to reflect the proposed T4 development (proposed berths only) since at the time of modelling there was significant uncertainty regarding the project proposal for the T4 development and also doubts as to whether the project would proceed at all. The final project proposal for the T4 development remains under development and is expected to be confirmed by PWCS in late 2013.

However, for clarification the model does include the South Arm capital dredging project (as assessed in the 2003 EIS) which assessed the dredging of approximately 13,600,000 cubic metres which is significantly larger than the currently proposed 1,870,000 cubic metres, and therefore represents the greatest change to the bathymetry of the Hunter River of any current or proposed projects.

The model was used to predict the potential impacts associated with a range of factors including tidal inundation (EIS Section 10.3.1), tidal velocities and flow rates (EIS Section 10.3.2) and salinity (EIS Section 10.3.5).

The modelling indicates the following:

- Changes in water levels from the proposed dredging in the estuary under tidal conditions are predicted to be negligible (EIS Table 10-3).
- The proposed dredging would produce negligible changes to tidal water velocities (EIS Table 10-4) or tidal flow rates (EIS Table 10-5 and 10-6) in the estuary.
- The proposed dredging would result in slightly more saline intrusion, predominantly in the South Arm and within the footprint of the proposed dredge locations.

Tidal Inundation

Modelling used reference points in both the North and South Arms of the Hunter River as far upstream as the Hexham Bridge (these locations were identified on Figure 10.1 of the EIS, and are reproduced on Figure 4-1 in this report). On both the North and South Arm the nearest coastal saltmarsh communities have been mapped by NSW Industry and Investment (Cresse et al. 2009) approximately two kilometres upstream (Figure 4-2). All modelling shows negligible impacts regarding tidal inundation (EIS Table 10-3) and sedimentation (EIS Sections 8.3.7 and 8.3.10) at all modelled reference points upstream and downstream of the berths. This includes the three reference points closest to the upstream coastal saltmarsh communities:

- Kooragang No 6 Berth - two kilometres downstream of the nearest coastal saltmarsh community on the South Arm.
- Tourle St Bridge - 500 metres upstream of the nearest coastal saltmarsh community on the South Arm.
- Stockton Bridge - 500 metres downstream of the nearest saltmarsh community on the North Arm) (Table 10-3 in the EIS). The negligible tidal inundation and sedimentation effects of the Project are expected to be consistent throughout the Hunter River catchment.

Issues associated with tidal inundation include an increase and acceleration in the incursion of mangroves into remaining coastal saltmarsh areas. The Hunter Bird Observers Club has identified that '*expanding mangroves have caused the loss of roosting and foraging areas for shorebirds throughout the estuary'.* Since changes in water levels from the proposed dredging are predicted to be negligible, there are no expected impacts to the current extent of either mangroves or coastal saltmarsh as a result of the Project.

The extent of proposed dredging addressed in the EIS involves berths approximately 50 metres wide on the edges of the South Arm and is relatively minor when compared with other capital dredging campaigns which affect the entire width of the river. Therefore the predicted impacts are consistent with expectations and are minor or negligible.

Some of the submissions received have referenced various reports linking the loss of Costal Saltmarsh areas since the 1950's to dredging. Specific reference is made to the report prepared for Newcastle City Council entitled Shifting Sands at Stockton Beach (Umwelt 2002) as demonstrating a link between dredging and tidal inundation.

A review of this report was conducted and found that this report was prepared to assess the causes of sand loss from Stockton Beach. Through a thorough historical review it identifies the construction of the breakwaters and dredging of the harbour entrance as interrupting the longitudinal drift of sand across the river mouth and into the Stockton Bight. The report also quotes historical records illustrating that tides have increased at Stockton Bridge and Hexham Bridge. However, the report does not examine the cause of the tidal increases (noting that this was not within the scope of the study) within the broader estuary, and therefore NPC considers that the report does not provide any link from dredging, and in particular, in-harbour dredging, with increased tidal inundation within the Hunter River.

NPC does not dispute that there may have been a loss of Coastal Saltmarsh areas and an increase in tidal depths in the Hunter River over time. However, it is noted that since the arrival of Europeans in the Newcastle and Hunter Valley area the entire Hunter River catchment has been subject to substantial modification including broad scale land clearing and other land uses (resulting in increased sedimentation), tributary creek damming and diversions, land reclamation, water extraction, breakwater construction, foreshore improvement works, navigational dredging, flood levees and flood drainage relief channels. Natural events, in particular flooding, will have also impacted the characteristics of the Hunter River through river bank erosion and sediment depositional processes.

NPC maintains that the EIS study is an accurate prediction of the proposed impacts, and that it adequately considers the cumulative impacts as it has incorporated the latest bathymetry information (existing and proposed) within the hydrodynamic model. There are no predicted impacts to Costal Saltmarsh or other areas of conservation significance as a result of the Project.

Propose that NPC should prepare a cumulative model for the Hunter Estuary to meet Strategy 4 of the Hunter Estuary Coastal Zone Management Plan (Submission 6).

While NPC recognises the value of an estuary wide model it is not the responsibility of NPC to prepare such a model. NPC is only one of many organisations with an interest in the Hunter River estuary and consider that due to the many factors which can influence the conditions in the estuary that this responsibility should rest with the NSW State Government. NPC is willing to provide its hydrodynamic model and specific data to support the production of an estuary wide model by other parties.

Potential tidal range increase by project and resulting risks to the stability of the Kooragang Dykes (Submission 9)

The dykes are located to the north of Stockton Bridge, on the North Arm of the Hunter River and on the eastern side of Kooragang Island.

The EIS included a hydrology assessment (EIS Section 10) of the potential impacts of the Project. An existing hydrodynamic model for the lower reaches of the Hunter River that was developed for the South Arm Dredging Project EIS (2003) was updated and used for the EIS. The model was updated with the latest bathymetry of the lower Hunter River relevant to the Project to capture recent dredging works that have occurred, or are approved and proposed to occur. The model was used to predict the potential impacts associated with a range of factors including tidal inundation (EIS Section 10.3.1) and tidal velocities and flow rates (EIS Section 10.3.2).

Modelling used reference points in both the North and South Arms of the Hunter River as far upstream as the Hexham Bridge (these locations were identified on Figure 10.1 of the EIS, and are reproduced on Figure 4-1 in this report). On the North Arm the nearest modelled reference points are at Stockton Bridge (immediately south of the Kooragang Dykes identified in the submission) and at the junction of the North Arm and South Arm (approximately two kilometres south of the Kooragang Dykes). The modelling indicates the following:

- Changes in water levels from the proposed dredging in the estuary under tidal conditions are predicted to be negligible (EIS Table 10-3).
- The proposed dredging would produce negligible changes to tidal water velocities (EIS Table 10-4) or tidal flow rates (EIS Table 10-5 and 10-6) in the estuary.

Based upon the modelling no impact is expected upon the Kooragang Dykes as a result of the proposed dredging works.

Hunter River (map 1)

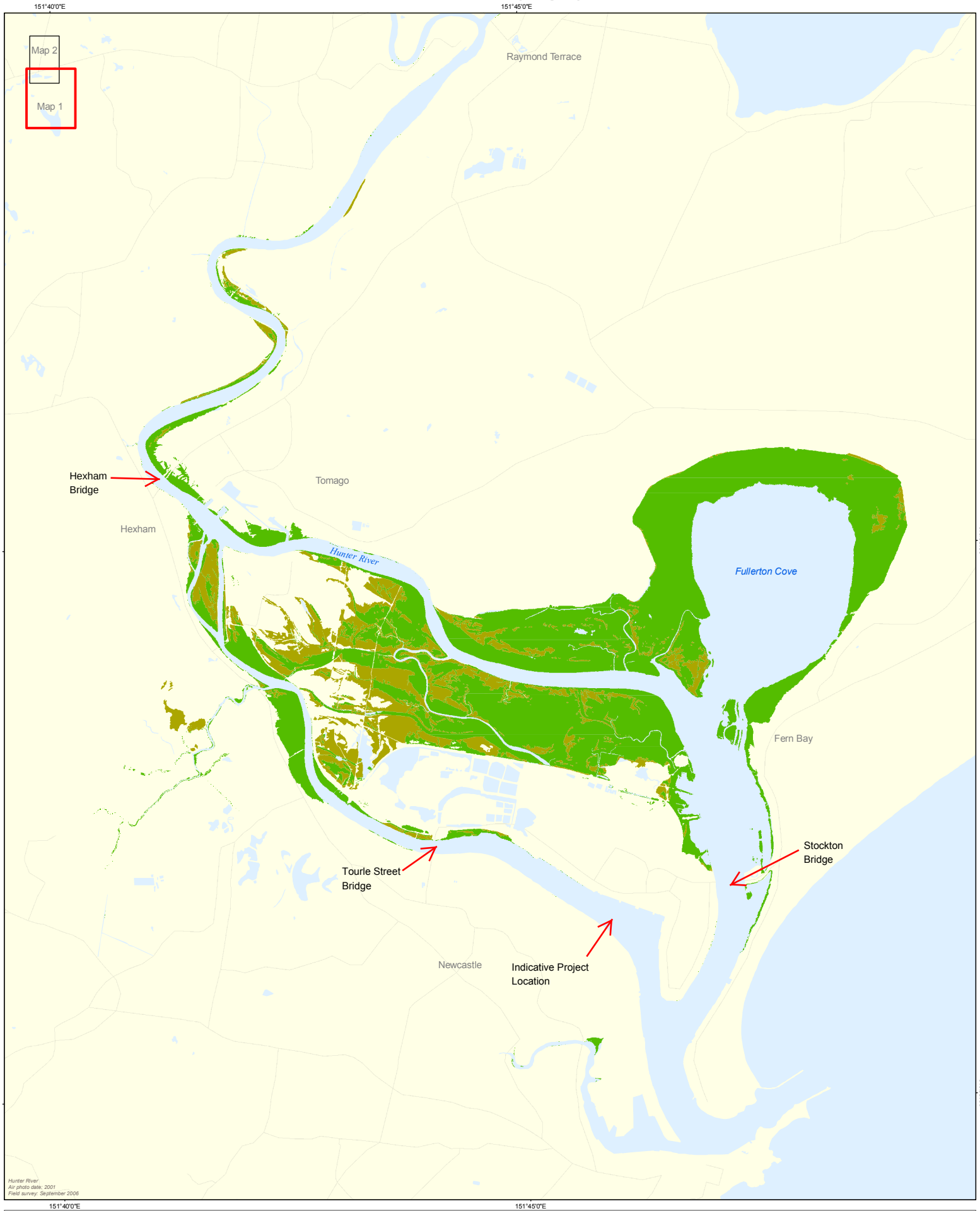

Figure 4-2 Saltmarsh

4.7 Traffic

Question whether the EIS traffic study meets the requirements of RMS. A Construction Traffic Management Plan will be required to be submitted to RMS and Council for approval prior to works commencing (Submission 7).

The Roads and Maritime Services (RMS) (Submission 2) has accepted the traffic study undertaken as part of the EIS.

As stated in Section 14.1 of the EIS, traffic impacts associated with the Project are expected to be minimal with road traffic movements only being associated with any spoil transport to Kemps Creek landfill in Sydney and employee movements.

The Statement of Commitments in Section 17 of the EIS proposes appropriate traffic management measures. NPC supports the preparation of a Construction Traffic Management Plan which will be provided to RMS and Newcastle City Council for approval as relevant.

A pre-construction and post-construction dilapidation survey of Selwyn Street will be required. NPC are required to rectify any damage caused by road transport associated with haulage of dredged material (Submission 7).

As noted above, traffic impacts associated with the Project are expected to be minimal.

NPC is willing to undertake a pre-construction and post-construction dilapidation survey of Selwyn Street and contribute to the rectification of any damage that may be attributed to the Project noting that several other industrial facilities also use the local road network.

Recommend that the traffic assessment be modified to use 2010 AADT information and include truck movements for proposed cement stabilisation activities at Walsh Point (Submission 8).

The RMS (Submission 2) has not indicated any concerns with the traffic study undertaken as part of the EIS. The 2010 AADT information was not available at the time that the traffic study was undertaken for the EIS.

Cement stabilisation of contaminated sediments has been proposed as a possible treatment, however should a more suitable method be available when this activity occurs, this will be considered. NPC, in consultation with RMS and Newcastle City Council, will prepare a Construction Traffic Management Plan which will consider existing conditions at the time of any proposed spoil treatment or transport of spoil by road.

4.8 Spoil disposal

Mineral Resources Branch has no objections to the proposed development and would encourage re-use of dredged material where possible (Submission 3).

Request that any suitable sand be used for Stockton Beach nourishment. Request that 40% of the identified clean dredged sand (1,045,000 m^3) be specifically allocated for this purpose. Request that the approval for reuse on Stockton Beach be obtained as part of this EIS (Submission 7).

The Project is seeking approval for the dredging of 12 berths from the NSW Department of Planning and Infrastructure under the NSW *Environmental Planning and Assessment Act 1979*. Suitable dredged materials are proposed to be disposed at an approved offshore spoil disposal ground in accordance with a Sea Dumping Permit that would be issued by the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPaC). The sea dumping process is subject to a separate approval process under the Commonwealth *Environment Protection (Sea Dumping) Act 1981* in the form of a Sea Dumping Permit that would be issued by SEWPaC.

The Project would involve the dredging of approximately 1,870,000 cubic metres of material from the 12 berths. Of this amount, up to approximately 30,000 cubic metres has been identified as potentially contaminated material at Walsh Point. Should any further testing confirm the material at Walsh Point is contaminated and requiring treatment prior to reuse or appropriate disposal (for example, to a licensed landfill) then stockpiling during treatment is proposed at Walsh Point. However all subsequent testing has not been able to find any significant contamination at this location so the likelihood of requiring stockpiling at Walsh Point is low.

The Project would also involve the excavation of approximately 2500 cubic metres of landside material at berths M1 and M2, which is potentially contaminated and would require stockpiling during treatment immediately adjacent to M1 and M2.

This stockpiling, dewatering, treatment and transport for reuse or disposal to an approved landfill, if required, also forms part of the Project for which NPC is seeking approval from the NSW Department of Planning and Infrastructure under the NSW *Environmental Planning and Assessment Act 1979*.

Sediment sampling and analysis for the Project commenced in 2011 and is ongoing in accordance with a SEWPaC approved Sampling and Analysis Plan and based on current and previous results the majority of material is expected to be suitable for sea dumping.

While the preferred method of disposal is sea dumping (as stated in the EIS (Section 13.1)) alternate disposal strategies are dependent on the characteristics of the material. The primary re-use options are beach renourishment or as fill for port side industrial land as discussed in EIS Section 13.3 and EIS Appendix E.

Dredging and berth construction will be undertaken by individual proponents under any approval issued for the EIS. These proponents would also be responsible for securing any further approvals and licences for any proposed landside development and re-use options (including beach renourishment or as fill for port side industrial land) for the dredged material. The timing of development of individual berths is not known and could be staged over an extended period of time (refer to EIS Section 2.4).

NPC is seeking a Sea Dumping Permit as the preferred method of disposal because the suitability of the material for re-use is yet to be determined and given the likely staging of dredging the demand for re-use at that point in time is unknown. As a result, the potential impacts associated with alternative re-use options cannot be quantified at this stage.

NPC has no objection to the re-use of dredged sands for Stockton Beach renourishment provided the material is not contaminated and is compatible with native beach material. However, as NPC will not be undertaking these works, it cannot make a guarantee that a specific allocation of sand would be made available for this purpose as the material may be required by the proponent for their landside development. Further, as dredging of individual berths occurs, the type of dredge employed and volumes and characteristics of specific material extracted from that berth may mean it is not feasible to supply any sand for beach renourishment.

NPC is willing to work with individual proponents to identify excess material that would be suitable for beach renourishment and to assist with the development approval process.

The EIS sampling is considered to be inadequate to determine the suitability of sediments for beach nourishment and re-use on industrial land as the sampling is not representative and the site criteria are not appropriate for consideration of land uses (Submission 5).

As noted above, the sediment sampling is being undertaken in accordance with a SEWPaC approved Sampling and Analysis Plan to support an application for a Sea Dumping Permit. Any approval for alternative re-use will be the responsibility of the proponent undertaking the works as part of any approval for their proposed landside development.

4.9 Environment Protection Licence

EPA has reviewed the EIS and advises it would be able to issue an Environment Protection Licence (EPL) for all scheduled activities under the Protection of the Environment Operations Act 1997 (POEO Act). The EIS proposes to modify the existing NPC maintenance dredging EPL (#3373). A separate application would be required to vary the EPL (Submission 5).

NPC holds an existing Environment Protection Licence (EPL 3373) for maintenance dredging within the port. The EIS states that NPC would seek a variation to EPL 3373 however this is not correct.

As individual proponents will be undertaking the dredging and foreshore treatment works at each berth, they will be responsible for obtaining their own Environment Protection Licence to cover any scheduled activities they are proposing to undertake for their development.

4.10 Contamination

The EIS does not identify management measures for the proposed disturbance of land side fill at M3, M4, M5, M6 and M7 (Submission 5).

As stated in the EIS (Section 9.3.1), no underlying landside soils at M3 to M7 are proposed to be disturbed by the construction of the berths or dredging activities due to the inclusion of vertical retaining walls in the concept design (EIS Section 2.3.4). The landside adjacent to M5, M6 and M7 is protected by an existing sheet piled wall, with the proposed berth face of M3 and M4 being outside the existing landform. In addition, NPC acknowledge that any works that may disturb the landside area are covered by the Voluntary Remediation Agreement, and any such works would be approved by an accredited site auditor.

Dredging at W1, W2, W3 and K1 may intersect groundwater contamination at the Orica facility (which was identified to be significant enough to warrant EPA regulation in October 2001 and is currently regulated under EPL 828). The EIS identifies that retaining structures such as sheet pile walls minimise disturbance and impact on groundwater quality but does not confirm whether retaining structures will be used. Groundwater modelling should be undertaken to identify any impacts and management measures (Submission 5).

As stated in the EIS (Section 9.3.3) no landside excavations are proposed at the Walsh Point berths (W1, W2 and W3) or K1. It further states that groundwater contamination associated with the Orica facility is known to be present. The concept design proposes a vertical retaining wall at these berths (EIS Section 2.3.4) and that subject to detailed design and groundwater modelling it is expected there would be no significant impacts to the groundwater contamination at the Orica site.

The Orica Voluntary Management Proposal (VMP) indicates that the plume of contamination is known to be flowing towards the area between K2 and K3, which is approximately 300 metres north of the Project (specifically K1). On the basis of the EPA approved Voluntary Management Proposal there are no impacts expected at the proposed K1 berth (plume direction and extent). Groundwater modelling would therefore not be deemed appropriate given the information that is currently available.

The EIS identifies that dredged and excavated material from M1 and M2 will require remediation and that the remedial measures would be developed and implemented when the contamination status of the material is confirmed. The EPA does not consider this to be an appropriate approach due to odours and pollution incidents that may occur while the remedial measures are being developed and implemented (Submission 5).

A Remedial Action Plan should be prepared in accordance with the EPA Guidelines for Consultants Reporting on Contaminated Sites including the issues raised in this submission in relation to further sediment investigations and characterisation (Submission 5).

The EIS (Section 9.6.1 and 17) provides a commitment to the preparation of a Soil and Water Management Plan that would identify the specific management measures to be implemented for the treatment of any contaminated material from M1 and M2. This plan would be prepared before excavation takes place based on the detailed design and selection of a preferred treatment option.

NPC consider that the Soil and Water Management Plan will be sufficient to address the required management controls and that the preparation of a specific Remedial Action Plan is not required due to the small volume of contaminated material to be removed (approximately 2,500 cubic metres).

Issues raised in the submissions regarding sediment investigations and characterisation is addressed in Section 4.5 of this Submissions Report.

The EIS presents options for foreshore treatment but does not provide detailed design. Details should be provided for assessment in order to prevent contaminated soil and groundwater from leaching into waters (Submission 5).

The EIS has presented concept options for the foreshore treatment works (EIS Section 2.3.4) which have been selected to minimise potential interactions with potentially contaminated landside fill and groundwater. Development of concept level design is considered adequate for the environmental impact assessment process. As stated in EIS Section 2.3.4, the proposed foreshore treatment works would be subject to detailed design to ensure they meet the design criteria for the Project, including minimising interaction with soil and groundwater contamination. It would also consider the landside and wharf infrastructure. Detailed design of any berth is subject to the proposed use of the berth and the proponent undertaking the development.

Where the proposed Mayfield berths (M1 to M7) will disturb remediated areas of the BHP closure site review of the Contaminated Site Management Plan should be undertaken by an EPA accredited auditor and NPC must ensure that any damage to the closure site is rectified as soon as practicable. The EPA recommends that NPC engage an accredited site auditor to ensure compliance with the Voluntary Management Agreement on completion of processing and treatment of spoil, to ensure cap integrity and further contamination of the soil surface has been fully remediated. The auditor should provide a site audit statement at the completion of the activity (Submission 7).

Area of proposed land excavation and construction of vertical retaining structure is located adjacent to land subject to an Agreement (Area No 3334. Agreement No: 26025.14/9/05) with the Environment Protection Authority under the Contaminated Land Management Act 1997. The EIS has not specifically addressed potential impacts (if any) the project may have on this existing agreement (Submission 7).

The Agreed Voluntary Remediation Proposal (for Area No 3334. Agreement No: 26025.14/9/05) is the Closure Area of the former BHP steelworks site at Mayfield (BHP Closure Site), and is identified as Lot 4: DP 1177466 (this was formerly Lot 3 DP 1032755 and Lot 221 DP 1013964). This parcel of land is generally bounded by the Hunter River to the north and east, Selwyn Street to the south, Industrial Drive to the south, and One Steel to the west.

The concept design of the berths has sought to minimise the potential interactions with contaminated landside fill and groundwater at the BHP Closure Site. As stated in the EIS (Section 9.3.1), subject to detailed design no underlying landside soils at M3 to M7 are proposed to be disturbed by the construction of the berths or dredging activities due to the inclusion of vertical retaining walls in the concept design (EIS Section 2.3.4).

The existing bank adjacent to the proposed Mayfield 5, 6, and 7 berths already consists of a permanent sheet steel pile wall, which was constructed as part of the Hunter River Remediation Project (HRRP) to enable the contaminated sediments located adjacent to the sheet pile wall to be removed. This material has now been removed to a level approximately 0.5 metres below the interface between the soft silty clay and underlying sand and the level of contamination within the remaining material validated by an EPA accredited auditor in June 2011. Given that the required dredging to a level of -16 metres (Newcastle Harbour Tide Gauge) is well beyond the design limits of the existing sheet pile wall, the installation of additional stability measures would occur prior to the commencement of dredging activities (EIS Section 2.3.4 and Appendix E - Spoil Handling and Disposal Strategy).

Construction of M1 and M2 would require the excavation of approximately 20,600 cubic metres of material of which approximately up to 2,500 cubic metres is expected to be contaminated (EIS Section 9.3.2).

The EIS (Section 9.6.1 and 17) provides a commitment to the preparation of a Soil and Water Management Plan that would identify the specific management measures to be implemented for the proposed works that could interact with the BHP Closure Site. Specifically the EIS (Section 9.6.1) states that the plan would *consider the requirements of the management plan developed for the remediation of the former BHPB steelworks site*.

NPC does not consider that there would be any significant impacts associated with the Project and are willing to engage an accredited site auditor to ensure the works at M1 and M2 are undertaken in accordance with the relevant management agreements for the site and that the Project does not result in additional contamination to the site.

4.11 Noise

The EIS does not identify the noise model used to predict noise levels at sensitive receptors (Submission 5).

The industrial areas within the Port of Newcastle have previously been subject to numerous noise impact studies. Background noise monitoring and noise modelling has therefore not been undertaken for this Project specifically. Noise monitoring data from relevant previous assessments has been referenced, as discussed in detail in the EIS (Section 11) and summarised below.

Noise monitoring was conducted in Mayfield and Carrington by Wilkinson Murray (Wilkinson Murray 2010) on behalf of AECOM Australia Pty Limited in 2009 for the Mayfield Site Port-Related Activities Concept Plan EA. Noise monitoring has been conducted in the Stockton area by Wilkinson Murray and Heggies Australia Pty Ltd (Heggies) in 2006 and 2009.

These studies included noise monitoring in the Mayfield, Carrington and Stockton areas. The findings of these reports have been adopted and used for the NPC EIS to establish the appropriate noise criteria for this assessment.

The findings of the studies undertaken by Wilkinson Murray and Heggies show that background noise levels in the study area are typical of the residential/industrial interface, dominated by port activities, industry and road traffic.

The EIS does not demonstrate that the proposed mitigation measures would be adequate to meet the project noise criteria at Carrington during sheet piling works (Submission 5).

Construction of the Project would predominantly involve water-based works in an industrial area. The area immediately surrounding the Project site consists of both vacant and occupied industrial land. The noise environment in sensitive receiver areas surrounding the berths is largely influenced by road traffic noise on Industrial Drive and industrial noise from surrounding industry in Mayfield, Kooragang Island and Carrington.

Noise predictions are based on the worst case scenario that all 12 berths would be dredged in one campaign. This is very unlikely and therefore minimises the potential for noise impacts resulting from construction of the Project.

In accordance with the Interim Construction Noise Guideline 2009 (OEH 2009) the Project noise assessment has considered the following criteria for residential receivers:

- Noise affected level – being the level above which there may be some community reaction to noise (background noise level plus 10 dB(A) during recommended standard hours and the background noise level plus 5 dB(A) outside of recommended standard hours.
- Highly noise affected level – being the level above which there may be strong community reaction to noise and is set at 75 dB(A).

The noise assessment (EIS Section 11.4.4) predicts that during sheet piling the noise affected level may be exceeded at Carrington (during construction of the proposed Dyke 3 berth) and a minor exceedance at Stockton (during construction of the proposed Dyke 3 and Walsh Point 1 berths). No exceedances of the highly noise affected level are predicted.

The EIS (Section 11.5) has proposed mitigation measures for noise which includes the preparation of a Noise and Vibration Management Plan, including a comprehensive program of community consultation to manage community impacts from noise.

Sheet piling works are only proposed to be undertaken during standard construction hours. Given the nature of the activity there are limited feasible controls that can be implemented to minimise noise generation. Reasonable and feasible mitigation measures for sheet piling would consist of work practices and selection of equipment to reduce noise where possible alongside community consultation actions. Where feasible subject to engineering design vibratory methods would be used for piling and could result in noise reduction. However compaction methods are expected to be required to complete the sheet piled wall works. In addition, the duration of the noise from construction activities would be short-term.

The EIS predicts exceedances of the project noise criteria at Carrington and Stockton if construction works occurs outside standard working hours at the Walsh Point compound. EPA recommends these works only be undertaken during standard hours (Submission 5).

As stated above, the EIS noise assessment (EIS Section 11) has been undertaken with reference to the Interim Construction Noise Guideline 2009 (OEH 2009). The assessment predicts very minor exceedances (2 dB(A)) of the noise affected level if works are undertaken at the proposed Walsh Point stockpile areas outside standard construction hours. No exceedances of the highly noise affected level are predicted.

As stated in Section 2.7 of the EIS and discussed throughout the report, the use of Walsh Point is one potential option for stockpiling of potentially contaminated material. The need for stockpiles and locations has not been confirmed.

Any work at the proposed Walsh Point compound is only proposed to be undertaken during standard construction hours with mitigation measures outlined in the EIS (Section 11.5) to be implemented in accordance with a Noise and Vibration Management Plan. Should works be required to be undertaken outside standard construction hours, the additional measures outlined in the EIS (Section 11.5) would be implemented. Given the relatively short term nature of the works at this site (due to the small amount of contaminated material) it is considered that the potential impacts can be adequately managed.

The EIS predicts exceedances of the project noise criteria at Carrington if dredging occurs outside standard working hours. EPA recommends these works only be undertaken during standard hours (Submission 5).

As stated above, the EIS noise assessment (EIS Section 11) has been undertaken with reference to the Interim Construction Noise Guideline 2009 (OEH 2009). The assessment predicts the noise affected level (being the level above which there may be some community reaction to noise) to be exceeded at Carrington during dredging outside of standard construction hours only for Dyke 3. The modelling predicted the noise affected level for the dredging of Dyke 3 to be 51 dB(A) at the Carrington township, compared to the goal of 44 dB(A) during night time hours.

There are no other predicted exceedances of either the noise affected level or highly noise affected level during dredging.

The noise and vibration assessment was based on the worst-case scenario that all berths would be dredged during a single campaign. In the event that all sites are not dredged in a single campaign, potential noise and vibration impacts and cumulative impacts would diminish.

As stated in the EIS, the use of backhoe excavators on barges to dredge Dyke 3 has the potential to produce noise impacts in Carrington at night. However, the standard procedures for the backhoe dredging at night would reduce potential impacts. Procedures to reduce noise impacts include not shaking the bucket or striking the bucket to loosen dredged sediment. Considering the relatively low levels of noise when these procedures are used, the short construction duration at any berth, the distance to sensitive receivers and intervening industrial warehouses, potential dredging noise impacts on sensitive receivers are not expected to be significant.

Port-side warehouses at Carrington, located between Dyke 3 and residential areas, have the potential to reduce noise measurements by up to 10dB(A) depending on climatic conditions.

In addition, the noise environment in areas surrounding the berths is largely influenced by by industrial and port related transportation activities. Such as road traffic noise on Industrial Drive, and industrial noise from surrounding industry in Mayfield, Kooragang Island and Carrington.

Dredging activities are required to be undertaken 24 hours a day in order to minimise the duration of impacts and manage the high demand for dredging equipment. It is not cost effective to have large dredging equipment left unutilised overnight, when potential noise impacts can be managed through effective mitigation measures. As discussed in the EIS (Section 2.4) the timing of construction of each berth is subject to demand by landside proponents.

Therefore it is considered that the potential noise impacts at Carrington measures in a Noise and Vibration Management Plan, including a comprehensive program of community consultation.

The EIS has not assessed the broader impact of noise generation from increased shipping activity and cumulative impacts of berthed ships. The EPA recommends consideration of the cumulative impact of night berthing, discharging and the Mayfield Port Concept Plan Approval that recommends consideration of shore-side power for future berths to limit night noise and air emissions (Submission 5).

The EIS has been prepared to assess the potential impacts of berth construction only, including dredging and foreshore treatment works. The assessment of potential impacts associated with shipping movements and mooring are therefore not relevant to this EIS. It is noted that noise has been considered for the Mayfield berths M1-M7 as part of NSW Department of Planning and Infrastructure's approved Concept Plan.

Third party proponents developing landside facilities would need to consider shipping related impacts, including shore side power, night berthing and cargo works, noise and air quality, as part of their approvals. These issues would be considered under those approvals.

Noise assessment does not consider the impacts to industrial facilities, including the Incitec offices at Walsh Point (Submission 8).

The EIS noise assessment has focused on residential areas as these are the most sensitive receivers and most likely to be potentially impacted by construction activities.

As noted in the EIS (Section 11) the background noise levels at Kooragang Island, and in particular at Walsh Point, is heavily dominated by port activities, industrial operations and road traffic. Therefore, the EIS did not undertake an assessment of impacts to industrial facilities as these receivers are already exposed to high levels of noise.

To respond to this submission an assessment of potential noise impacts to the nearest industrial receivers is presented below.

Noise Environment and Guidelines

The Project is located in a heavily industrialised area and in the vicinity of a number of industrial facilities. Three non-residential land use noise sensitive areas have been identified as being closest to the project site. These areas are located at Dyke Point, Carrington and Mayfield.

The Office of Environment Heritage (OEH) Interim Construction Noise Guideline 2009 (ICNG) is the primary guideline that provides guidance on construction noise limits for properties other than residential receivers. A summary of the criteria applicable to existing land uses in the area is shown in Table 4-1.

Table 4-1 ICNG Construction noise limits for industrial receivers

Land Use/ Receiver Type	Noise Management Level LAeq 15 min (applies when properties are being used)
Industrial premises	External noise level 75 dB(A)

Potential Noise Impacts

Construction noise impacts at industrial receivers associated with the Project were estimated using the well-known distance attenuation relationship described below

$$SPL = SWL - 20Log(d) + 10Log(Q) - 11$$

Where *d = distance (m) between source and receiver*

Q = Directivity index (2 for a flat surface)

SPL = sound pressure level at the distance d from the source

SWL = sound power level of the source

Input sound power levels were sourced from Australian Standard (AS) 2436:2010 Guide to Noise Control on Construction, Maintenance and Demolition Sites and the equipment noise levels were distance attenuated from the site to the nearest most affected industrial receiver within the identified noise sensitive land use areas (Table 4-2). The propagation calculations take into account sound intensity losses due to hemispherical spreading, with additional minor losses such as atmospheric absorption, directivity, ground absorption and shielding ignored in the calculations. This is considered a conservative approach.

Table 4-2 Shortest Distance from Construction works to nearest most affected industrial receiver

Construction at Berth	Distance to nearest most affected receiver		
	Dyke Point (Boral / GrainCorp)	Carrington (Carrington Industrial Area)	Mayfield (Onesteel)
Dyke 3	900	150	1350
Mayfield 1 – Mayfield 7	360	60	150
Kooragang 1, Walsh Point 1 – Walsh Point 3	30	600	900
Walsh Point Compound	900	150	1350

Potential noise impacts from foreshore works

To assess the highest potential for construction noise impacts on industrial and commercial receivers, the assessment was based on all berths being constructed simultaneously. If works are not undertaken at all berths simultaneously, noise impacts would diminish. Table 4-3 presents predicted noise levels for foreshore works at all berths together with predicted cumulative impacts from simultaneous construction.

Table 4-3 Predicted construction noise levels non-residential receivers– Berth excavation, dB(A)

Construction at Berth	Dyke Point (Boral / GrainCorp)	Carrington (Carrington Industrial Area)	Mayfield (Onesteel)
Excavation at individual berths			
Dyke 3	40	55	36
Mayfield 1	48	63	55
Mayfield 2	48	43	55
Mayfield 3	48	43	55
Mayfield 4	48	43	55
Mayfield 5	48	43	55
Mayfield 6	48	43	55
Mayfield 7	48	43	55
Kooragang 1	69	43	40
Walsh Point 1	69	43	40
Walsh Point 2	69	43	40
Walsh Point 3	69	43	40
Simultaneous excavation at all berths			
Cumulative Impact	75	64	64

A comparison of the worst caste predicted noise from the foreshore works (excavation at all berths simultaneously) with the industrial criteria outlined in Table 4-1 indicates that these activities would not exceed the noise management levels for industrial receivers.

Potential noise impacts from sheet piling

Table 4-4 presents predicted noise levels from sheet piling at each berth. Sheet piling works would only be undertaken during standard construction hours, and would not occur during night time works.

Table 4-4 shows exceedances of the industrial premises noise management level (75 dB(A)) from sheet piling at the Walsh Point nearest industrial receiver (Boral / Graincorp), located 30 metres from the works, during the construction of the Kooragang 1, Walsh Point 1, Walsh Point 2 and Walsh Point 3 berths. Noise levels at receivers located more than 60 metres from the works are anticipated to be less than the 75dB(A) noise management level.

Table 4-4 Predicted construction noise levels non-residential receivers – Sheet Piling, dB(A)

Construction at Berth	Dyke Point (Boral / GrainCorp)	Carrington (Carrington Industrial Area)	Mayfield (Onesteel)
Piling at individual berths			
Dyke 3	51	66	47
Mayfield 1	59	74	66
Mayfield 2	59	54	66
Mayfield 3	59	54	66
Mayfield 4	59	54	66
Mayfield 5	59	54	66
Mayfield 6	59	54	66
Mayfield 7	59	54	66
Kooragang 1	80	54	51
Walsh Point 1	80	54	51
Walsh Point 2	80	54	51
Walsh Point 3	80	54	51

Potential Noise impacts from spoil stockpiling and transfer

Table 4-5 presents predicted noise levels at each receiver area generated by any spoil stockpiling and transfer compound at located Walsh Point. Walsh Point was selected as a potential spoil stockpiling and transfer location due to the potential presence of contaminated material in the previously identified 'Walsh Point hotspot'. If contaminated sediment is not removed from Walsh Point and the sediment is suitable for sea dumping or beneficial reuse, the spoil stockpiling and transfer would not be required at this site.

Table 4-5 shows that there would be no exceedances of the industrial criteria as a result of stockpiling at Walsh Point.

Table 4-5 Predicted construction noise levels – non-sensitive receivers – Walsh Point Transfer Compound

Construction at Berth	Dyke Point (Boral / GrainCorp)	Carrington (Carrington Industrial Area)	Mayfield (Onesteel)
Walsh Point Compound	65	47	43

Summary and mitigation

The expected noise impacts on commercial and industrial receivers during construction of the Project are as follows:

- Construction noise impacts from dredging works are not expected to exceed the industrial premises noise management level.
- Sheet piling has the potential to exceed the industrial premises noise management level of 75dB(A) for receivers located at Dyke Point within 60 metres of the works. There is no expected exceedance of the industrial premises noise management level at any other non-residential receiver areas.
- Construction noise impacts from the potential Walsh Point stockpiling and transfer compound are not expected to exceed the noise affected level at nearby industrial noise sensitive receivers.

The EIS (Section 11.5) has proposed mitigation measures for noise which includes the preparation of a Noise and Vibration Management Plan, including a comprehensive program of community consultation to manage community impacts from noise. This consultation would also include nearby industrial facilities.

Sheet piling works are only proposed to be undertaken during standard construction hours. Given the nature of the activity there are limited feasible controls that can be implemented to minimise noise generation. Reasonable and feasible mitigation measures for sheet piling would consist of work practices and selection of equipment to reduce noise where possible alongside community consultation actions. Where feasible subject to engineering design vibratory methods would be used for piling and could result in noise reduction. However compaction methods are expected to be required to complete the sheet piled wall works. In addition, the duration of the noise from construction activities would be short-term.

4.12 Waste

The EIS states that natural soil from the BHP Closure Site would be classified as virgin excavated natural material. The EPA does not agree with this statement as the soil at the closure site is declared as significantly contaminated land under the *Contaminated Land Management Act 1997* (Submission 5).

The statement in the EIS (Section 9.3.1) was a typographical error. Section 9.3.2 states that underlying natural material would be excavated natural material and this statement should also have been made in Section 9.3.1.

NPC acknowledges the contamination status of the BHP Closure Site and any excavated material would be classified in accordance with the relevant guidelines for appropriate treatment and disposal.

It is unclear if the EIS is seeking approval for the storage, handling and treatment of hazardous waste at the proposed stockpile sites at Mayfield and Walsh Point or if the sites already have approval for these activities (Submission 5).

There is limited information in the EIS regarding the details of the proposed stabilisation process for the hazardous or restricted material that would be dredged and/ or excavated at M1 and M2. The EPA has previously advised that cement stabilisation requires a Specific Immobilisation Approval from the EPA prior to handling and / or treatment commencing (Submission 5).

The EIS (Section 2.7) clearly states that, subject to confirmation of excavated contaminated material requiring treatment, proposed options for stockpiles include locating them at Walsh Point and Mayfield. While the need for stockpiles and locations has not been confirmed, the EIS is seeking approval for use of these areas and potential impacts are assessed throughout the EIS. When the contamination status of the material is known, appropriate management methods will be developed and documented in a Soil and Water Management Plan (EIS Section 17). This is to be approved by NSW Department of Planning and Infrastructure and EPA (through a specific immobilisation approval) prior to works commencing.

The EIS (Section 9.3.2) has proposed cement stabilisation as an option for the management of contaminated materials, which is the current method for stabilising contaminated material. The need for cement stabilisation is subject to confirmation of the contamination status of the material. Should a better method be available at the time of excavation, this would be considered in consultation with the relevant agencies.

4.13 Air quality

The EIS states that stockpiled sediments have the potential to result in local odour impacts and states that odour impacts at Stockton are unlikely due to the buffer distance of approximately 850 metres. The EIS does not present a quantitative assessment of odour (Submission 5).

There is potential for offensive odour impacts at Stockton from stockpiled contaminated material, particularly from the Walsh Point site. The recommended mitigation measures in the EIS are considered inadequate. The EPA also notes that there is no information in the EIS regarding the management of odour from the leachate (Submission 5).

The EIS states that a site-specific management plan will be developed for proposed stockpile areas. The EPA recommend the management plan include a quantitative odour impact assessment and consider the scenario of storing all contaminated material in a fully enclosed building with an air pollution control system (e.g. Activated carbon) (Submission 5).

Air quality assessment only considers residential receptors and does not include potential impacts to workers at businesses at Walsh Point (Submission 8).

The EIS (Section 2.7) clearly states that, subject to confirmation of excavated contaminated material requiring treatment, proposed options for stockpiles are to be located at Walsh Point and Mayfield. The need for stockpiles and locations has not been confirmed the EIS and therefore a quantitative air quality assessment has not been undertaken.

The qualitative air quality assessment has identified the potential odour generation from excavated sediments and considered the likelihood of impacts at sensitive receivers based on the existing air quality and meteorological conditions. NPC acknowledges the potential for air quality impacts at Stockton, however given the likely short duration of any stockpiling activities it is considered the proposed management measures would be adequate. The potential generation of odours from leachate waters has been collectively considered with the sediments from which they would originate.

The EIS air quality assessment (EIS Section 16.2) has focused on residential areas as these are the most sensitive receivers and most likely to be potentially impacted by construction activities. The EIS has not undertaken an assessment of impacts to industrial facilities as any impacts are considered to be manageable.

The EIS (Section 17) commits to the preparation of a Construction Environmental Management Plan and a specific Soil and Water Management Plan for the stockpile locations should they be required. These would consider the management of odour from any stockpile areas for the control of odour impacts to both residential and industrial areas in the vicinity. NPC will consider all options for the treatment process, including odour control, when the contamination status of the material is known and the preferred treatment method selected. NPC considers that the option of treating all material in a fully enclosed building would not be economically feasible and is not warranted given the short duration of the activity and small volume of material, if required at all.

4.14 Heritage

Concerned that the project will destroy listed heritage items being the dyke hydraulic crane bases 14 and 15 (in water), and the remains of the McMyler Hoist foundation. The dyke hydraulic crane bases are listed on the Newcastle Heritage Inventory as being of State significance. Given the significance of the crane bases the proposed mitigation measures are considered inadequate and request that one of the crane bases be moved to a suitable display location and an interpretation plan be prepared (Submission 7).

There are a total of 16 crane bases in the Port of Newcastle. Appendix F of the EIS states that Crane 14 and 15 were two of 12 cranes originally constructed on the dyke between 1877 and 1888 (ordered from Armstrong Hydraulic Machinery Company, from Elswick in England). The cranes bases were all linked to the hydraulic powerhouse on the site and are the remaining infrastructure associated with the original loading system installed on the dyke.

In 1901, four McMyler hoists were bought from America in anticipation of future needs of the coal loading facilities. However only one was ever constructed in 1909 as it was considered inefficient it was abandoned in 1916 and demolished in 1933. Only the foundations remain, which is located between crane bases 14 and 15.

The hydraulic crane bases and McMyler hoist foundation are of local heritage significance only and are not State heritage listed. The heritage assessment undertaken for the EIS (EIS Appendix F) considered the heritage values of these items against the relevant criteria and confirmed that these items only have local heritage significance.

The remaining components of the former cranes are limited to the foundation base remains only, with the crane and associated hydraulic system already removed. Hydraulic cranes have been installed within other port and harbour operations in NSW, and these remains are not considered to be rare. The limited remains on crane base 14 and 15 are not considered to be representative of the primary characteristics of the former crane.

The foundation remains of the former McMyler Hoist are not considered to be unique; however, they do have the potential to increase the understanding of the construction type and technique used for the bases of the McMyler Hoist.

The crane bases and McMyler Hoist foundation must be removed as their location is within the envelope of the proposed berth and ships would not be able to use the proposed berth if they remain. Crane bases 14 & 15 and the McMyler Hoist foundation will need to be demolished for construction of D3. The remaining crane bases would not be affected by the Project as they are located outside of the Project footprint.

There are still 14 crane bases present within the harbour located along Dyke Point to the south of D3 which will not be affected by the Project. As they have limited heritage value any relocation was not deemed necessary especially in light of the remaining 14 crane bases being untouched in situ.

During preparation of the EIS, NPC consulted with NSW Heritage Branch (EIS Appendix C) who indicated a concern with incremental loss of the crane bases but noted that only two of the bases would be removed for the Project. It was agreed that as part of an agreement for their total demolition and removal that NPC would record the affected crane bases and McMyler Hoist to archaeological and engineering recording standards. This requirement has been included in the Statement of Commitments (EIS Section 17).

On this basis NPC does not consider the relocation of a crane base is warranted notwithstanding the lack of appropriate land for the proposed relocation.

The Proponent shall prepare a Non-Indigenous Heritage Management Plan in consultation with the Heritage Council of NSW to outline all heritage mitigation works. That document shall include details of all procedures to be implemented during the works in relation to non-Indigenous heritage items (Submission 10).

NPC will prepare a Non-Indigenous Heritage Management Plan in consultation with the Heritage Council of NSW for the management of identified heritage items that would be impacted by the Project.

A specialist heritage manager or heritage consultant shall be nominated for the works. The consultant shall have appropriate qualifications and experience, commensurate with the scope of the Major Project works. This should include maritime archaeological experience. The name and experience of this consultant (or consultants) shall be submitted to the Director-General of Planning & Infrastructure and the Heritage Council of NSW for approval prior to commencement of works. The heritage consultant shall advise on the detail design resolution of new works, undertake on site heritage inductions, and shall inspect new works, design and installation of services (to minimise impacts on significant fabric and views) and manage the implementation of the conditions of approval for the Project. A report by the heritage consultant (illustrated by works' photographs) shall be submitted to the Director-General for approval within 6 months of the completion of the works which describes the work, any impacts/damage and corrective works carried out (Submission 10).

NPC will engage an appropriately qualified heritage consultant to address all of the matters raised in the submission for the identified heritage items that would be impacted by the Project.

All construction contractors, subcontractors and personnel are to be inducted and informed by the nominated heritage consultant prior to commencing work on site as to their obligations and requirements in relation to historical archaeological terrestrial and maritime sites and 'relics' in accordance with guidelines issued by the Heritage Council of NSW (Submission 10).

The CEMP would include a requirement for inductions of all construction personnel. This would include all relevant aspects in relation to the identified heritage items that would be impacted by the Project. Subject to the findings of the other investigations and recommendations of the appropriately qualified heritage consultant, it is likely to be impractical for the heritage consultant to conduct the inductions. However, the content of the inductions would be informed by the findings of the other investigations and recommendations made by the heritage consultant.

Photographic and archival recording of any affected Heritage items, as identified in the specialist reports prepared as part of the Environmental Impact Statement for the project, is to be undertaken prior to the commencement of any construction activity. Recording is to be completed in accordance with the Guidelines issued by the Heritage Council of NSW. Copies of these photographic recordings should be made available to the Heritage Council, the Department of Planning & Infrastructure, and also to the Local Studies Library and the Local Historical Society in the relevant Local Government areas. Recording must also be completed of any items discovered as the project proceeds (Submission 10).

Any affected historical archaeological terrestrial and maritime sites of Local and State significance are to be subject to professional archaeological excavation and/or recording. A Research Design including an Archaeological Excavation Methodology must be prepared in accordance with Heritage Council guidelines for any site which is to be excavated. Those documents should be prepared for the approval of the Director-General, Department of Planning & Infrastructure and the Heritage Council of NSW or its Delegate (Submission 10).

Any nominated Excavation Director(s) for the project works must meet the Heritage Council endorsed Criteria for Excavation Directors and in particular must be able to demonstrate Criterion A.4 that: 'work under any approvals previously granted by the Heritage Council has been completed in accordance with the conditions of that approval and the final report has been submitted to the Heritage Council.' (Submission 10).

If archaeological works are undertaken, a copy of the final excavation report(s) shall be prepared and lodged with the Heritage Council of NSW, the Local Studies Library and the Local Historical Society in the Newcastle Local Government area. The proponent shall also be required to nominate a repository for the relics salvaged from any historical archaeological excavations. The information within the final excavation report shall be required to include the details specified in the submission (Submission 10).

The EIS (Section 17) includes a clear statement of commitment to the photographic and archival recording of the identified heritage items that would be removed by the Project. Therefore NPC is willing to comply with this requirement of the submission.

The EIS (Section 17) also includes a clear statement of commitment that should any other unidentified heritage items be discovered during the course of the works that a heritage expert would be consulted to assist in determining the appropriate investigation and management strategies. Archaeological excavation may or may not be required subject to the value of that item and the recommendations of the heritage expert.

In the event that archaeological excavation is required, subject to the value of the discovered item, the nominated excavation director(s) would be selected in accordance with the appropriate criteria. Any excavation report would also be prepared to meet the applicable criteria and requirements, including those identified in the submission, if relevant.

Further should the Project require demolition or removal of the discovered heritage item, subject to the value of that item and the recommendations of the heritage expert, archival recording may be identified as a management strategy.

Any investigation or recommendations in relation to discovered heritage items would be undertaken in consultation with the relevant authorities.

The Heritage Branch noted the potential incremental loss of the Dyke 3 crane base sites would have significant impact on the collection of bases as a maritime heritage site type showing the development of port technologies. The Heritage Branch also expressed concern that photographic recording to archival standards of the underwater sections of cranes would be inadequate to establish a proper record of their construction, due to low visibility conditions (Submission 10).

Points to address:

- **All recording of the Walsh Point underwater sites and Dykes Point Crane Bases and McMyler Hoist would be engineering and architecturally recorded (by engineering drawings and photographic records) before being removed.**
- **Need to ensure all recording of the crane bases and McMyler Hoist are actual site plans undertaken to measured and scaled drawings to architectural and engineering standards and not limited to photographic recording only.**
- **The results of the external recording of these structures must be submitted to the HB not less than 28 days prior to the proposed demolition of the sites.**

The EIS (Sections 12.4.2 and 17) states that prior to demolition the crane bases, hoist foundation and any underwater remains at Walsh Point would be recorded to “archival standards” including photographic and engineering records. Therefore NPC is willing to meet the requirements of this submission.

Heritage Branch noted that the former seawall at the Dykes site had not been identified as a potential maritime heritage site that could be retained in the archaeological record. Whilst noting the considerable change to this area through previous port development projects, it is a requirement that if any trace of the site was encountered during the project, then works should stop whilst the site is investigated by a suitably qualified maritime archaeologist (Submission 10).

Points to address:

- **The EIS does not mention the potential for remains of the former Dykes seawall may still exist in the area, or what measures should be instituted should remains of it be found**

The Dyke Point Landform (and any former sea walls if present) is listed on the NPC s.170 register. This area is generally the reclaimed land area encompassing Dyke Point and the occupied industrial lands immediately to the north. The Dyke Point area is protected by the rock revetment armouring. NPC does not believe there are any historical sea walls present at Dyke Point. However, NPC has made a clear commitment in the EIS (Sections 12.4.2 and 17) that in the event of discovery a previously unidentified potential heritage item, works would cease and the advice of a heritage expert would be sought.

Heritage Branch has noted that the initial EA stated that it was planned for spoil to be pumped over or through the northern Newcastle Breakwater Training Wall, and that the EA did not consider the effect of this activity on the 14 located wrecks contained within the breakwater, or other wrecks known to exist in the Stockton Bight near Stockton Beach and Oyster Bank (in the area immediately north of the breakwater). The EA also has not considered the Commonwealth Historic Shipwrecks Act 1976 or the Heritage Act NSW 1977 (in regards to shipwrecks) in the Relevant Legislation section of the EA (Submission 10).

Points to address:

- **The EIS does not consider the Commonwealth Historic Shipwrecks Act 1976 in regards to the possible use of beach renourishment and sand broadcasting. Discussion of this act should be included.**

The EIS is seeking a separate approval for all suitable dredged material to be disposed at sea in accordance with a Commonwealth SEWPaC approved Sea Dumping Permit issued under the Commonwealth *Environment Protection (Sea Dumping) Act 1981*. Sea disposal is occurring in a designated spoil disposal ground five nautical miles offshore so there are no expected impacts to shipwrecks however adequate consideration will be given to this by SEWPaC as part of the sea dumping approval process.

While the EIS considers beach renourishment as a possible reuse option for any suitable materials it is not seeking approval for this and therefore the impacts have not been assessed in the EIS. Therefore consideration of the Commonwealth *Historic Shipwrecks Act 1976* or the NSW *Heritage Act 1977* (in regards to shipwrecks) is not of relevance to the proposed Project.

Dredging and berth construction will be undertaken by individual proponents under the approval issued for the EIS. These proponents would also be responsible for securing any further approvals and licences for any proposed landside development and re-use options (including beach renourishment or as fill for port side industrial land) for the dredged material. The timing of development of individual berths is not known and could be staged over an extended period of time (refer to EIS Section 2.4).

NPC is seeking a Sea Dumping Permit as the preferred method of disposal because the suitability of the material for re-use is yet to be determined and given the likely staging of dredging the demand for re-use at that point in time is unknown. As a result, the potential impacts associated with alternative re-use options cannot be quantified at this stage.

NPC has no objection to the re-use of dredged sands for Stockton Beach renourishment provided the material is not contaminated and is compatible with native beach material. However, as NPC will not be undertaking these works, it cannot make a guarantee that a specific allocation of sand would be made available for this purpose as the material may be required by the proponent for their landside development. Further, as dredging of individual berths occurs, the type of dredge employed and volumes and characteristics of specific material extracted from that berth may mean it is not feasible to supply any sand for beach renourishment.

Heritage Branch has noted that the underwater sites identified in the EA by side scan imagery in the vicinity of Kooragang Island/ Walsh Point had not been adequately identified or assessed; that due to the demonstrated presence of intact structures underwater, it was likely that there were also intact archaeological sites, deposits and relics in these areas. It was recommended that standard underwater archaeological inspection, documentation and assessment of these sites is required by a suitably qualified maritime archaeologist to consider the heritage significance and extent of these sites prior to proposed impacts. The results of this survey and assessment should then guide whether removal of the sites was appropriate. Heritage Branch also expressed concern that photographic recording to archival standards of the underwater sites would be inadequate, due to low visibility conditions. Heritage Branch advised that archaeological sites and deposits can be protected under s.139 of the Heritage Act NSW 1977 and permits for disturbance and removal may be required (Submission 10).

Points to address:

- **The EIS does not mention that underwater surveys by a qualified maritime archaeologist for a heritage assessment have been carried out (or were required) for the Walsh Point "Obstruction" sites.**
- **This inspection and heritage assessment are required to determine and confirm the identity and Heritage Significance of these sites.**
- **All recording of the Walsh Point underwater sites and Dykes Point Crane Bases and McMyler Hoist must be engineering and architecturally recorded (by engineering drawings and photographic records) before being removed.**
- **Need to ensure all recording of the crane bases and McMyler Hoist are actual site plans undertaken to measured and scaled drawings to architectural and engineering standards and not limited to photographic recording only.**
- **Furthermore, the results of this work should guide to formulate a Heritage Assessment that would consider the significance and extent of the Walsh Point sites, which was then to be submitted to the HB not less than 28 days prior to the proposed demolition of the sites.**

Any underwater remains or other obstacles in this area must be removed as their location is within the envelope of the proposed berth and ships would not be able to use the proposed berth if they remain.

If and when the berths at Kooragang/Walsh Point are developed the potential underwater remains will be subject to a heritage investigation to determine their significance prior to demolition. Subject to the findings of the heritage assessment indicating there are heritage values, NPC will undertake archival recording. Therefore NPC is willing to meet these requirements of this submission.

Appropriate recording in relation to the crane bases and hoist foundation are discussed in a response above.

The EA does not currently consider whether the proposed dredging will have any potential effects in regards to increased currents and/or erosion on any historic maritime infrastructure in the Hunter River, and in particular, Macquarie Pier and the Dyke (Submission 10).

Points to address:

- **No mention has been specifically made of any potential heritage impacts of current on downstream heritage sites (e.g. Macquarie Pier and the Dyke sea wall) - if indeed there are any. An appropriate statement should be made in the EIS regarding whether these sites will be affected.**

Macquarie Pier is near the entrance to the harbour and is now covered by the Nobbys Beach breakwall. The Dyke Point Landform (and any former sea walls if present), which is the item listed on the NPC s.170 register, is generally the reclaimed land area encompassing Dyke Point and the occupied industrial lands immediately to the north. The Dyke Point area is protected by the rock revetment armouring.

The EIS included a hydrology assessment (EIS Section 10) of the potential impacts of the Project. An existing hydrodynamic model for the lower reaches of the Hunter River that was developed for the South Arm Dredging Project EIS (GHD 2003) was updated and used for the EIS. The model was updated with the latest bathymetry of the lower Hunter River relevant to the Project to capture recent dredging works that have occurred, or are approved and proposed to occur. The model was used to predict the potential impacts associated with a range of factors including tidal inundation (EIS Section 10.3.1) and tidal velocities and flow rates (EIS Section 10.3.2).

Modelling used reference points in both the North and South Arms of the Hunter River between the harbour entrance and as far upstream as the Hexham Bridge (these locations were identified on Figure 10.1 of the EIS, and are reproduced on Figure 4-1 in this report). The modelling indicates the following:

- Changes in water levels from the proposed dredging in the estuary under tidal conditions are predicted to be negligible (EIS Table 10-3).
- The proposed dredging would produce negligible changes to tidal water velocities (EIS Table 10-4) or tidal flow rates (EIS Table 10-5 and 10-6) in the estuary.

Based upon the modelling no impacts are expected upon the Macquarie Pier and the Dyke Point Landform (and any former sea walls if present), as a result of the proposed dredging works.

The EIS states that should archaeological relics be discovered, a heritage expert should be consulted about appropriate archival; recording and if possible preservation. If archaeological relics are discovered, then an archaeologist should be consulted, and if necessary, subsequently a conservator (Submission 10).

As noted by the submission NPC has committed to seeking the advice of a heritage expert in the event a previously unidentified heritage item is discovered. NPC would ensure the heritage expert is appropriately qualified and would take the advice of that expert on the measures to be put in place in this event.

Heritage is only briefly addressed under the Risks section (5.4 - p43) and the risk treatment is limited to a site visit and archival photographic recording (Submission 10).

The risk assessment presented in the EIS is primarily used in the early stages of the EIS development to inform the appropriate level of assessment and management. Subsequent to the risk assessment a comprehensive heritage assessment has been conducted as part of the EIS and has provided appropriate recommendations for the management of heritage impacts associated with the Project.

The EIS states that a Heritage Permit is not required under Part 4 as the project is a Part 5.1 project. However, assessment of heritage impacts is a Director General Requirement (S. 7.5 – p68) (Submission 10).

Noted.

5. Project changes

5.1 Updated project description

NPC does not propose to make any amendments to the Project as described in the EIS.

5.2 Updated statement of commitments

Following consideration of the submissions NPC propose to amend the Statement of Commitments presented in Section 17 of the EIS by the addition of the following commitments (Table 5-1).

Table 5-1 Amended statement of commitments

Key issue and reference	Commitment	Timing
Traffic and transport		
TT4	A Construction Traffic Management Plan will be prepared and provided to RMS and Newcastle City Council for approval as relevant.	Pre-construction and construction
TT5	Should stockpiling occur at Mayfield a pre-construction and post-construction dilapidation survey of Selwyn Street will be prepared to identify any damage that may be attributable to the Project. NPC will contribute to the rectification of any damage that may be attributed to the Project.	Pre-construction and post-construction
Contamination		
CON5	Prior to contamination treatment of material from M1 and M2 (approximately 2,500 cubic metres) a specific immobilisation approval would be sought from the EPA.	Pre-construction and construction
Non-Indigenous Heritage		
NIH7	If and when the berths at Kooragang/Walsh Point are developed the potential underwater remains will be subject to a heritage investigation to determine their significance prior to demolition. Subject to the findings of the heritage assessment indicating there are heritage values, NPC will undertake archival recording.	Pre-construction and post-construction

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Appendix A – Detailed summary of submissions

Table A-1 Detailed summary of issues

Submission ID	Organisation	Issue category	Issue description	Where addressed in this report
1	NSW Office of Environment and Heritage	Biodiversity	No stockpiles should be placed in the vicinity of Walsh Point Reserve which should be retained for its conservation value, mainly for shorebirds and other marine species. Tree planting of suitable species around the foreshore area to mitigate against any contamination from surface runoff if stockpiles proceed in this area.	Section 4.3
		Stockpile management	Note that with appropriate management there should be no impacts to threatened biota (terrestrial and aquatic) however request further information regarding stockpile locations and management controls.	Section 4.2
		Water quality	Request further information regarding effectiveness of turbidity curtains.	Section 4.4
		Sediments	Request further information on distribution of contaminated sediments where dredging is proposed.	Section 4.5
		Biodiversity	Request further information on impacts of mobilised contaminants on Coastal Saltmarsh, other areas of conservation significance, including shorebird areas at Walsh Point and Hunter Wetland National Park and other threatened estuarine and aquatic species (see species listed in Tables 2 and 3 of the submission). Inadequate assessment of significance of impact on threatened estuarine and aquatic species (see species listed in Tables 2 and 3 of the submission).	Section 4.3
		Tidal inundation	Request further detail relating to impact of increased tidal inundation on Coastal Saltmarsh and other areas of conservation significance, including shorebird areas at Walsh Point and Hunter Wetland National Park.	Section 4.6
2	NSW Roads and Maritime Services	Traffic	RMS has no objections to the proposed development provided a Traffic Management Plan is prepared and submitted to RMS and Newcastle City Council for review and acceptance prior to the road transport of any spoil material.	Section 4.7
3	NSW Trade and Investment, Resources and Energy	Spoil disposal	Mineral Resources Branch has no objections to the proposed development and would encourage re-use of dredged material where possible.	Section 0
4	NSW Department of Primary Industries	General	Fisheries NSW: • Note the areas proposed to be dredged are highly modified by past activities and the impacts are likely to be no worse than those from routine maintenance dredging of other recent capital works in the South Arm. • EIS incorrectly states that the Hunter River prawn fishery was declared closed. The closure only relates to prawn numbers and is not a total closure. There is a seasonal closure to prawn fishing from the end of May until the beginning of November.	Noted Section 4.1

Submission ID	Organisation	Issue category	Issue description	Where addressed in this report
		General	Crown Lands: • The proposed dredging does not impact Crown land so no comments provided. • The proposed offshore sea dumping will occur on Crown land (five mile zone for NSW waters). The proposed sea dump site is in an area recognised and previously approved for this purpose and will require a Federal government sea dumping permit.	Noted
		General	NSW Office of Water: • No objections to the proposal and recommend that the Statement of Commitments and Recommended Mitigation Measures should be incorporated into any approval. • Concur with the EIS that any activities likely to intercept groundwater will require a licence from the NSW Office of Water prior to the activity commencing.	Noted
5	NSW Environment Protection Authority	Environment Protection Licence (EPL)	EPA has reviewed the EIS and advises it would be able to issue an Environment Protection Licence (EPL) for all scheduled activities under the *Protection of the Environment Operations Act 1997* (POEO Act). The EIS proposes to modify the existing NPC maintenance dredging EPL (#3373). A separate application would be required to vary the EPL.	Section 4.9
		Water quality	EPA acknowledges the South Arm turbidity levels vary dramatically due to catchment flows and tidal influences. The EIS identifies potential turbidity and water quality impacts due to the proposed dredging. The EPA recognises the impacts will be short term.	Noted
		Water quality	The EIS is not clear on the proposed method of dredging with possible methods being backhoe dredge, cutter suction dredge and trailer suction dredge. Hydrodynamic modelling has been based on the operation of a trailer suction hopper dredge which is the worst case scenario. The EPA supports the use of a backhoe dredge or cutter suction dredge in preference to a suction hopper dredge to minimise potential water quality impacts. NPC should clearly demonstrate that a suction hopper dredge is required.	Section 4.4
5 (continued)	NSW Environment Protection Authority (continued)	Water quality	The EPA supports the EIS commitment to preparation of a water quality monitoring strategy. The EPA would include a real time monitoring requirement in an EPL and it would include contaminants of potential concern in addition to the parameters identified in the EIS. Additional monitoring is recommended when a visual plume of turbid water is observed outside the turbidity curtain.	Section 4.4
		Stockpile management	Any stockpiling of dredged material at Walsh Point and Mayfield may require dewatering and a Soil and Water Management Strategy will be required.	Section 4.2

Submission ID	Organisation	Issue category	Issue description	Where addressed in this report
		Sediments	Sediment sampling presented in the EIS is not considered to be representative for the following reasons: • Maximum depth of sampling is 6.35 metres, while the proposed depth of dredging is 17 metres. The Hunter River Remediation Project site showed that contaminated sediments occur at depth and are overlain by clean sediments. • There is a large spacing between sample points and samples are skewed towards the near surface. This is evident in that the previously reported Walsh Point hot spot was not encountered. • No bioavailability testing was undertaken.	Section 4.5
		Sediments	The EIS incorrectly quotes a PAH criterion of 10,000 □g/ Sediment Quality Guidelines, however this should be 4000 □g/k EIS conclusions regarding PAH contamination of sediments.	Section 4.5
		Sediments	M7 is adjacent to the declared contaminated sediments of the Onesteel site (Declaration 15008) which is listed on the EPA Contaminated Land Register database. While the EIS states that dredging at M7 will not overlap the declared sediments, the potential for dredging to disturb the declared sediments as the river reaches hydraulic equilibrium is not considered.	Section 4.5
5 (continued)	NSW Environment Protection Authority (continued)	Sediments	Accordingly, the EPA does not agree with the reported conclusions that further (Phase 3) testing of sediments is not required in relation to PAH, TPH and BTEX. Representative and adequate sediment investigations at berths W1, W2, W3, K1, M1, M2, D3 and adjacent to M7 (in Onesteel sediments) should be undertaken in order to assess the suitability of disturbance of the contaminated and potentially contaminated sediment and appropriateness for sea disposal. The sampling should include: • Detailed site history assessment. • A sampling analytical and quality plan. • Assessment of bioavailability. • Re-sampling for the Walsh Point hot spot.	Section 4.5
		Contamination	The EIS does not identify management measures for the proposed disturbance of land side fill at M3, M4, M5, M6 and M7.	Section 4.10
		Contamination	Dredging at W1, W2, W3 and K1 may intersect groundwater contamination at the Orica facility (which was identified to be significant enough to warrant EPA regulation in October 2001 and is currently regulated under EPL 828). The EIS identifies that retaining structures such as sheet pile walls minimise disturbance and impact on groundwater quality but does not confirm whether retaining structures will be used. Groundwater modelling should be undertaken to identify any impacts and management measures.	Section 4.10

Submission ID	Organisation	Issue category	Issue description	Where addressed in this report
		Contamination	The EIS identifies that dredged and excavated material from M1 and M2 will require remediation and that the remedial measures would be developed and implemented when the contamination status of the material is confirmed. The EPA does not consider this to be an appropriate approach due to odours and pollution incidents that may occur while the remedial measures are being developed and implemented.	Section 4.10
		Contamination	The EIS presents options for foreshore treatment but does not provide detailed design. Details should be provided for assessment in order to prevent contaminated soil and groundwater from leaching into waters.	Section 4.10
		Contamination	A RAP should be prepared in accordance with the EPA Guidelines for Consultants Reporting on Contaminated Sites including the issues raised in this submission in relation to further sediment investigations and characterisation.	Section 4.10
5 (continued)	NSW Environment Protection Authority (continued)	Spoil disposal	The EIS sampling is considered to be inadequate to determine the suitability of sediments for beach nourishment and re-use on industrial land as the sampling is not representative and the site criteria are not appropriate for consideration of land uses.	Section 0
		Contamination	Where the proposed Mayfield berths (M1 to M7) will disturb remediated areas of the BHP closure site review of the Contaminated Site Management Plan should be undertaken by an EPA accredited auditor and NPC must ensure that any damage to the closure site is rectified as soon as practicable. The EPA recommends that NPC engage an accredited site auditor to ensure compliance with the Voluntary Management Agreement on completion of processing and treatment of spoil, to ensure cap integrity and further contamination of the soil surface has been fully remediated. The auditor should provide a site audit statement at the completion of the activity.	Section 4.10
		Noise	The EIS does not identify the noise model used to predict noise levels at sensitive receptors.	Section 4.11
		Noise	The EIS does not demonstrate that the proposed mitigation measures would be adequate to meet the project noise criteria at Carrington during sheet piling works.	Section 4.11
		Noise	The EIS predicts exceedances of the project noise criteria at Carrington and Stockton if construction works occurs outside standard working hours at the Walsh Point compound. EPA recommends these works only be undertaken during standard hours.	Section 4.11
		Noise	The EIS predicts exceedances of the project noise criteria at Carrington if dredging occurs outside standard working hours. EPA recommends these works only be undertaken during standard hours.	Section 4.11
		Noise	The EIS has not assessed the broader impact of noise generation from increased shipping activity and cumulative impacts of berthed ships. The EPA recommends consideration of the cumulative impact of night berthing, discharging and the Mayfield Port Concept Plan Approval that recommends consideration of shore-side power for future berths to limit night noise and air emissions.	Section 4.11

Submission ID	Organisation	Issue category	Issue description	Where addressed in this report
		Waste	Any material excavated and/or dredged must be classified in accordance with the EPA's Waste Classification Guidelines Part 1: Classifying Waste (2009) prior to treatment, reuse or disposal.	Noted
5 (continued)	NSW Environment Protection Authority (continued)	Waste	The EIS states that natural soil from the BHP Closure Site would be classified as virgin excavated natural material. The EPA does not agree with this statement as the soil at the closure site is declared as significantly contaminated land under the *Contaminated Land Management Act 1997*.	Section 4.12
		Waste	It is unclear if the EIS is seeking approval for the storage, handling and treatment of hazardous waste at the proposed stockpile sites at Mayfield and Walsh Point or if the sites already have approval for these activities.	Section 4.12
		Waste	There is limited information in the EIS regarding the details of the proposed stabilisation process for the hazardous or restricted material that would be dredged and/ or excavated at M1 and M2. The EPA has previously advised that cement stabilisation requires a Specific Immobilisation Approval from the EPA prior to handling and / or treatment commencing.	Section 4.12
		Environment Protection Licence (EPL)	Land excavation in the vicinity of M1 and M2 will also require an EPL as a land based extractive activity under the POEO Act.	Noted
		Environment Protection Licence (EPL)	Use of dredged material for Stockton Beach nourishment may require further environmental assessment and may also require an EPL as waste disposal (application to land), which is a scheduled activity under the POEO Act.	Noted
		Environment Protection Licence (EPL)	Use of dredged material for clean fill for industrial developments would require NPC to characterise the material to determine if an EPL is required.	Noted
		Waste	Should the dredged material not be suitable for beach nourishment or industrial land filling they would need to treated onsite before removal to a licensed waste facility. Validation testing must be undertaken in accordance with the National Assessment Guidelines for Dredging 2009, POEO (Waste) Regulation 2010 and the Acid Sulfate Soil Manual 1998.	Noted
5 (continued)	NSW Environment Protection Authority (continued)	Air quality	The EIS states that stockpiled sediments have the potential to result in local odour impacts and states that odour impacts at Stockton are unlikely due to the buffer distance of approximately 850 metres. The EIS does not present a quantitative assessment of odour. There is potential for offensive odour impacts at Stockton from stockpiled contaminated material, particularly from the Walsh Point site. The recommended mitigations measures in the EIS are considered inadequate. The EPA also notes that there is no information in the EIS regarding the management of odour from the leachate. The EIS states that a site-specific management plan will be developed for proposed stockpile areas. The EPA recommend the management plan include a quantitative odour impact assessment and consider the scenario of storing all contaminated material in a fully enclosed building with an air pollution control system (e.g. Activated carbon).	Section 4.13

Submission ID	Organisation	Issue category	Issue description	Where addressed in this report
		Air quality	Should NPC undertake cement stabilisation of contaminated materials this would require a concrete batch plant. The EPA would require an emissions testing program for this activity.	Noted
		General	The EPA note that staging of the project is unknown. The EPA requests that NPC provide written notification seven days before each stage commences, seven days prior to any land side placement and treatment of contaminated material and within 24 hours of completion of a stage of land or water based excavation and/or spoil treatment.	Noted
6	NSW Catchment Management Authority, Hunter-Central Rivers	General	CMA incorrectly referred to as Catchment Management Area.	Section 4.1
		Tidal inundation	EIS does not consider potential cumulative effects of dredging on tidal prism. The resulting increase in tidal inundation has resulted in loss of Costal Saltmarsh areas in the Hunter Estuary since the 1950's.	Section 4.6
		Tidal inundation	Propose that NPC should prepare a cumulative model for the Hunter Estuary to meet Strategy 4 of the Hunter Estuary Coastal Zone Management Plan.	Section 4.6
		General	Assess the proposed dredging against the Hunter-Central Rivers Catchment Action Plan.	Section 4.1
		General	Disagree with the EIS statement that "*sea level rise is unlikely to impact the hydrology of the Hunter River to any great extent*".	Section 4.1
		General	Impacts on the project site due to future sea level rise predictions and associated impacts on coastal saltmarsh.	Section 4.1
7	Newcastle City Council	General	Questioned why an older aerial photo was used for the maps produced in the EIS.	Section 4.1
		Spoil disposal	Request that any suitable sand be used for Stockton Beach nourishment. Request that 40% of the identified clean dredged sand (1,045,000 m^3) be specifically allocated for this purpose. Request that the approval for reuse on Stockton Beach be obtained as part of this EIS.	Section 0
		Contamination	Area of proposed land excavation and construction of vertical retaining structure is located on land subject to an Agreement (Area No 3334. Agreement No: 26025.14/9/05) with the Environment Protection Authority under the Contaminated Land Management Act 1997. The EIS has not specifically addressed potential impacts (if any) the project may have on this existing agreement.	Section 4.10
		Heritage	Concerned that the project will destroy listed heritage items being the dyke hydraulic crane bases 14 and 15 (in water), and the remains of the McMyler Hoist foundation. The dyke hydraulic crane bases are listed on the Newcastle Heritage Inventory as being of State significance. Given the significance of the crane bases the proposed mitigation measures are considered inadequate and request that one of the crane bases be moved to a suitable display location and an interpretation plan be prepared.	Section 4.14
		Traffic	Question whether the EIS traffic study meets the requirements of RMS. The approval of RMS and Council is required. A Construction Traffic Management Plan will be required to be submitted to RMS and Council for approval prior to works commencing.	Section 4.7

Submission ID	Organisation	Issue category	Issue description	Where addressed in this report
		Traffic	A pre-construction and post-construction dilapidation survey of Selwyn Street will be required. NPC are required to rectify any damage caused by road transport associated with haulage of dredged material.	Section 4.7
8	Incitec Pivot	General	NPC EIS does not consider the Incitec Pivot EIS for the proposed Ammonia Nitrate Facility on Kooragang Island, which went on exhibition in September 2012.	Section 4.1
		Water quality	Disagree with the EIS statement that "*excessive levels of nutrients are primarily due to point sources rather than diffuse catchment run-off sources*". The Incitec Pivot EIS concludes that the major inputs of nutrients are from upstream catchment run-off.	Section 4.4
		Noise	Noise assessment does not consider the impacts to industrial facilities, including the Incitec offices at Walsh Point.	Section 4.11
		Traffic	Recommend that the traffic assessment be modified to use 2010 AADT information and include truck movements for proposed cement stabilisation activities at Walsh Point.	Section 4.7
		Air quality	Air quality assessment only considers residential receptors and does not include potential impacts to workers at businesses at Walsh Point.	Section 4.13
9	Hunter Bird Observers Club	Tidal inundation	The EIS fails to address the upstream impacts of dredging the South Arm. Previous deepening of the Hunter River by dredging has caused significant upstream increases in the tidal range by as much as 100 mm at Stockton Bridge and 250 mm at Hexham Bridge. This has caused significant loss of Costal Saltmarsh areas due to Mangrove colonisation and is threatening the stability of the Kooragang Dykes, an important high-tide shorebird roosting area. The EIS has not considered the cumulative impacts of dredging and must quantify the tidal range increase from the proposed dredging. Further mitigation measures are required to address these impacts.	Section 4.6
			Potential tidal range increase by project and resulting risks to the stability of the Kooragang Dykes	Section 4.6
10	Heritage Council of NSW (formerly Heritage Branch)	Heritage	The Proponent shall prepare a Non-Indigenous Heritage Management Plan in consultation with the Heritage Council of NSW to outline all heritage mitigation works. That document shall include details of all procedures to be implemented during the works in relation to non-Indigenous heritage items.	Section 4.14

Submission ID	Organisation	Issue category	Issue description	Where addressed in this report
		Heritage	A specialist heritage manager or heritage consultant shall be nominated for the works. The consultant shall have appropriate qualifications and experience, commensurate with the scope of the Major Project works. This should include maritime archaeological experience. The name and experience of this consultant (or consultants) shall be submitted to the Director-General of Planning & Infrastructure and the Heritage Council of NSW for approval prior to commencement of works. The heritage consultant shall advise on the detail design resolution of new works, undertake on site heritage inductions, and shall inspect new works, design and installation of services (to minimise impacts on significant fabric and views) and manage the implementation of the conditions of approval for the Project. A report by the heritage consultant (illustrated by works' photographs) shall be submitted to the Director-General for approval within 6 months of the completion of the works which describes the work, any impacts/damage and corrective works carried out.	Section 4.14
		Heritage	All construction contractors, subcontractors and personnel are to be inducted and informed by the nominated heritage consultant prior to commencing work on site as to their obligations and requirements in relation to historical archaeological terrestrial and maritime sites and 'relics' in accordance with guidelines issued by the Heritage Council of NSW.	Section 4.14
		Heritage	Photographic and archival recording of any affected Heritage items, as identified in the specialist reports prepared as part of the Environmental Impact Statement for the project, is to be undertaken prior to the commencement of any construction activity. Recording is to be completed in accordance with the Guidelines issued by the Heritage Council of NSW. Copies of these photographic recordings should be made available to the Heritage Council, the Department of Planning & Infrastructure, and also to the Local Studies Library and the Local Historical Society in the relevant Local Government areas. Recording must also be completed of any items discovered as the project proceeds.	Section 4.14
		Heritage	Any affected historical archaeological terrestrial and maritime sites of Local and State significance are to be subject to professional archaeological excavation and/or recording. A Research Design including an Archaeological Excavation Methodology must be prepared in accordance with Heritage Council guidelines for any site which is to be excavated. Those documents should be prepared for the approval of the Director-General, Department of Planning & Infrastructure and the Heritage Council of NSW or its Delegate.	Section 4.14
		Heritage	Any nominated Excavation Director(s) for the project works must meet the Heritage Council endorsed Criteria for Excavation Directors and in particular must be able to demonstrate Criterion A.4 that: 'work under any approvals previously granted by the Heritage Council has been completed in accordance with the conditions of that approval and the final report has been submitted to the Heritage Council.'	Section 4.14

Submission ID	Organisation	Issue category	Issue description	Where addressed in this report
		Heritage	If archaeological works are undertaken, a copy of the final excavation report(s) shall be prepared and lodged with the Heritage Council of NSW, the Local Studies Library and the Local Historical Society in the Newcastle Local Government area. The proponent shall also be required to nominate a repository for the relics salvaged from any historical archaeological excavations. The information within the final excavation report shall be required to include the details specified in the submission.	Section 4.14
		Heritage	The Heritage Branch noted the potential incremental loss of the Dyke 3 crane base sites would have significant impact on the collection of bases as a maritime heritage site type showing the development of port technologies. The Heritage Branch also expressed concern that photographic recording to archival standards of the underwater sections of cranes would be inadequate to establish a proper record of their construction, due to low visibility conditions. Points to address: All recording of the Walsh Point underwater sites and Dykes Point Crane Bases and McMyler Hoist would be engineering and architecturally recorded (by engineering drawings and photographic records) before being removed. Need to ensure all recording of the crane bases and McMyler Hoist are actual site plans undertaken to measured and scaled drawings to architectural and engineering standards and not limited to photographic recording only. The results of the external recording of these structures must be submitted to the HB not less than 28 days prior to the proposed demolition of the sites.	Section 4.14
		Heritage	Heritage Branch noted that the former seawall at the Dykes site had not been identified as a potential maritime heritage site that could be retained in the archaeological record. Whilst noting the considerable change to this area through previous port development projects, it is a requirement that if any trace of the site was encountered during the project, then works should stop whilst the site is investigated by a suitably qualified maritime archaeologist. Points to address: The EIS does not mention the potential for remains of the former Dykes seawall may still exist in the area, or what measures should be instituted should remains of it be found.	Section 4.14

Submission ID	Organisation	Issue category	Issue description	Where addressed in this report
		Heritage	Heritage Branch has noted that the initial EA stated that it was planned for spoil to be pumped over or through the northern Newcastle Breakwater Training Wall, and that the EA did not consider the effect of this activity on the 14 located wrecks contained within the breakwater, or other wrecks known to exist in the Stockton Bight near Stockton Beach and Oyster Bank (in the area immediately north of the breakwater). The EA also has not considered the Commonwealth Historic Shipwrecks Act 1976 or the Heritage Act NSW 1977 (in regards to shipwrecks) in the Relevant Legislation section of the EA. Points to address: The EIS does not consider the Commonwealth Historic Shipwrecks Act 1976 in regards to the possible use of beach renourishment and sand broadcasting. Discussion of this act should be included.	Section 4.14
		Heritage	Heritage Branch has noted that the underwater sites identified in the EA by side scan imagery in the vicinity of Kooragang Island/ Walsh Point had not been adequately identified or assessed; that due to the demonstrated presence of intact structures underwater, it was likely that there were also intact archaeological sites, deposits and relics in these areas. It was recommended that standard underwater archaeological inspection, documentation and assessment of these sites is required by a suitably qualified maritime archaeologist to consider the heritage significance and extent of these sites prior to proposed impacts. The results of this survey and assessment should then guide whether removal of the sites was appropriate. Heritage Branch also expressed concern that photographic recording to archival standards of the underwater sites would be inadequate, due to low visibility conditions. Heritage Branch advised that archaeological sites and deposits can be protected under s.139 of the Heritage Act NSW 1977 and permits for disturbance and removal may be required. Points to address: The EIS does not mention that underwater surveys by a qualified maritime archaeologist for a heritage assessment have been carried out (or were required) for the Walsh Point “Obstruction” sites. This inspection and heritage assessment are required to determine and confirm the identity and Heritage Significance of these sites. All recording of the Walsh Point underwater sites and Dykes Point Crane Bases and McMyler Hoist must be engineering and architecturally recorded (by engineering drawings and photographic records) before being removed. Need to ensure all recording of the crane bases and McMyler Hoist are actual site plans undertaken to measured and scaled drawings to architectural and engineering standards and not limited to photographic recording only. Furthermore, the results of this work should guide to formulate a Heritage Assessment that would consider the significance and extent of the Walsh Point sites, which was then to be submitted to the HB not less than 28 days prior to the proposed demolition of the sites.	Section 4.14

Submission ID	Organisation	Issue category	Issue description	Where addressed in this report
		Heritage	The EA does not currently consider whether the proposed dredging will have any potential effects in regards to increased currents and/or erosion on any historic maritime infrastructure in the Hunter River, and in particular, Macquarie Pier and the Dyke. Points to address: No mention has been specifically made of any potential heritage impacts of current on downstream heritage sites (e.g. Macquarie Pier and the Dyke sea wall) - if indeed there are any. An appropriate statement should be made in the EIS regarding whether these sites will be affected.	Section 4.14
		Heritage	The EIS states that should archaeological relics be discovered, a heritage expert should be consulted about appropriate archival; recording and if possible preservation. If archaeological relics are discovered, then an archaeologist should be consulted, and if necessary, subsequently a conservator	Section 4.14
		Heritage	Heritage is only briefly addressed under the Risks section (5.4 - p43) and the risk treatment is limited to a site visit and archival photographic recording	Section 4.14
		Heritage	The EIS states that a Heritage Permit is not required under Part 4 as the project is a Part 5.1 project. However, assessment of heritage impacts is a Director General Requirement (S. 7.5 – p68)	Section 4.14

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