

## PART C: ENVIRONMENTAL ASSESSMENT

Part C assesses and responds to the environmental impacts of the Concept Plan proposal at its maximum development capacity of 399,800 m<sup>2</sup> (i.e comprising a maximum GFA of 388,300 m<sup>2</sup> within the Mixed Use Zone and a maximum of 11,500 m<sup>2</sup> GFA within the RE1 Public Recreation Zone). It addresses the matters for consideration set out in the Director-General's Environmental Assessment Requirements (EAR) and incorporates material included in the Response to Department of Planning and Revised Statement of Commitments prepared by JBA Urban Planning Consultants Pty Ltd on behalf of Sydney Harbour Foreshore Authority dated January 2007 (refer to Condition A2(2) of the Concept Plan Determination).

In accordance with the requirements of the Director General for the preparation of a planning study to support the proposed inclusion of the Barangaroo Site as a State significant site under Schedule 3 of SEPP (Major Projects) 2005, this Part C also addresses the suitability of the site for the proposed Concept Plan, and implications of the proposed land uses.

The Revised Statement of Commitments approved by the Minister on 9 February 2007 concludes this section.

## 16.0 Director General's Environmental Assessment Requirements

**Table 5** provides a detailed summary of the individual matters listed in the Director General's Environmental Assessment Requirement (EAR) and / or identifies where each of these requirements has been addressed in this report and the accompanying technical studies.

**Table 4** - Director General's Environmental Assessment Requirements

Item	Environmental Assessment Requirement for Concept Plan	Environmental Assessment Report Location / Comments
<b>General Requirements</b>		
	The Environmental Assessment must include:	
1.	Executive summary.	Executive summary, p.i.
2.	A description of the overall concept, its likely components and any staging of the development including:	Part B Sections 7.0 to 15.0.
	<ul style="list-style-type: none"> <li>description of the site, including cadastre and title details;</li> </ul>	Part A Section 1.0.
	<ul style="list-style-type: none"> <li>design, subdivision layout; and</li> </ul>	Part B Sections 7.0 to 15.0.
	<ul style="list-style-type: none"> <li>project objectives and need (if relevant).</li> </ul>	Part A Sections 2.0 & 3.0.
3.	An assessment of the environmental impacts of the project, with particular focus on the key assessment requirements specified below and in Schedule 1.	Part C Sections 17.0 to 24.0; Technical studies at Volume 2: Heritage Impact Statement prepared by City Plan Heritage, Perspective Sketches prepared by Arterra, Transport Report prepared by Masson Wilson Twiney, ESD Summary Report prepared by Advanced Environmental, Wind Effects Statement prepared by Windtech, Noise and Vibration Assessment prepared by Acoustic Logic Consultancy, Water Sensitive Urban Design Strategy prepared by Ecological Engineering, Overshadowing Plans prepared by Arterra, Infrastructure Report prepared by Lincolne Scott Australia Pty Ltd, Geotechnical & Environmental Investigation prepared by ERM
4.	A statement on the validity of the environmental assessment and the qualifications of person(s) preparing the assessment also notes that the information contained in the environmental assessment is neither false nor misleading.	Provided.
<b>Part A – Heads of Consideration</b>		
5.	Suitability of the site.	Part A Section 1.0 (The Existing Condition), Part C Section 17.0 (Site Suitability and Implications of Proposed Land Uses).

Item	Environmental Assessment Requirement for Concept Plan	Environmental Assessment Report Location / Comments
6.	Likely environmental impacts.	Part C Sections 18.0 (Social & Economic Issues), 19.0 (Traffic and Transport issues), 20.0 (Heritage Issues), 21.0 (Design and Amenity Issues), 22.0 (Environmental Management), 23.0 (Infrastructure); Technical studies at Volume 2 Appendices: Heritage Impact Statement prepared by City Plan Heritage, Perspective Sketches prepared by Arterra, Transport Report prepared by Masson Wilson Twiney, ESD Summary Report prepared by Advanced Environmental, Wind Effects Statement prepared by Windtech, Noise and Vibration Assessment prepared by Acoustic Logic Consultancy, Water Sensitive Urban Design Strategy prepared by Ecological Engineering, Overshadowing Plans prepared by Arterra, Infrastructure Report prepared by Lincolne Scott Australia Pty Ltd, Geotechnical & Environmental Investigation prepared by ERM
	Likely social impacts.	Part A Sections 2.0 (The Urban Renewal Context) & 3.0 (A New Sustainable Precinct); Part B Section 8.2 (Community); Part C Section 18.2 (Housing Supply and Choice), Section 18.3 (Community Services and Facilities), Section 24.0 (Statement of Commitments).
	Likely economic impacts.	Part A Sections 1.5 (Economic Considerations), 1.6 (The Metropolitan Strategy Context), 2.0 (The Urban Renewal Context) & 3.0 (A New Sustainable Precinct); Part B Section 8.1 (Economic); Part C Section 18.1 (Economy and Employment).
7.	Justification for undertaking the project.	Part A Section 2.0 (The Urban Renewal Context) & Part 3.0 (A New Sustainable Precinct); Part A Section 6.2 (The State significance of Barangaroo) including summary statement of significance.
8.	The public interest.	Part A Sections 2.0 (The Urban Renewal Context) & 3.0 (A New Sustainable Precinct); Part A Section 6.2 (The State Significance of Barangaroo); Part C Section 17.0 (Site Suitability and Implications of Proposed Land Uses).
<b>Part B – Relevant EPI's and guidelines to be addressed</b>		
9.	Planning provisions applying to the site including permissibility and the provisions of all plans and policies.	Part A Section 1.1 (Description of the site); <b>Appendices H &amp; I</b> of original EAR dated October 2006.
10.	Nature and extent of non-compliance with specified EPIs.	Refer <b>Appendices H &amp; I</b> of original EAR dated October 2006.
11.	Consideration of alternatives to the proposal.	Part A Section 4.0 (International Urban Design Competition); <b>Appendix D</b> Stage 2 Urban Design Competition Scheme and Summary Extracts from the Competition Jury Report.

Item	Environmental Assessment Requirement for Concept Plan	Environmental Assessment Report Location / Comments
<b>Part C – Key Issues to be Addressed</b>		
	Requirements of the Department and other agencies are as follows:	
12.	Urban Design, development controls and land uses	
	<ul style="list-style-type: none"> <li>The methodology and justification for selecting the configuration of the Barangaroo proposal, mix of land uses and the density of development should be outlined. All alternative options for layout, built form, densities and development parameters should be identified. All constraints, opportunities and merits of alternative options should be articulated.</li> </ul>	Part A Section 4.0 (International Urban Design Competition); <b>Appendix D</b> Urban Design Competition Scheme and Summary Extracts from the Competition Jury Report; Part A Section 2.0 (The Urban Renewal Context).
	<ul style="list-style-type: none"> <li>Key matters to be addressed include an analysis of existing bulk and scale of surrounding development, landmark buildings, density, heights, topography, streetscape, shadows, view corridors, connectivity, street address, open space, vegetation, traffic management and road hierarchy.</li> </ul>	Part A Section 1.0 (The Existing Condition); <b>Appendix D</b> Urban Design Competition Scheme and Summary Extracts from the Competition Jury Report; Part B Sections 8.0 (Concept Strategies), 9.0 (Urban Structure), 11.0 (Public Domain), 13.0 (Built Form); Part A Section 6.2 (The State Significance of Barangaroo); Part C Sections 19.0 (Traffic & Transport Issues), 20.0 (Heritage Issues), 21.0 (Design & Amenity Issues), 22.0 (Environmental Management).
	<ul style="list-style-type: none"> <li>A suitable urban design response should be developed in compliance with BASIX principles, in particular, siting and orientation of buildings and solar access. Appropriate development controls should be established, including density, building heights, footprints, entry points, public domain, private open space and car parking. Crime prevention principles, as outlined in the NSW Police publication “Crime Prevention Through Environmental Design” (CPTED), are to be adopted.</li> </ul>	Part B Sections 11.0 (Public Domain), 12.2 (Land use mix and GFA), 13.1 (Built Form Principles), <b>Appendix H</b> (Development block envelopes/guidelines); Part C Section 19.0 (Traffic & Transport Issues), 22.2 (Water Management and Environmental Sustainability), 21.2 (Solar Access & Overshadowing), 21.7 (Crime and Public Safety), 24.0 (Statement of Commitments).

Item	Environmental Assessment Requirement for Concept Plan	Environmental Assessment Report Location / Comments
13.	<p>Transport and Access</p> <p>The environmental assessment needs to satisfactorily address the following transport, traffic, access and car parking provision issues as set out below.</p> <ul style="list-style-type: none"> <li>• Existing and future transport networks, traffic generation and circulation, and car parking.</li> <li>• Provision of public transport – bus, rail and ferry.</li> <li>• Tourist coach facilities and cruise ship berthing.</li> <li>• Potential to accommodate future specialist transport services – including capacity to incorporate light rail (e.g. along Hickson Rd or other major roads within the site) and/or boutique tourist services like trolley buses, which perform a secondary transport role.</li> <li>• Pedestrian and cycle access within and to the site, connecting with all transport services and to key locations outside the site – such as the Rocks/Millers Point, Wynyard and King Street Wharf/Darling Harbour, utilising the harbour foreshore.</li> <li>• Compliance with relevant RTA, Council, AMCORD requirements, standards, controls, and guidelines – including the preparation of a comprehensive Transport Management and Accessibility Plan (TMAP) for the site.</li> </ul>	<p>Part C Section 19.0 (Traffic and Transport Issues); Transport Report prepared by Masson Wilson Twiney <b>Appendix J</b>.</p> <p>Part B Section 14.1 (Transport and Access); Part C Section 19.0 (Traffic and Transport Issues); Transport Report prepared by Masson Wilson Twiney <b>Appendix J</b>.</p> <p>Part B Section 14.1 (Transport and Access), Section 14.3 (Port Operational Requirements); Transport Report prepared by Masson Wilson Twiney <b>Appendix J</b>.</p> <p>Part B Section 14.1 (Transport and Access), Part C Section 19.0 (Traffic and Transport Issues); Transport Report prepared by Masson Wilson Twiney <b>Appendix J</b>.</p> <p>Part B Sections 9.0 (Urban Structure), 11.5 (Streets), 11.6 (Pedestrian Connections), 11.7 (External Public Domain), 14.1 (Transport and Access); Part C Section 19.0 (Traffic and Transport Issues); Transport Report prepared by Masson Wilson Twiney <b>Appendix J</b>.</p> <p>Transport Report prepared by Masson Wilson Twiney <b>Appendix J</b>.</p>
14.	<p>Sydney Ports Corporation</p> <ul style="list-style-type: none"> <li>• Consultation with Sydney Ports regarding the Corporation's requirements for Passenger Vessel operations, Harbour Control and Moore's Wharf Marine Operations and security plans is to be carried out and addressed in the concept plan. The passenger terminal facility must comply with operational security requirements of the Maritime Transport &amp; Offshore Facilities Security Act 2003. The layout of the passenger terminal needs to provide for a Cleared Zone and a Land Side Restricted Zone.</li> </ul>	<p>Part A Section 5.0 (Consultation - Informing the Plan for Urban Renewal); 1.10 (The Existing Condition); <b>Appendix E</b> Environmental Assessment Requirements - Agency Inputs and Proponent Response; Part B Section 14.3 (Port Operational Requirements); Part A Section 5.0 (Consultation - Informing the Concept Plan).</p>

Item	Environmental Assessment Requirement for Concept Plan	Environmental Assessment Report Location / Comments
15.	Streetscape and Public Domain	
	<p>The environmental assessment needs to satisfactorily:</p> <ul style="list-style-type: none"> <li>• Explore the relationship of urban public spaces and their adjoining built form, and how the urban public spaces will be useable;</li> </ul>	Part A Section 1.0 (The Existing Condition); Part B Sections 9.0 (Urban Structure), 11.0 (Public Domain).
	<ul style="list-style-type: none"> <li>• Demonstrate the hierarchy and purpose of street patterns on the site and the scale relationship between streets, footpaths and buildings;</li> </ul>	Part B Section 11.0 (Public Domain).
	<ul style="list-style-type: none"> <li>• Consider the relationship between the public domain and the ground floor uses of all buildings on the site;</li> </ul>	Part B Section 11.8 (Public Domain Design Elements).
	<ul style="list-style-type: none"> <li>• Detail the links, connections and access conditions between the site and its surrounds and how the proposed connections will function;</li> </ul>	Part B Section 11.0 (Public Domain).
	<ul style="list-style-type: none"> <li>• Demonstrate how the public domain will be safe during times of low usage at night;</li> </ul>	Part C Section 21.7 (Crime and Public Safety), 24.0 (Statement of Commitments).
	<ul style="list-style-type: none"> <li>• Consider the need to introduce harbour water on the site as part of a public domain strategy;</li> </ul>	Part B Section 11.0 (Public Domain), Section 11.8 (Public Domain Design Elements).
	<ul style="list-style-type: none"> <li>• Detail how the foreshore promenade is configured, how it interacts with adjoining land uses, both open space and built form and what relationship it has with the harbour; and</li> </ul>	Part B Section 11.2 (The Foreshore Promenade).
	<ul style="list-style-type: none"> <li>• Detail the inclusion of parks and public plazas suitable for open air events including festivals, major civic events and markets.</li> </ul>	Part B Sections 11.0 (Public Domain), 11.2 (The Foreshore Promenade), 11.3 (The Parklands), 11.4 (Squares and Civic Places).
16.	Heritage	Heritage Impact Assessment prepared by City Plan Heritage
	<ul style="list-style-type: none"> <li>• A heritage impact statement should be prepared in accordance with NSW Heritage Office guidelines. The statement should assess the impacts of the application on the adjacent Millers Point Heritage Precinct and any significant components of the site.</li> </ul>	<b>Appendix A</b> ; Part C Section 20.0 (Heritage Issues).

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17.	<p>Social and Community</p> <ul style="list-style-type: none"> <li>The environmental assessment should address: recreation needs along with community facilities; the integration of new and existing communities, including access to employment opportunities and community facilities; housing diversity and affordability (e.g. key worker housing); and access to retail facilities, employment and transport.</li> </ul>	<p>Part A Sections 1.4 (Community and Social Considerations), 3.3 (Community); Part B Section 8.2 (Concept strategies - Community); Part C Sections 18.0 (Social and Economic Issues), Section 24.0 (Statement of Commitments); <b>Appendix I</b> Intermediate Housing Strategy prepared by Bill Randolph.</p>
18.	<p>Contamination</p> <ul style="list-style-type: none"> <li>Contamination and geotechnical issues associated with the Barangaroo proposal should be identified and addressed in accordance with SEPP55 and other relevant legislation and guidance.</li> </ul>	<p>Part A Section 1.3 (Environmental Considerations), Part C Section 22.1 (Contamination &amp; Geotechnical Issues), 24.0 (Statement of Commitments); Geotechnical and environmental investigation by ERM <b>Appendix P</b>.</p>
19.	<p>Drainage and Stormwater Management</p> <ul style="list-style-type: none"> <li>The environmental assessment should address drainage and stormwater management issues, including: on site detention of stormwater; water sensitive urban design (WSUD); and drainage infrastructure.</li> </ul>	<p>ESD Summary Report prepared by Advanced Environmental <b>Appendix Q</b>; Water Sensitive Urban Design Strategy prepared by Ecological Engineering <b>Appendix R</b>; Part B Section 11.8 (Public Domain Design Elements); Part C Sections 22.2 (Water Management &amp; Environmental Sustainability), 24.0 (Statement of Commitments).</p>
20.	<p>Utilities Infrastructure</p> <ul style="list-style-type: none"> <li>The environmental assessment should include details of how the development proposal will be satisfactorily serviced for utility services such as the supply of water, sewerage, stormwater, gas, electricity and telephone services and comply with the requirements of any public authority in regard to the connection to, relocation and/or adjustment of the services affected by the Barangaroo redevelopment.</li> </ul>	<p>Infrastructure Report prepared by Lincolne Scott Australia Pty Ltd <b>Appendix S</b>; Part A Section 1.2 (Physical Infrastructure); Part B Section 14.0 (Infrastructure); Part C Section 23.0 (Infrastructure).</p>
21.	<p>Community Consultation</p> <ul style="list-style-type: none"> <li>The environmental assessment should document all community consultation undertaken to date or discuss the proposed strategy for undertaking community consultation. This should include any contingencies for addressing any issues arising from the community consultation and an effective communications strategy.</li> </ul>	<p>Part A Section 5.1 (Consultation - Informing the Plan for Urban Renewal); Part A Section 5.2 (Consultation - Informing the draft Concept Plan); <b>Appendix E</b> Environmental Assessment Requirements - Agency Inputs and Proponent Response.</p>

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22.	Development Staging <ul style="list-style-type: none"> <li>The issue of development staging should be clearly addressed in detail.</li> </ul>	Part B Section 15.1 (Project Staging).
23.	Planning Agreements and/or Developer Contributions <ul style="list-style-type: none"> <li>The environmental assessment should address and provide the likely scope of a planning agreement and/or developer contributions between the proponent, Council and other agencies for matters such as community, regional and local infrastructure, public transport provision, social infrastructure and facilities etc either on site or the LGA.</li> </ul>	Part C Sections 23.1 (Provision and Financing of Infrastructure), 24.0 (Statement of Commitments)
<b>Statement of Commitments</b>		
24.	Proposed mitigation and management of residual impacts.	Part C Section 24.0 (Statement of Commitments).
25.	A draft Statement of Commitments detailing measures for environmental management, mitigation measures and monitoring for the project.	Part C Section 24.0 (Statement of Commitments).
26.	General Environmental Risk Analysis (in relation to all components of the concept) <ul style="list-style-type: none"> <li>Notwithstanding the above key assessment requirements, the Environmental Assessment must include an environmental risk analysis to identify potential environmental impacts associated with the project, proposed mitigation measures and potentially residual environmental impacts after the application of proposed mitigation measures. Where additional key environmental impacts are identified through this environmental risk analysis, an appropriately detailed impact assessment of the additional key environmental impacts must be included in the Assessment</li> </ul>	Part C entire section, Section 24.0 (Statement of Commitments).

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<b>Consultation Requirements</b>		
27.	<p>You should undertake an appropriate and justified level of consultation with the relevant following parties during the preparation of the Environmental Assessment:</p> <p><b>Agencies</b></p> <ul style="list-style-type: none"> <li>• City of Sydney Council</li> <li>• Transport Agencies, including: RTA; Ministry of Transport; Sydney Ferries Corporation; STA; and RailCorp</li> <li>• NSW Maritime Authority</li> <li>• Sydney Ports Corporation</li> <li>• Department of Housing</li> <li>• NSW Heritage Office</li> <li>• Department of Environment and Conservation</li> <li>• Department of Commerce (Government Architect)</li> <li>• Utilities and Emergency Services, including: NSW Police Service; NSW Fire Brigades; Sydney Water; Energy Australia; and Telstra Corporation Limited</li> </ul> <p><b>Public</b></p> <ul style="list-style-type: none"> <li>• Any relevant community meetings already established and time-tabled; and</li> <li>• Any additional meetings proposed by the local member or other relevant group.</li> </ul> <p><b>Peer Review Requirements</b></p> <ul style="list-style-type: none"> <li>• List any components of the Environmental Assessment to be independently peer reviewed prior to submission.</li> </ul>	<p>Part A Section 5.0 (Consultation); Summary of consultations <b>Appendix E</b>. Ongoing public consultation process TBC.</p> <p>Peer review N/A.</p>

## 17.0 Site Suitability & Implications of Proposed Land Uses

As a working port, Barangaroo has seen many changes in the global economics and technology of cargo handling. The latest change has resulted in the movement of large scale port related activities out of the CBD to Port Botany and Port Kembla. The result is that the current land use zoning of Barangaroo under SLEP 2005 has become redundant.

The proposed change in land use zoning from predominantly maritime and transport uses to mixed uses and public recreation is compatible with the State Government's Metropolitan Strategy, which consolidates business and residential uses in areas of existing commercial and residential areas, and in a sustainable manner. The redevelopment of Barangaroo as an extension of the Sydney CBD has the potential to be a significant driver in the growth and success of Sydney as a global location for investment

The suitability of the site for the delivery of significant commercial and residential floor space, together with major new recreational and community infrastructure, and the associated local and regional land use implications, is demonstrated through the:

- Site analysis included in Part A Section 1.0;
- Consideration of the new land uses outlined in Part A Sections 2.0 and 3.0; and the
- Planning analysis, including articulation of the strategic location of the site and its significance in Part A Section 6.2.

The justification for the proposed future land uses at Barangaroo is based on its capacity to lever significant regional and global investment into Sydney and the State. The attractiveness of the site to global investors as well as existing residents and businesses is in its size, location, capacity to connect with the CBD, and its provision of significant open, public, waterfront space and civic amenities that will be attractive to new investors as well as existing residents and businesses.

## 18.0 Social and Economic Issues

### 18.1 Economy and Employment

The proposed redevelopment of Barangaroo will have a positive economic impact on Sydney and the State of New South Wales. The development will generate significant economic and employment opportunities during and post construction, and will provide significant new commercial, hotel and retail floor space in the western part of the CBD. The economic and employment impacts of the proposed redevelopment and its contribution to the implementation of the Metropolitan Strategy for Sydney are considered in detail in Part A Section 1.6 of this report. Based on the floor space numbers it is estimated that a population of up to 16,000 workers and 1,500 residents will be located at Barangaroo.

### 18.2 Housing Supply and Choice

The renewal of Barangaroo will include a mix of housing types and tenures within the proposed 600–900 dwelling units. The benefits of the inclusion of socially sustainable non-market housing include:

- Social equity and inclusion;
- Social mix and diversity;
- Housing the global city workforce; and
- International best practice in medium and high density housing design.

There are a number of issues surrounding the delivery of housing on the Barangaroo site, including the provision for intermediate housing, mechanisms for funding and delivery, the transparent allocation and marketing of such housing and an appropriate long-term management vehicle.

An Intermediate Housing Strategy prepared by Bill Randolph is included at **Appendix I**. The Statement of Commitments at Section 24.0 addresses the preparation of a housing policy for the project to investigate housing issues.

### 18.3 Community Services & Facilities

The implications for the Barangaroo project in terms of current demographic, cultural and social trends have been addressed in Part A of this report.

As identified at Part A, the proposed development of Barangaroo will provide a quality living and working environment accommodating a range of facilities benefiting the social, health, cultural and recreational needs of the existing and future communities. It will achieve:

- A high quality living and working environment in which the health and wellbeing of the working, residential and visiting populations are met.
- New benchmarks as an urban area that supports good health outcomes through the provision of opportunities for active recreation, availability of healthy food and access to health and lifestyle services.
- A high level of cultural amenities for visitors, workers and residents.
- A recreational environment of regional significance attracting visitors, while meeting the needs of workers and residents.

The Statement of Commitments at Section 24.0 incorporates the key recommendations and outcomes for the provision of community services and facilities for Barangaroo.

## 19.0 Traffic & Transport Issues

The transport aspects of the Concept Plan proposal are documented in the full Transport Report prepared by Masson Wilson Twiney included at **Appendix J**.

The Transport Report includes an assessment of the impact of the development on the local road network, proposed public transport measures, and car parking requirements of the development.

The key aspects of the Transport Report are outlined below.

### 19.1 Transport Issues

#### 19.1.1 Uses

For the purposes of modelling a transport scenario, the transport consultants assumed 267,700m<sup>2</sup> of commercial and mixed use space including, two hotels; 9,850m<sup>2</sup> of public buildings; 67,890m<sup>2</sup> of residential space, and extensive foreshore parklands. These floor space figures represent an indicative development scenario only, but have been relied upon to provide an indication of likely traffic generation associated with a development of this scale. These figures are within the ranges of GFA permitted in accordance with Table 3 at Section 12.2.

These uses (when fully developed) are likely to result in up to 16,000 workers and an average estimate of 1,500 residents.

The majority of workers would be located at the southern end of the site with three quarters within 300m of the southern boundary and 500m from Wynyard Rail Station.

#### 19.1.2 Assessment Methodology

As noted in the Traffic Report, the traffic impact of the proposed Barangaroo development will occur when the combination of traffic from the proposed development and traffic already in existence on the road network are at their greatest. To determine the traffic effects of the proposed development, an estimate of the number of vehicle trips associated with the particular land uses within the site were forecast.

The approach taken to forecast traffic generation has been to use the results of traffic surveys undertaken for similar land uses with comparable locations and accessibility criteria. Traffic surveys relating to the following land uses were used in the assessment of the impact of the Barangaroo proposal:

- Residential tower blocks within the city;
- Commercial buildings located in the Sydney CBD;
- Mixed-use development including hotels in the adjacent King Street Wharf precinct;
- Public car parking;
- Public transport; and
- Passenger Terminal.

Using results of the above surveys, the traffic impacts of the proposed development at Barangaroo were forecast and assessed.

### 19.1.3 Traffic Generation

To minimise site traffic generation in peak periods the Concept Plan has incorporated a restrictive parking supply policy for the commercial components of the development. It is proposed that commercial development on site parking supply be limited to 1 space per 600m<sup>2</sup> GFA. For residential/other land use it is proposed to adopt Sydney City Council's existing parking rates under Sydney LEP 2005.

It is also proposed that existing on-street all day parking on Hickson Road be made short-term only.

One underground public car park of some 300 spaces is proposed at the northern end of the site.

With regard to the restrictive parking policy, the total traffic generation of the full development is estimated to be some 465 to 553 vehicles/hour (in and out) in peak periods.

### 19.1.4 Local Intersection Operation

To determine the likely trip origins and destinations of traffic associated with the proposed Barangaroo development, traffic distribution was calculated based upon Journey to Work data from the 2001 Census. Traffic was assigned to the road network in accordance with the traffic distribution contained in the Census, with allowance made for competing routes. This enabled an assessment of the impact of the proposed development on the operation of the local road network.

Local traffic modelling indicates that with the exception of the Sussex/Napoleon Street intersection, the increase in traffic at localised intersections as a result of the development of Barangaroo will not have a significant detrimental impact upon the "Level of Service" (as defined in the RTA Guide to Traffic Generating Developments 2002) experienced at these intersections. With the exception of the Sussex/Napoleon Street intersection, all intersections retain at least a "Satisfactory" Level of Service.

Traffic modelling indicates that the Sussex/Napoleon Street intersection would need to be signalised to provide a reasonable level of traffic operation.

The results are based on the survey of vehicles which were recorded crossing the signal stoplines. The Traffic Report notes that the assessment does not take account of the actual demand which is constrained by the upstream and downstream intersections. Hence the results may suggest that the intersections operate better than occurs in reality. The PARAMICS model of the Sydney CBD will provide a better picture of intersection level of performance with the inclusion of traffic from the proposed development. The traffic implication of the Barangaroo development on the rest of the city CBD is to be the subject of further study making use of the RTA's PARAMICS micro-simulation model of the CBD.

The report also notes that the increases in peak hour traffic through the local intersections may have the effect of redistributing some of the existing traffic to other competing routes.

### 19.1.5 Public Transport Services

The Concept Plan will facilitate new direct and higher quality pedestrian connections to rail and bus services at Wynyard.

The public transport strategy incorporated within the Concept Plan canvasses a wide range of potential changes/extensions to existing bus services which could provide a direct service to Barangaroo.

Key likely changes are the extension of eastern/southern services from the Queen Victoria Building to Barangaroo, plus extension of northern bus services from Wynyard to Barangaroo.

Identification and resolution of any bus service changes will be made in consultation with the Ministry of Transport and the State Transit Authority.

There have been a number of studies on the extension of the Sydney light rail system through the CBD. The proposed Barangaroo development would increase demand for tourist/commuter trips along a western corridor. The proposed road layouts and pedestrian facilities are planned to allow for the future construction of a light rail system along Hickson Road.

The main existing ferry access is seen as the King Street Wharf Number 3. The Concept Plan facilitates pedestrian access to this wharf. A new ferry wharf is proposed in Barangaroo to serve largely recreational weekend services. Possible adjustments to ferry services and the role of the Barangaroo Wharf will be the subject of further study in consultation with the Ministry of Transport and Sydney Ferries.

### 19.1.6 Pedestrian Linkages

The Barangaroo development provides for a number of new pedestrian connections to the surrounding local area, particularly to create safe and convenient connections to Wynyard Station.

Internally the development provides for a generous foreshore walkway as well as a network of north-south and east-west road and footpath connections.

### 19.1.7 Cycle Facilities

The Barangaroo development is proposed to complement the Sydney City Bike Plan by the creation of a bicycle route along Napoleon Street, Globe Street, the Headland Park and Hickson Road, as well as a shared bike/pedestrian route along the foreshore promenade.

Individual buildings would be required to provide bicycle parking and shower facilities, and bike parking would be extensively provided within the public domain.

## 19.2 Recommendations

The report identifies extensive transport commitments including:

- Distribution and mix of uses to maximise traffic flow;
- Provision of on/off street bicycle facilities and pedestrian facilities;
- Restriction of on-site parking supply, especially for commercial uses (1 space per 600m<sup>2</sup> GFA);
- Changes to on-street parking controls;
- Further study of traffic affects including consideration of bus route changes and possible road network changes;
- Further study and negotiation of bus/ferry changes; and
- Study and definition of public domain improvements to support traffic and transport initiatives.

The recommendations contained within the Transport Report have been incorporated into the Statement of Commitments at Section 24.0.

## 20.0 Heritage Issues

A Heritage Impact Statement for the project has been prepared by City Plan Heritage (refer to **Appendix A**).

The Heritage Impact Statement addresses:

- The manner in which the project will enhance and interpret the historic associations of the place and respect the curtilage of significant places in the vicinity of the site.
- The potential heritage impact of the concept proposal due to the demolition and or alteration of fabric of heritage significance.
- The potential impact on historic views and vistas.

The Heritage Impact Statement is accompanied by a detailed analysis of the impact of the Concept Plan proposal on views and vistas to, from, and within the site.

The Heritage Impact Statement concludes:

*“The Barangaroo proposal will result in a reasonable level of impact and change to places and views of heritage value. Change is required to create a new vibrant and viable urban place that extends the city and opens the western foreshore to the public. The Concept Plan has been established on a set of principles which respect surrounding places and interpret historic associations. Some impact will occur through change to an existing item on site and the change to views and vistas; however, this level of impact is considered minor and reasonable having regard to the degree of impact, the significance of the place and the positive urban design outcome for the city”.*

The key aspects of the Heritage Impact Statement are outlined below.

### 20.1 Heritage Items on Site

The site contains five individual structures with varying heritage significance:

- a) MWS & DB Sewage Pumping Station No.14: Listed on the Sydney Water Section 170 Heritage Register and Sydney LEP 2005.
- b) Moores Wharf Building (relocated): Listed on the NSW Maritime Authority Section 170 Heritage Register.
- c) Dalgety’s Bond Stores Group of Buildings: Listed on the State Heritage Register No. 526; NSW Maritime Authority Section 170 Heritage Register; Sydney LEP 2005.
- d) Section of sandstone sea wall: Listed on the Sydney Ports Corporation Section 170 Heritage Register.
- e) Port Operations and Communications Centre, also known as Harbour Control Tower: Listed on the Sydney Ports Corporation Section 170 Heritage Register.

## 20.2 Items in the Vicinity

There are a number of listed places of heritage significance within the vicinity of the Barangaroo site. The sites are identified on a number of statutory lists including the Sydney LEP 2005, various Section 170 Heritage Registers and the State Heritage Register.

- a) Millers Point Conservation Area;
- b) Grafton Bond Store and Sandstone Wall on Hickson Road;
- c) Lance Kindergarten building at 37 High Street;
- d) Palisade Fence and High Steps on High Street/Hickson Road Cutting;
- e) Mortons Hotel at 20-24 Sussex Street;
- f) Palisade Hotel at 35-37 Bettington Street;
- g) High Street Terraces;
- h) 18-20 Munn Street;
- i) Merriman Street Terraces;
- j) MSB Stores at 34 Hickson Road; and
- k) Former gasworks AGL building.

## 20.3 Statement of Significance

In general, the Barangaroo site consists of a long, broad and straight concrete platform constructed upon reclaimed land in the 1960s and 1970s. The physical expression of the historic phases of land reclamation and construction of wharves to facilitate shipping and other maritime industrial activities has been lost. The site demonstrates only the most recent phase of development and use. The site remains significant in the history of Sydney as the site was once socially and physically connected to the working class residential areas of Millers Point, which provided labour for the wharf operations during the 19th and 20th centuries.

Millers Point, the Barangaroo site, and the Harbour foreshore have been continually changed, adapted and manipulated to serve the economic, social, environmental and sanitary requirements of a particular time. Consequently, the views to and from Millers Point and its constituent elements have come and gone with the current views dating from the late twentieth century.

- In the early to mid twentieth century views from Hickson Road and High Street were affected by the wharf buildings along the western side Hickson Road.
- The cuttings along Hickson Road and the Millers Point headland were not always visible or even extant because they were not formed until the early stages of the twentieth century, and then were obscured by large warehouse structures.
- It is only in the last quarter of a century that the cuttings of the headland itself have been a visually prominent element from the harbour surrounds due to the changes to the earlier form of the landscape and the demolition of the large wharf structures.

Of the five listed heritage items within the site only one, the Dalgety's Bond Store, is listed on the State Heritage Register. This building will be retained. The other four items are therefore considered less significant. There are no proposals to alter the Ports Control Tower or the Moore's Wharf building, or suggest alternative uses. The Sewer Pumping station will be relocated for adaptive reuse, if possible, and the small section of sandstone sea wall will be conserved and protected if structurally feasible.

The site has potential archaeological significance, although it is not evident how much of the early finger wharves and seawalls survive below the existing concrete wharf. The Archaeological Management Plan of the Rocks and Millers Point prepared by the Department of Public Works and Services (DPWS) assesses the subject site as 'mostly and partially disturbed' in regard to its archaeological potential.

## 20.4 Impact Assessment

The Concept Plan has been developed with a number of principles in mind and the protection of key views from the historic precincts is one of these principles. The concept, as detailed elsewhere, is to provide for full public access and to provide commercial uses and residential accommodation to complement the City, and to enliven this new urban precinct.

Densities have been determined in accordance with development factors whilst maintaining the principal of lowering heights towards the north, providing interpretation of the landform features, and allowing key vistas to and from Millers Point and Observatory Hill. The overall concept is aimed at ensuring the historic precinct of Millers Point can be viewed from key vantage points across the harbour; and that the harbour form and the relationship to suburbs within the view shed can be viewed and understood from Millers Point. Specifically, the Concept Plan provides:

- Public access for the first time on a major section of city harbour foreshore, which will create many new views from the site thereby providing a new appreciation of the harbour and Millers Point.
- Improved views to the site by the removal of the existing warehouse structures, and an increased appreciation of the Millers Point headland cutting by establishing immediate views from the proposed parklands.
- Views across the site from the harbour to Millers Point or Observatory Hill Park, or from Observatory Hill Park and Millers Point to the opposite harbour foreshores, by the removal of the existing sheds and the location of new buildings to the south of the site or buildings of a low scale towards the northern end.
- A new road and pedestrian path network, which connect into the existing street pattern extending and interpreting the planned and lost street alignments.
- Access into the site via historic paths such as Munn Street and the High Street pedestrian bridge.
- Public art concepts to interpret the important historic, cultural and environmental associations with the site including uses, structures, and the relationship between the built form and the environment.

There is the potential for the site to feature archaeology relating to the nineteenth and early twentieth century wharf structures, although pre-European Aboriginal occupation evidence is unlikely to be found. An archaeological assessment of the Barangaroo site has not been prepared at this stage due to its current form and inaccessibility. However, the impact upon the potential archaeological resources can be managed through the preparation and implementation of an Archaeological Assessment and Management Plan. There is also the potential for public art or public domain features to interpret any significant archaeological resource which may be revealed.

## 21.0 Design & Amenity Issues

### 21.1 Built Form

The Concept Plan will deliver a built form that:

- Develops over half of the site as public park and open space with a foreshore promenade.
- Is appropriate to the site's context and to the desired urban form and scale for the western part of the Sydney CBD.
- Is of an appropriate density to capitalise on the site's attributes.
- Provides a transition in building height across the site, limiting the height of buildings on the northern portion of the site and ensuring that taller buildings are directed towards the southern part of the site, where they are compatible with the higher density city scale development to the south and west.
- Reinforces the landmark significance of the site.
- Maintains significant view corridors within the site and from the public domain surrounding the site towards Sydney Harbour.
- Achieves view sharing principles from existing surrounding development.
- Ensures permeability throughout the site, with pedestrian through-site-links.
- Allows creativity in built form, whilst providing certainty over the bulk and scale of development.

Detailed building footprints are not determined in the Concept Plan. However, street pattern, development blocks, and maximum building heights are defined.

The urban structure of the site, including the street layout and urban form, has been designed to reflect the surrounding street pattern and 'urban grain', and to preserve existing view corridors to the water from Towns Place, Munn Street, High Street, Gas Lane, and Napoleon Street.

Photomontage images and perspective sketches illustrating the new views resulting from the proposed built form and open spaces have been prepared and are found in the Heritage Impact Statement at **Appendix A** and at **Appendix K**. The Response to Department of Planning and Revised Draft Statement of Commitments prepared by JBA Urban Planning Consultants Pty Ltd on behalf of Sydney Harbour Foreshore Authority, and dated January 2007, included a Supplementary View Impact Analysis. A copy of the View Impact Analysis is included at **Appendix L**.

### 21.2 Solar Access and Overshadowing

An overshadowing analysis for the project has been undertaken and is included at **Appendix M**. The overshadowing analysis has been prepared for hourly intervals between 9.00 am and 3.00 pm at 21 June, and for 12.00 noon, 1 pm and 2 pm at 14th April.

The overshadowing analysis identifies the maximum area within which shadows may potentially be cast by buildings within the block control envelopes included in the Concept Plan. This area is shown as grey shading on the analysis drawings.

However, the maximum potential extent of overshadowing can never be realised, as the maximum GFA for each development block contained within the Concept Plan does not allow for an end building design to fill the maximum permitted envelopes.

The overshadowing analysis therefore also shows the shadow cast by indicative building forms, being building forms that would comply with the building envelopes that are included at **Appendix H**. The maximum extent of shadow cast by these indicative building forms is shown by the solid red line within the maximum potential shadow area.

Although the ultimate building forms within the urban design envelopes established by the Concept Plan may differ from that shown in configuration, the overshadowing analysis demonstrates that a high level of solar access will be achieved to all public open space areas within the site.

It also demonstrates that overshadowing impacts external to the site are negligible. The most significant impacts are to the south, in relation to the existing development at King Street Wharf. As these buildings are predominantly commercial, no significant adverse impacts will arise.

Detailed analysis of the overshadowing impacts of individual buildings, and of solar access achieved within the development, will be provided at subsequent approval stages of the development.

The Statement of Commitments at Section 24.0 incorporates recommendations with respect to future solar access criteria for the project.

## 21.3 Wind

A preliminary assessment of the existing and future wind conditions affecting the site, in particular with respect to the future pedestrian and public open space areas, has been undertaken by Wintech. Refer to the Wind Effects Statement included at **Appendix N**.

The prevailing winds around the site are westerly, southerly and to a lesser extent north-easterly winds. The Wind Effects Statement confirms that west to north-westerly winds will have the greatest impact on the site due its exposure to these winds, compounded by the fact that these winds tend to be the dominant winds during the cold winter months. Southerly to south-westerly winds are expected to result in strong wind conditions along the foreshore areas.

North-easterly winds are not as frequent as other prevailing winds and occur during the summer months, which could be beneficial to the localised environment.

The Wind Effects Statement concludes that the Concept Plan proposal is not expected to result in a worsening of the existing conditions. However, due to the proposed change of land use, it will be important that the design of any areas for outdoor passive recreational use be subjected to wind tunnel modelling to confirm the effectiveness of any ameliorative measures for wind effects.

The recommendations contained within the Wind Effects Statement for wind assessment criteria and the management of wind impacts at the detailed design stages of the development have been incorporated into the Statement of Commitments at Section 24.0.

## 21.4 Noise & Vibration

An assessment of noise and vibration impacts associated with the Concept Plan proposal has been undertaken by Acoustic Logic Consultancy. Refer to the Noise and Vibration Assessment included at **Appendix O**.

The principles that underpin the assessment are:

- The operation of existing commercial and non-residential activities that will be retained in the proposed redevelopment should not unreasonably be restricted by any new activity or development within the precinct.
- Noise or vibration emissions from the redeveloped Barangaroo should not adversely impact existing land uses adjacent to the precinct.
- Acceptable acoustic amenities should be provided for the occupants of buildings and outdoor activities proposed in the redevelopment from continuing existing land uses as well as any new noise or vibration sources arising from the proposed redevelopment.
- There should be a balance between noise generated by community facilities proposed in the redevelopment and other land uses around these facilities.
- Noise and vibration emissions from demolition and construction activities should not unreasonably impact existing land uses, or the occupants of buildings that might be erected during the staged development of the precinct.

These principles have been used to assess the potential noise impacts of the Concept Plan and to establish the mitigation measures that may be adopted to adequately ameliorate any potential impacts.

### 21.4.1 Noise Impacts on Existing Land Uses

With respect to potential noise impacts on existing land uses, the Noise and Vibration Assessment divides potential impacts on existing land uses into 3 groups:

- Noise emissions from existing activities that may be changed by the proposal.
- Noise emissions from new buildings or activities associated with the redevelopment.
- Noise emissions from transportation noise associated with the redevelopment.

The assessment concludes that noise impacts from existing activities are likely to lessen with the redevelopment of the site, and that noise emissions for new buildings or activities can be controlled using appropriate engineering methods, management techniques and through the imposition of appropriate planning conditions.

The assessment also concludes that the increase in traffic volumes along Hickson Road (i.e. by 150 to 200 %), which will result in a traffic noise level increase of 2–3 dB(A), will be imperceptible to barely perceptible.

### 21.4.2 Noise Impacts Within Barangaroo

The Noise and Vibration Assessment identifies the following potential acoustic conflicts within Barangaroo:

- Cruise ship terminal;
- Playing fields and playgrounds;
- Increased water based activity adjacent to the site;
- Proposed Headland Park;
- Plant and equipment located within buildings;
- Licensed Premises;
- Service Vehicles; and
- Public Transport.

The Assessment identifies that noise from the above sources can be appropriately controlled by adhering to specific design standards, through management techniques and through the imposition of appropriate conditions of approval.

In relation to future residential and commercial development, the Noise and Vibration Assessment recommends that buildings should be designed to ameliorate anticipated traffic noise levels.

The Noise and Vibration Assessment concludes that:

- The proposal will not adversely impact on existing land uses surrounding the precinct provided appropriate planning conditions and controls are placed on new development, as recommended in the report. The increased vehicle movements generated will produce a small increase in traffic-generated noise levels over the long-term, which will be imperceptible.
- Buildings can be designed to adequately exclude ambient traffic noise, as well as noise from the normal operation of existing and anticipated community uses such as the cruise ship terminal, recreational spaces, etc.
- Plans of management should be developed to manage noise emissions from any future community facilities. This, in combination with treatment of nearby buildings, will allow a range of community activities to be carried out without giving rise to adverse acoustic impacts.
- Noise and vibration emissions from construction activity are likely to be present over the long-term as development of Barangaroo progresses. Management plans should be developed for individual construction sites so that emissions are minimised.

The recommendations contained within the Noise and Vibration Assessment have been incorporated into the Statement of Commitments at Section 24.0.

A special provision relating to consideration of potential noise impacts associated with the passenger terminal operations is included in the SEPP (Major Projects) 2005 provisions applying to the land.

## 21.5 Internal Residential Amenities

The residential development within the Concept Plan proposal is orientated to the north and west to take advantage of the high level of internal amenity derived from the harbour outlook. This will also ensure excellent light and solar access to the residential floor space.

State Environmental Planning Policy (SEPP) 65 – Design Quality of Residential Flat Development, which aims to improve the design quality of all residential flat buildings in NSW, applies to the Barangaroo site.

To create high quality residential buildings and environments at Barangaroo, all new residential buildings should generally comply with or exceed the design standards set out in SEPP 65 and the accompanying Residential Flat Design Code (RFDC).

Hill Thalys Architecture + Urban Projects has confirmed that the development block controls contained within the Concept Plan proposal allow for compliance with the requirements of SEPP 65.

The following recommendations with respect to amenities of future residential development are made:

**Building Types:** In terms of the classifications under the RFDC, generally the residential buildings on the Barangaroo site are to consist of Row Apartment, Courtyard Apartment, Slab (Block), Tower and Hybrid building types.

**Building Heights, Floor Space Ratios and Setbacks:** Future project applications are to provide a comparison, and outline any variations from the development block envelope controls included at Appendix H – see Condition B4(4) of the Concept Plan Determination.

**Building Depth:** The maximum building depth, as measured from glass to glass excluding balconies, should be limited to 18 metres. In Row Apartment, Courtyard Apartment and Slab (Block) types, 15 metres glass-to-glass is preferred.

**Building Separation:** Building separations should have regard to separation distances set out in Part 1 (Primary Development Controls) of the RFDC. Where smaller separation distances are provided, consistent with the Concept Plan urban design envelopes, the amenities, privacy and solar access to dwellings and the public domain need to be adequately considered.

**Landscape Design:** Generally, landscape spaces for future residents of Barangaroo will be in the form of roof terraces and balconies. All landscape design should be consistent with the design principles set out in Part 2 of the RFDC (Landscape Design, pgs 46-47). Due to the frontage of the extensive new harbour-side park, the proposed street tree planting and the adjacency to the city centre, there is no requirement for deep soil planting within blocks.

**Apartment Mix:** Housing across the Barangaroo site should provide a variety of types, sizes and configurations. Flexible live / work housing types are highly appropriate for the city centre fringe location.

**Solar Access:** Living rooms and private open spaces for at least 70 % of apartments in a development should receive a minimum of 3 hours direct sunlight between 9 a.m. and 3 p.m. in mid winter. For up to 30% of dwellings, 2 hours is required (excluding south-facing units).

**Single Orientation Apartments:** Apartment buildings should aim to maximise cross ventilation. The number of single-aspect apartments with a southerly aspect (SW-SE) should be limited to a maximum of 10 % of the total units proposed. Developments which seek to vary from the minimum standards must demonstrate how site constraints and orientation prohibit the achievement of these standards and how energy efficiency is addressed.

These recommendations have been incorporated into the Statement of Commitments at Section 24.0.

## 21.6 Access and Mobility

The accessibility of the Barangaroo site can be described in two parts: 1) access to the site from the surrounding city and, 2) access within the site. The majority of people will enter the site and circulate within it either on foot or by car, taxi or bus.

Access to the site has been described in Part B, but in summary is made possible by: the continuation of the foreshore walk to Walsh Bay and King Street Wharf, and the several new streets that feed off the existing Hickson Road which then connect into the City street pattern. In addition, access is provided by new public transport proposals such as new or extended bus routes. The City of Sydney's Cycle Routes also connect with the new routes into the Barangaroo site. Access to the site will be progressive as the various stages of development are completed. All new access routes to the site will be clear, safe, well designed, and meet or exceed current Australian Standards for equitable access.

Access and mobility within the site will also meet all Australian Standards for footpaths, public domain, entries to buildings, and internal building circulation. In particular, all parks and the new foreshore promenade will be fully and equitably accessible. Street footpaths and crossings will be designed for easy circulation and access, and be defined in the public domain design guidelines.

## 21.7 Crime and Public Safety

The Concept Plan has been designed in accordance with the principals of Crime Prevention through Environmental Design (CPTED).

The Statement of Commitments at Section 24.0 incorporates recommendations with respect to design in accordance with CPTED.

## 22.0 Environmental Management

### 22.1 Contamination and Geotechnical Issues

In April 2006 a Combined Environmental and Geotechnical Site Assessment of Barangaroo was commissioned. A Summary of the report prepared by ERM is included in **Appendix P**.

The primary objective of this investigation was to identify and document the existing environmental and geotechnical site conditions in preparation for development planning.

The investigation included:

- A review of the available environmental and geotechnical information;
- A Stage One – Preliminary Environmental Investigation including a desk-top study of existing and previous land uses;
- A Stage Two – Detailed Environmental Investigation including drilling, sampling and analysis at a total of 150 locations across the site; and
- Completion of geotechnical investigations and analysis including borelogs, foundation analysis and a recommendations report combined with the environmental drilling and testing.

The Contamination Assessment has been prepared in accordance with the requirements of State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55).

#### 22.1.1 Environmental Recommendations

Although concentrations of a number of compounds exceeding the adopted published site assessment criteria were identified in both soil and groundwater, proven methods to de-contaminate the site to make it suitable for mixed use and park development do exist. The extent of the de-contamination methods required to remove any potential risk to human health and the environment will be assessed through site specific risk assessments as development proceeds.

Based on the observed extent and degree of impact to soil and groundwater, remediation will likely involve source removal and exposure control in certain portions of the site.

Consideration should be given to potential phytotoxicity and aesthetic issues when considering the suitability of fill materials and natural soils present on the site for future landscaped park areas.

Some additional investigations may be required to fully delineate the identified hotspots and gain a better understanding of the hydrogeological regime at the site prior to completion of a Remedial Action Plan (RAP).

In summary, the site can be made suitable for the proposed future land uses with appropriate remedial and validation works.

### 22.1.2 Geotechnical Recommendations

There are many obstructions within the fill which are likely to cause difficulties during piling operations. Driven piles are most suited to these conditions. The presence of large pieces of rubble within the fill will also hinder excavation for service trenches.

There are some elevated concentrations of sulphates within the soil, providing a relatively unfavourable environment for concrete.

Groundwater levels within the site are high, and basement excavations will require relatively impermeable shoring and dewatering systems.

These recommendations have been incorporated into the Statement of Commitments at Section 24.0.

## 22.2 Water Management and Environmental Sustainability

The redevelopment of Barangaroo presents an opportunity to showcase best practice techniques in ecologically sustainable design (ESD). Of the ESD focus areas, water and energy are the highest profile. They have the largest impact on the site's ecological footprint and are prominent in community attitudes to conservation and resource management. They are also the most relevant in terms of existing infrastructure limitations that the site currently faces.

An Ecologically Sustainable Development (ESD) report is included at **Appendix Q**. The report addresses the ESD opportunities for Barangaroo, which are incorporated in the Statement of Commitments at Section 24.0 of this report.

A Water Sensitive Urban Design Strategy (WSUD) has also been prepared and is included at **Appendix R**. This report addresses opportunities for incorporating water sensitive urban design into the detailed design of development within Barangaroo, which have also been incorporated into the Statement of Commitments at Section 24.0 of this report.

An Infrastructure Report addressing the management of stormwater and ground water impacts has been prepared and included at **Appendix S**.

In summary, the issues that have been specifically targeted for water and energy for Barangaroo are:

- Management of Potable Water Demand.
- Reduction in Waste Water Flow to Sewer.
- Treatment of stormwater for re-use or discharge to the harbour.
- Reduction in the amount of Greenhouse Gas Emissions (energy use).
- Reduction in the peak demand for energy.

The ESD report recommends Key Performance Indicators (KPI's) be developed at an early stage to ensure that goals are in place against which future development impacts on the environment can be measured.

For most of the policy initiatives, the generation of KPI's are to be benchmarked against current rating schemes, particularly the Green Star Rating Tools (developed by the Green Building Council of Australia). Infrastructure KPI's will be benchmarked against the current world's best practice for new developments.

The KPI's recommended for the project include:

- Green Star Office Design and Office As Built Ratings, including 5 star +20% predicted ABGR rating for commercial buildings (energy use).
- 10% improvement on BASIX requirements and at least 60 weighted points on the City of Sydney DCP rating tool (5 star equivalent) for residential buildings.
- A 35% reduction in Potable Water Consumption compared to a standard practice development.
- A 40% reduction in Flow to Sewer compared to a standard practice development.
- A 35% reduction in Greenhouse Gas Emissions compared to a standard practice development.
- 10% of power purchased from low impact, renewable sources.

The ESD standards that are to be achieved throughout the life of the Barangaroo project are included in the Statement of Commitments at Section 24.0.

The Infrastructure Report at **Appendix S** recommends that:

- A stormwater catchments study be undertaken to determine the existing capacity of the storm water network which drains through the Barangaroo site.
- A storm water management plan be prepared based on the storm water collection and discharge strategy, taking into account the ESD and WSUD initiatives raised in the Concept Plan.
- Preparation of the relevant assessments be required to accompany future applications for development approval on the site.

These recommendations have also been incorporated into the Statement of Commitments at Section 24.0.

## 23.0 Infrastructure

### 23.1 Provision and Financing of Infrastructure

The scale and location of Barangaroo provides an opportunity for the coordinated provision of infrastructure. The proponent has commenced the exercise of determining infrastructure requirements through individual studies, such as transport and traffic, and extensive consultation with relevant Government agencies and officers from the City of Sydney.

This exercise requires further detailed work to determine achievable infrastructure requirements which will be ultimately financed through development contributions. The process will result in the documentation of: both social and infrastructure requirements, associated costs and staging, and delivery of the infrastructure.

The determination of costs is essential to inform the proponent of the financing requirements from a risk management perspective. Documented costs will also underpin and inform negotiations with developers to determine contributions to the infrastructure provision, whether through a monetary contribution or the construction of particular infrastructure. It is envisaged that the contributions will be secured through the use of planning agreements under s93F of the Environmental Planning and Assessment Act, 1979.

The preparation of an infrastructure plan which will scope and cost infrastructure requirements is included in the Statement of Commitments at Section 24.0.

## 24.0 Statement of Commitments

The following table is the Statement of Commitments included in the Response to Department of Planning and Revised Statement of Commitments prepared by JBA Urban Planning Consultants Pty Ltd on behalf of Sydney Harbour Foreshore Authority dated 12 January 2007 and approved by the Minister as part of the Barangaroo Concept Plan Determination. Refer to Conditions A2(2)(b) and A2(3)(c) of the Concept Plan Notice of Determination.

The Statement of Commitments must be read in conjunction with the following Conditions of the modified Concept Plan Determination (06-0162 (MOD1)). These Conditions impose requirements to be met at future stages of the project's implementation that are additional to those included within the Statement of Commitments. These Conditions have been incorporated / identified within the Consolidated Concept Plan at Part B of this report as appropriate, and are reproduced below for completeness. Refer also to the copy of the modified Concept Plan Notice of Determination included at **Appendix G**.

### Condition B1 Public Domain – Northern Headland

- (1) Noting the jury report recommendations on the competition winning design scheme, further detailed design plans for the northern headland are to be provided to the Department prior to or concurrently with the lodgement of the first project application for major public domain works. These are to be to the written satisfaction of the Director General.
- (2) The plans identified in (1) above are to address the following requirements and objectives:
  - (a) Reinstate the headland at the northern end of the site with a naturalised shape and form including a build up of height and a generous landscaped connection to physically link Clyne Reserve thereby allowing direct pedestrian access from Argyle Place and appreciation of the landform of the former headland.
  - (b) Encourage pedestrian permeability along the foreshore, with links to Hickson Road, Argyle Place, Towns Place and "Globe Street".
  - (c) Ensure adequate viewing of the park from "Globe Street" to enhance security while limiting vehicular access into and through the park.
  - (d) Provide a welcoming aspect when approaching the northern headland from the south along "Globe Street" and Hickson Road, in landform, materials, accessibility and view lines.
  - (e) Ensure public safety through the day and night considering surveillance, lighting, planting and materials.
  - (f) Monitor the impact on and the treatment of the Sewage Pumping Station.
- (3) The above redesign may include provision of a public car park in the headland.

**Condition B2 Public Domain – Northern Cove**

- (1) Noting the jury report recommendations on the competition winning design scheme, further detailed design plans for the Northern Cove located opposite Munn Street are to be provided to the Department prior to or concurrently with the lodgement of the first project application for major public domain works. These are to be to the written satisfaction of the Director General.
- (2) The plans identified in (1) above are to address the following requirements and objectives:
  - (a) Enlarge the water intrusion.
  - (b) Provide a greater naturalised shape, form and edge including treatment surrounding the cove.

**Condition B3 Public Domain – Southern Cove**

- (1) Noting the jury report recommendations on the competition winning design scheme, further detailed design plans for the Southern Cove (north of Napoleon Street and opposite proposed “Bull Street”) are to be provided to the Department prior to or concurrently with the lodgement of the first project application for major public domain works. These are to be to the written satisfaction of the Director General.
- (2) The plans identified in (1) are to address the following objectives:
  - (a) Create an enlarged water intrusion, including a component east of the proposed “Globe Street”.
  - (b) Provide active edges around the enlarged waterbody, including appropriate ground floor uses in buildings to activate the foreshore area.
  - (c) Achieve appropriate pedestrian linkages along the foreshore and connections to Hickson Road.
  - (d) Design a theme which celebrates the water as an important part of the landscape element.

**Condition B4 Built Form**

- (1) Approval is given to a mixed use development involving a maximum of 388,300 m<sup>2</sup> gross floor area (GFA), comprised of:
  - (a) A maximum of 97,075 m<sup>2</sup> (or 25%) and a minimum of 58,245 m<sup>2</sup> (or 15%) residential GFA;
  - (b) A maximum of 50,000 m<sup>2</sup> GFA for tourist uses;
  - (c) A maximum of 39,000 m<sup>2</sup> GFA for retail uses; and
  - (d) A minimum of 2,000 m<sup>2</sup> GFA for community uses.
- (2) Despite (1) above, future project applications are not to exceed the GFA, maximum residential GFA and building heights identified in Figure 12.1 – Development Blocks of the EA, and in Table 6 on the following page, except as provided for in Condition C1(1).

**Table 5 – Development Blocks - Maximum GFA and Building Height**

	<b>Block 1</b>	<b>Block 2</b>	<b>Block 3</b>	<b>Block 4</b>	<b>Block 5</b>	<b>Block 6</b>	<b>Block 7</b>	<b>Block 8</b>
<b>GFA</b>	11,800 m <sup>2</sup>	180,000 m <sup>2</sup>	56,000 m <sup>2</sup>	74,500 m <sup>2</sup>	29,200 m <sup>2</sup>	3,000 m <sup>2</sup>	28,000 m <sup>2</sup>	5,800 m <sup>2</sup>
<b>Residential GFA (Max)</b>	-	20,000 m <sup>2</sup>	9,575 m <sup>2</sup>	25,000 m <sup>2</sup>	15,000 m <sup>2</sup>	-	27,500 m <sup>2</sup>	-
<b>Height (Max)</b>	RL 62	RL180	RL 112	RL 100	RL 34	RL 29	RL 35	RL 32
<b>Height above existing ground level</b>	60 m	178 m	110 m	98 m	32 m	27 m	33 m	30 m

- (3) The specific forms contained in Section 13.0 – Built Form of the EA – are not approved as part of this approval. This is due to concern that appropriate street edges and forms are not provided to Hickson Road and “Globe Street” (see revised design principle below). Not approving indicative building forms also allows evolution of design excellence.
- (4) Future project applications are to provide a comparison, and outline any variations, from the block controls outlined in Section 13.0 – Built Form of the EA. (Note: the block controls formerly included in Section 13.0 of the EA are now included in **Appendix H** of this report).

#### **Condition B5 Revised Design Principle**

- (1) Design Principle 2 in Section 13.0 – Built Form of the EA is amended to state “Buildings are to provide a consistent street wall and form to Hickson Road and “Globe Street” and use a palette of consistent and natural materials that are complementary to the sandstone nature of the headland.”

#### **Condition B6(2) Tourist Uses**

- (1) The ‘tourist uses’ shall be modified to a maximum of 50,000 m<sup>2</sup> and shall not include serviced apartments, unless they are in single ownership and title (no strata titling). If they do not meet these criteria they will be considered residential uses. In any event serviced apartments shall not exceed 12,500 m<sup>2</sup>.
- (2) Future applications for serviced apartments are to have equivalent amenity standards to residential buildings, in accordance with SEPP 65.

#### **Condition B7 Community Uses**

- (1) The minimum of 2000 m<sup>2</sup> allocated for community uses are to be provided for in Block 6 or 7 (or other block approved by the Director General) and be of a type acceptable to the Director General.

#### **Condition B8 Pedestrian Bridges**

- (1) Concept plan approval is not provided for any of the proposed pedestrian bridges that cross Hickson Road, with the exception of the pedestrian access referred to in B1(2)(a). East-west connections shall be considered with the public domain works. Connections should not compromise creation of a boulevard down Hickson Road.

#### **Condition C1 Built Form – Blocks 2, 3 and 4**

- (1) Future project applications for buildings within Blocks 2, 3 and 4 may accommodate a redistribution of the GFA (but not in excess of the total area) that is displaced by any encroachment of the enlarged Southern Cove identified in modification B3. If significant changes are involved, this would require modification to the concept plan.

**Condition C2 Design Excellence**

- (1) This provision applies to the following development:
- (a) any development comprising the erection of a building exceeding 55 metres in height;
  - (b) any development of land exceeding 1,500 square metres in area; and
  - (c) each “block” where this is not covered by (a) or (b) above.
- (2) The Proponent shall hold a design excellence competition for all development identified at (1) above.
- (3) The design competition brief shall be approved by the Director General or his delegate.
- (4) The Director General shall establish a design review panel for the design excellence competition(s) that will consider whether the proposed development exhibits design excellence only after having regard to the following matters:
- (a) whether a high standard of architectural design, materials and detailing appropriate to the building type and location will be achieved;
  - (b) whether the form and external appearance of the building will improve the quality and amenity of the public domain;
  - (c) whether the building meets sustainable design principles in terms of sunlight, natural ventilation, wind, reflectivity, visual and acoustic privacy, safety and security and resource, energy and water efficiency;
  - (d) a comparison of the proposed development against the indicative building controls identified in Section 13.0 - Built Form of the EA; and
  - (e) whether the new development detrimentally impacts on view corridors, particularly from public spaces and streets.
- (5) The design review panel shall also be utilised for any significant changes to the Concept Plan, as determined by the Director General.
- (6) For the purposes of this modification, a design review panel means a 3 to 5 member panel comprised of appropriately qualified design professionals, chaired by a registered architect.
- (7) Notwithstanding (2) above, the requirement for a design excellence competition may be waived if the Director General:
- (a) certifies in writing that the development is one for which an architectural design competition is not required because of the excellence of the proposed design for the development concerned, and
  - (b) is satisfied that:
    - (i) the architect responsible for the proposed design has an outstanding reputation in architecture, and
    - (ii) necessary arrangements have been made to ensure that the proposed design is carried through to the completion of the development concerned.

### **Condition C3 Transport and Pedestrian Management**

- (1) The Transport Management and Access Plan, in relation to public transport, traffic and pedestrian access between the Barangaroo site and Wynyard, shall be provided prior to or concurrently with the lodgement of the first major project application that includes new floorspace.

### **Condition C4 Car Parking**

- (1) The following maximum car parking rates shall apply to future development within the site:
  - (a) Commercial: - 1 space/600m<sup>2</sup> GFA
  - (b) Residential: - 1 bedroom/bedsitter unit – 1 space/2 units
    - 2 bedroom unit – 1.2 spaces/unit
    - 3+ bedroom unit – 2 spaces/unit
  - (c) Other Uses: - City of Sydney Council rates.
  - (d) Passenger Terminal - subject to a future traffic report based on demand estimates.

### **Condition C5 Consolidated Concept Plan**

- (1) A consolidated Concept Plan containing the administrative modifications outlined below is to be provided to the Department as soon as possible and before lodgement of the first application.
  - (a) Legal description and ownership.
  - (b) Reference to Stamford on Kent as a commercial not residential building.
  - (c) Proposed 300 car parking station in Headland park not shown on plans.
  - (d) HIS and Heritage Items Plan do not include the MSB Stores at 34 Hickson Road.
  - (e) Inclusion of the correct version of the Heritage Impact Statement (HIS) (East Darling Harbour History, by Sydney Harbour Foreshore Authority, unpublished document, July 2006) is the incorrect version of this report.
  - (f) Inclusion of the heritage listed former gasworks AGL building.
  - (g) Inclusion of a list of changes from the winning scheme.

### **Condition C6 Consolidated Concept Plan**

- (1) The Proponent shall request service searches from Railcorp, to establish the existence and location of any Railcorp services and structures. Where Railcorp services are identified the Proponent must discuss and agree with Railcorp how these services are to be accommodated in the development.
- (2) The Proponent may be required to enter into an agreement with Railcorp defining controls to be implemented in managing the access required and/or the potential impacts of the development on Railcorp, and the involvement of Railcorp staff in ensuring appropriate safety and technical standards are complied with throughout the development.

Table 6 – Statement of Commitments

Subject	Commitments	Timing
<p><b>Design Excellence Strategy</b></p>	<ol style="list-style-type: none"> <li>1. A Design Excellence Strategy that clearly articulates a process to achieve quality in both the private built form and the detailed design of the public domain (streets, pedestrian connections, parks and squares) is to be prepared.</li> <li>2. The Design Excellence Strategy may include the preparation of site specific design guidelines, articulate a process(es) for the conduct of design competitions for major developments and the design of public open spaces, and / or establish a competitive tender process for individual development site(s).</li> <li>3. A Technical Working Group is to be established to prepare the Design Excellence Strategy. The membership of the Working Group is to be determined by the proponent team and the Barangaroo Taskforce (under its terms of reference dated 26 November 2006).</li> <li>4. The Terms of Reference for the Technical Working Group is to be consistent with the requirements for preparation of the Design Excellence Strategy specified in this Statement of Commitments and are to be endorsed by the Barangaroo Taskforce.</li> <li>5. The Design Excellence Strategy is to be submitted by the Working Group to the Barangaroo Taskforce. The Barangaroo Taskforce will report to the IPCC on relevant matters as recommended by the proponent team and Working Group. The proponent will report to the Sydney Harbour Foreshore Authority (SHFA) Board on recommendations from the Working Group.</li> <li>6. Following endorsement, the Design Excellence Strategy is to be made publicly available in a manner to be determined by the Barangaroo Taskforce.</li> </ol>	<p>To be submitted to the Barangaroo Taskforce prior to the lodgement of any development application / project application relating to buildings or to the establishment of the public domain, other than for demolition or early/site preparation work .</p>

Subject	Commitments	Timing
<b>Provision and Financing of Social and Physical Infrastructure</b>	<p>7. The following Implementation Plans will be prepared for the site as a whole and / or for specific components or stages of the project:</p> <ul style="list-style-type: none"> <li>▪ Public Domain Plan;</li> <li>▪ Transport Management Plan &amp; Access Plan;</li> <li>▪ Community &amp; Social Plan; and</li> <li>▪ Utility Services Infrastructure Plan.</li> </ul> <p>8. The Implementation Plans are to:</p> <ul style="list-style-type: none"> <li>▪ Verify the scope and accurately cost all of the social and physical infrastructure needed to support the proposed development .</li> <li>▪ Identify the relevant requirements for timing and staging of provision of that facility, service or physical infrastructure.</li> <li>▪ Identify any relevant Government agency policy initiatives that will need to be in place to deliver specific outcomes.</li> <li>▪ Provide details with respect to the funding mechanism(s) for delivery of the identified infrastructure.</li> <li>▪ Provide sufficient detail to enable the proponent to enter into planning agreements with developers, relevant Government agencies, the City of Sydney Council and / or the Minister for Planning if and as required, to collect contributions for the provision of infrastructure either through a cash contribution or works-in-kind or both.</li> </ul>	<p>To be submitted to the Barangaroo Taskforce prior to the lodgement of any development application / project application relating to buildings or to the establishment of the public domain, other than for demolition or early / site preparation work.</p>
	<p>9. Technical Working Groups are to be established to prepare the Implementation Plans. The membership of the Working Groups is to be determined by the proponent team and the Barangaroo Taskforce (under its terms of reference dated 26 November 2006), and may include or consult with representatives from the Sydney Harbour Foreshore Authority, Department of Planning, City of Sydney Council, State Transit Authority, Sydney Ferries Corporation, Railcorp, Sydney Ports, NSW Maritime, Department of Housing, NSW Roads and Traffic Authority, Sydney Water and / or other infrastructure providers as is determined appropriate.</p> <p>10. Terms of Reference for the Technical Working Groups are to be consistent with the requirements for preparation of the Implementation Plans specified elsewhere in this Statement of Commitments and are to be endorsed by the Barangaroo Taskforce. The Barangaroo Taskforce will report to the IPCC on relevant matters as recommended by the proponent team and Working Groups. The proponent will report to the SHFA Board on recommendations from the Working Groups.</p> <p>11. The Implementation Plans may be updated throughout the development of the project. Following endorsement, the Implementation Plans are to be made publicly available in a manner to be determined by the Barangaroo Taskforce.</p>	<p>To be submitted to the Barangaroo Taskforce prior to the lodgement of any development application / project application other than for demolition or early / site preparation work.</p>

Subject	Commitments	Timing
Public Domain Plan	<p>12. The Public Domain Plan referred to at Commitment 7 is to include the following as generally described in the Concept Plan:</p> <ul style="list-style-type: none"> <li>▪ An introductory explanation for the types, hierarchy, inter-relationships of spaces, and the appropriateness of these spaces to the end users of the public domain.</li> <li>▪ A new Headland Park.</li> <li>▪ Waterfront parks and squares.</li> <li>▪ A foreshore promenade.</li> <li>▪ An informal sports playfield.</li> <li>▪ A north-south pedestrian promenade street.</li> <li>▪ An internal street system that 1) defines development blocks, 2) provides for the easy flow of people and vehicles, 3) acts as a comfortable stage for activity and human interaction, 4) creates a distinctive address for each new development building, and 5) creates a connection between Hickson Road and the harbour edge.</li> <li>▪ On-street bicycle lanes to create a route utilising Napoleon Street, the Napoleon Street extension, and the proposed Globe Street.</li> <li>▪ An off-street cycle route within the Headland Park to link between proposed Globe Street and Hickson Road (north).</li> <li>▪ Shared use of the pedestrian promenade street by bicycles.</li> </ul>	To be submitted to the Barangaroo Taskforce prior to the lodgement of any development application / project application other than for demolition or early / site preparation work.

Subject	Commitments	Timing
	<p>13. The Public Domain Plan is to provide design details with respect to the following:</p> <ul style="list-style-type: none"> <li>▪ Indicative levels in the parks, edge conditions of parks and pedestrian connections through parks.</li> <li>▪ Materials and planting.</li> <li>▪ Safe and convenient walking routes and facilities.</li> <li>▪ Street furniture.</li> <li>▪ Design standards for the road network (dimensions, materials, drainage), kerb parking and loading spaces, crossings, cycling and taxi facilities, including bicycle parking facilities). All extensions to the existing road network within the Barangaroo site are to comply with the geometric requirements of the RTA road design guide.</li> <li>▪ The mix of parking/loading/other kerb controls.</li> <li>▪ Design requirements/guidelines for integrated water management/water sensitive urban design consistent with the Integrated Water Management Plan referred to at Commitment 22.</li> <li>▪ Design requirements and details relating to the recreational facilities as referred to at Commitment 18.</li> <li>▪ Requirements for a public parking structure of up to 300 car spaces in the Headland Park area.</li> </ul> <p>14. The Public Domain Plan is to incorporate a Public Art Strategy.</p> <p>15. In addition to the general matters specified at Commitment 8, the Public Domain Plan is to address:</p> <ul style="list-style-type: none"> <li>▪ The future ownership and maintenance of parks.</li> <li>▪ The feasibility, both conceptually and financially, of establishing the elevated Headland topography.</li> </ul>	
<p><b>Transport Management &amp; Access Plan</b></p>	<p>16. The Transport Management &amp; Access Plan (TMAP) referred to at Commitment 7 is to be prepared following:</p> <ul style="list-style-type: none"> <li>▪ An assessment of the area wide traffic impacts of the development on the Sydney CBD road network using the RTA's PARAMICS traffic model (including the effects of changes to the bus service network).</li> <li>▪ The preparation of the TMAP or equivalent to investigate the following: <ul style="list-style-type: none"> <li>(a) a cohesive street network connecting land use components and local roads within and to CBD streets and regional roads;</li> <li>(b) the method by which traffic estimation figures are generated;</li> <li>(c) identification of public transport service opportunities and constraints with a view to encouraging a high level of travel by public transport, walking and cycling;</li> <li>(d) likely traffic impacts on local and regional intersections – including the key junctions for buses on Clarence at Market Street, York at Market Street, and Napoleon at Margret Street;</li> <li>(e) identification of local and regional infrastructure improvements;</li> <li>(f) the timing of traffic and public transport infrastructure improvements so they are in line with the staged development of the Barangaroo site.</li> </ul> </li> </ul>	<p>To be submitted to the Barangaroo Taskforce prior to the lodgement of any development application / project application other than for demolition or early / site preparation work.</p>

Subject	Commitments	Timing
	<p>The PARAMICS model is to be used in an iterative manner during the preparation of a TMAP or equivalent to test:</p> <ul style="list-style-type: none"> <li>(a) impact on traffic operation of changes to pedestrian movements and volume configurations;</li> <li>(b) different bus access strategies; and</li> <li>(c) variations in traffic generation estimates (depending on the relative attractiveness of pedestrian, rail, and bus access).</li> </ul> <p>The outcomes of the area wide traffic impact modelling are to form part of the consideration of the physical road transport infrastructure to be addressed in the preparation of the TMAP.</p> <p>17. The Transport Management &amp; Access Plan is to consider and address the following matters:</p> <ul style="list-style-type: none"> <li>▪ Design and construction of a traffic signal controlled intersection at Sussex Street / Napoleon Street, to facilitate the main point of vehicular entry into the development site intersection (to RTA requirements).</li> <li>▪ The feasibility of future specialist transport services to the site (including light rail, boutique tourist bus services, river metro route) and the need to protect possible future alignments for these services. This is to include a possible future light rail system with appropriate reservation of road space on Hickson Road.</li> <li>▪ Off-site improvements that will facilitate pedestrian and cycle access between the site, Wynyard Railway Station, Millers Point, the Rocks, Circular Quay and Dawes Point. This is to include consideration of pedestrian links to existing bus services and the potential for grade separated connections between the site / Hickson Road and Wynyard Station, which will meet pedestrian desire lines and provide physical linkages to the adjoining residential area of Millers Point, which will facilitate easy access to and regular use of services, facilities and public spaces at Barangaroo by existing local communities. Consideration of off-site pedestrian improvements is only where those improvements can be demonstrated to positively improve the amenities of the proposed development and its connections to surrounding developments. Consideration of more general public domain improvements for the benefit of the wider CBD is not required.</li> <li>▪ Options for the extension / amendment of bus services. Initial options include extensions to services from QVB, and east-west bus link (Erskine Street, Wynyard Street and Regimental Square) and services which currently terminate at Wynyard. This is to include consideration of the need for any off-site traffic works to provide for improved east –west bus movements relating to servicing of the site.</li> <li>▪ Any options for extended bus services to the site will be subject to endorsement by the Ministry of Transport (MOT), State Transit Authority (STA) Services will be progressively provided in line with the staged development of Barangaroo.</li> <li>▪ Bus stops and access, including the location of bus stops along Hickson Road, and any relocation of existing stops.</li> </ul>	

Subject	Commitments	Timing
	<ul style="list-style-type: none"> <li>▪ Provision of off-road layover facilities for buses and for coach drop off and parking, including the need for on-street tourist coach parking facilities at the northern end of the site (in Hickson Road and Munn Street).</li> <li>▪ Provision of passenger wharf facilities, including at least one public ferry wharf with appropriate landside facilities adjacent to the site. The role of this commuter / tourist / recreational wharf, and possible adjustments to ferry services is to be the subject of consultation with Sydney Ferries / MOT / NSW Maritime / Sydney Ports Corporation.</li> <li>▪ Feasibility of creating a westward extension of Grosvenor Street to Kent Street and provision of two way vehicular access on Kent Street.</li> <li>▪ Re-alignment and / or retention of Margaret Street along the southern boundary of the site and land use implications of such changes.</li> <li>▪ Desirability of replacing existing all day (10 hour) on-street parking in Hickson Road by parallel shorter term parking.</li> </ul>	
<b>Community &amp; Social Plan</b>	<p>18. The Community &amp; Social Plan referred to at Commitment 7 is to include the provision of the following facilities within the Barangaroo site:</p> <p><b>Social</b></p> <ul style="list-style-type: none"> <li>▪ A multi-purpose facility designed to accommodate a range of community programs. The facility will have the capacity to accommodate an innovative mix of functions and tenancies, including complimentary commercial concessions, and with the potential to respond to changing social needs.</li> <li>▪ A minimum of two long day-care and early learning centres.</li> </ul> <p><b>Health</b></p> <ul style="list-style-type: none"> <li>▪ A range of outdoor spaces, linkages and facilities designed to enable active recreation including walking / jogging, informal team sports, outdoor exercise, court games, and non-motorised water sports.</li> <li>▪ A range of outdoor spaces, structures and / or buildings for relaxation, social interaction and passive recreation.</li> </ul> <p><b>Cultural</b></p> <ul style="list-style-type: none"> <li>▪ Consideration of floor space for cultural industries and or cultural industries development. This may be achieved in conjunction with the development of community infrastructure.</li> <li>▪ A flexible outdoor venue for city scale cultural events.</li> </ul> <p><b>Recreation</b></p> <ul style="list-style-type: none"> <li>▪ A harbour foreshore walk / cycle path linking King Street Wharf with Millers Point.</li> <li>▪ Active sports areas and associated toilet, change and shower facilities.</li> <li>▪ A regional play space with an innovative, engaging mix of facilities and environmental features to function as a major destination for families.</li> <li>▪ Public open spaces immediately adjacent to residential areas designed to allow a range of passive recreation activities attractive to residents and regional visitors.</li> <li>▪ Well-designed pedestrian linkages allowing easy and safe access to recreational spaces and facilities from commercial and residential areas within East Darling Harbour and from Millers Point, Walsh Bay, Kent Street, and King St Wharf.</li> </ul>	To be submitted to the Barangaroo Taskforce prior to the lodgement of any development application / project application other than for demolition or early / site preparation work.

Subject	Commitments	Timing
	<p>19. Design requirements and details relating to the facilities noted at Commitment 18, and in particular to the health and recreation facilities are to be incorporated into the Public Domain Plan.</p>	
<p><b>Utility Services Infrastructure Plan</b></p>	<p>20. The Utility Services Infrastructure Plan referred to at Commitment 7 is to include and provide details in relation to the following within the Barangaroo site:</p> <ul style="list-style-type: none"> <li>▪ Infrastructure requirements for integrated water management, including stormwater treatment, as determined through the preparation of the Integrated Water Management Plan referred to at Commitment 22;</li> <li>▪ Type, extent and location of utility services (power, gas, water, sewer, stormwater, communications) consistent with the ESD principles and other commitments incorporated within this Statement of Commitments;</li> <li>▪ Coordinated response to infrastructure design and delivery on the site and consideration of infrastructure benefits to the adjoining precincts.</li> </ul> <p>21. As part of the preparation of the Utility Services Infrastructure Plan:</p> <ul style="list-style-type: none"> <li>▪ Further investigations are to be undertaken with respect to the existence of any services (such as pipes and cables) and structures within the Barangaroo site. Consultation with Railcorp is to be undertaken on this issue.</li> <li>▪ Locations for electricity sub-stations and transformers are to be examined. No sub-stations or transformers are to be placed in above ground public domain areas, but instead installed underground or in-buildings.</li> <li>▪ Appropriate investigations are to be undertaken to ensure that the impact on safety, integrity and operation of NSW rail network – through the development’s effect on traction (electrical) power supply on the operation of current City underground rail network – is appropriate.</li> </ul>	<p>To be submitted to the Barangaroo Taskforce prior to the lodgement of any development application / project application other than for demolition or early / site preparation work.</p>
<p><b>Integrated Water Management Plan &amp; Guidelines</b> Potable Water</p> <p>Demand Management</p>	<p>22. An Integrated Water Management Plan is to be prepared for future development. The Integrated Water Management Plan is to incorporate a Water Demand Management Plan, Wastewater Management Plan and Stormwater Management Plan. The public domain and infrastructure provision requirements identified in the Integrated Water Management Plan are to be incorporated into the Public Domain Plan and / or Utility Services Infrastructure Plan as relevant.</p> <p>23. The Water Demand Management Plan is to include an investigation of possible schemes to reduce potable water demand through source substitution. A “fit-for-purpose” approach to alternative sources of water for substitution of potable mains water for non-potable use will be used to scope the Plan. In line with BASIX (and extending to commercial properties), water efficient appliances and fixtures are to be used for potable water demand management throughout the development.</p>	<p>To be prepared prior to / concurrently with the preparation of the Public Domain Plan and Utility Services Infrastructure Plan, and submitted to the Barangaroo Taskforce prior to the lodgement of any development application / project application other than for demolition or early / site preparation work.</p>

Subject	Commitments	Timing
Wastewater Minimisation	24. The Wastewater Management Plan is to include an investigation of schemes to manage wastewater from the residential and commercial buildings as a resource, with wastewater treated and recycled as an alternate source of non-potable water, especially with regard to public open space irrigation.	
Stormwater Management	25. The Stormwater Management Plan is to include an investigation of the feasibility of on-site treatment of stormwater from external catchments at Millers Point, to national best practice standards. Where feasible, harvested stormwater is to be used to meet non-potable demand. Stormwater leaving the EDH site will be treated to national best practice standards as a minimum, specifically reducing average annual loads of total suspended solids by 80% and nutrients by 45%. In addition, litter and gross pollutants are to be removed from stormwater running into the harbour. Opportunities to integrate the design of Water Sensitive Urban Design (WSUD) elements (such as detention ponds) into the public domain, parks and built form are to be explored.	
<b>Housing Strategy</b>	<p>26. A Housing Strategy is to be prepared that:</p> <ul style="list-style-type: none"> <li>▪ Identifies the preferred mix of housing opportunities defined by price, dwelling type and dwelling size.</li> <li>▪ Incorporates intermediate housing tenure options.</li> <li>▪ Sets a suitable intermediate housing component as a proportion of total housing provision.</li> <li>▪ Includes a range of mechanisms to subsidise the development of the intermediate housing component.</li> <li>▪ Retains land provided for intermediate housing in Government ownership with leases up to 99 years.</li> </ul> <p>27. A Technical Working Group is to be established to prepare the Housing Strategy. The membership of the Working Group is to be determined by the proponent team and the Barangaroo Taskforce (under its terms of reference dated 26 November 2006).</p> <p>28. The Terms of Reference of the Technical Working Group is to be consistent with the requirements for preparation of the Housing Strategy specified in this Statement of Commitments and endorsed by the Barangaroo Taskforce.</p> <p>29. The Housing Strategy is to be submitted by the Working Group to the Barangaroo Taskforce. The Barangaroo Taskforce will report to the IPCC on relevant matters as recommended by the proponent team and Working Group. The proponent team will report to the SHFA Board on recommendations from the Working Group.</p> <p>30. Following endorsement, the Housing Strategy is to be made publicly available in a manner to be determined by the Barangaroo Taskforce.</p>	To be submitted to the Barangaroo Taskforce prior to the lodgement of any development application / project application for development within the Mixed Use Zone other than for demolition or early / site preparation work.
<b>Marketing and Promotion Strategy</b>	31. A Marketing and Promotion Strategy is to be prepared to promote Barangaroo's and the broader Sydney region's development opportunities to international companies, investors and property brokers. The Strategy will cover the lifespan of the redevelopment and focus on attracting investment from outside the Sydney region and State. The Strategy will emphasise the unique attributes of the site such as the lifestyle and workforce skills available in this urban waterfront precinct.	To be submitted to the Barangaroo Taskforce prior to the lodgement of any development application / project application for development within the Mixed Use Zone other than for demolition or early / site preparation work.

Subject	Commitments	Timing
	<p>32. A Technical Working Group is to be established to prepare the Marketing and Promotion Strategy. The membership of the Working Group is to be determined by the proponent team and the Barangaroo Taskforce (under its terms of reference dated 26 November 2006).</p> <p>33. The Terms of Reference of the Technical Working Group is to be consistent with the requirements for preparation of the Retail Marketing and Promotion Strategy specified in this Statement of Commitments and endorsed by the Barangaroo Taskforce.</p> <p>34. The Marketing &amp; Promotion Strategy is to be submitted by the Working Group to the Barangaroo Taskforce. The Barangaroo Taskforce will report to the IPCC on relevant matters as recommended by the proponent team and Working Group. The proponent team will report to the SHFA Board on recommendations from the Working Group.</p> <p>35. Following endorsement, the Marketing &amp; Promotion Strategy is to be made publicly available in a manner to be determined by the Barangaroo Taskforce.</p>	
<b>Retail Management Plan</b>	<p>36. A Retail Management Plan is to be developed to guide and encourage the right mix of retail that will establish EDH as a distinctive retail precinct. The Plan will outline innovation management strategies, foster design leadership, and encourage originality and differentiation.</p> <p>37. The Retail Management Plan is to be drafted to adapt to retail trends and changes over time by having in place a set of coordinated retail management guidelines for the site that will refresh the offerings, yet ensure consistency of vision and connection between the office and residential blocks, while maintaining an appropriate mix and market positioning of the Barangaroo retail precinct.</p> <p>38. The Retail Management Plan is to include the opportunity for ephemeral retailing events, such as markets and festivals, which are consistent with the overall retail image or brand of the precinct.</p> <p>39. A Technical Working Group is to be established to prepare the Retail Management Plan. The membership of the Working Group is to be determined by the proponent team and the Barangaroo Taskforce (under its terms of reference dated 26 November 2006).</p> <p>41. The Terms of Reference of the Technical Working Group is to be consistent with the requirements for preparation of the Retail Management Plan specified elsewhere in this Statement of Commitments and endorsed by the Barangaroo Taskforce.</p> <p>42. The Retail Management Plan is to be submitted by the Working Group to the Barangaroo Taskforce. The Barangaroo Taskforce will report to the IPCC on relevant matters as recommended by the proponent team and Working Group. The proponent team will report to the SHFA Board on recommendations from the Working Group.</p> <p>43. Following endorsement, the Retail Management Plan is to be made publicly available in a manner to be determined by the Barangaroo Taskforce.</p>	To be submitted to the Barangaroo Taskforce prior to the lodgement of any development application/project application for development within the Mixed Use Zone other than for demolition or early / site preparation work.

Subject	Commitments	Timing
<b>Parking &amp; servicing</b>	<p>43. Off-street bicycle parking and shower facilities are to be provided within buildings in line with City of Sydney Council Code rates.</p> <p>44. All on-site parking areas should conform to the requirements of AS2890.1:2004.</p> <p>45. The following maximum car parking rates shall apply to future development within the site:</p> <p>Commercial Uses - 1 space / 600m<sup>2</sup> GFA</p> <p>Residential - 1 bedroom unit – 1 space / 2 units  - 2 bedroom unit – 1.2 spaces / unit  - 3 bedroom unit – 2 spaces / unit</p> <p>Other Uses - City of Sydney Council rates</p> <p>Passenger Terminal - subject to a future traffic report based on demand estimates</p> <p>46. All building servicing and loading facilities will be in line with City of Sydney Council code rates.</p> <p>47. All service/delivery areas will conform to the requirements of AS2890.2: 2002 subject to driveways complying with the City of Sydney requirements.</p>	<p>At the stage of any relevant development or project application.</p>
<b>Heritage</b> Sewer Pump Station  Dalgety's Bond Store	<p>48. A further study is to be undertaken to examine the potential for relocation and adaptation of the sewer pump station structure on the Barangaroo site. There will be an archival recording of the structure prior to any possible demolition or relocation. The archival recording will be prepared in accordance with the NSW Heritage Office Guidelines.</p> <p>49. A Conservation Management Plan (CMP) will be prepared by an appropriately experienced and qualified heritage practitioner for the Dalgety's Bond Store in accordance with the NSW Heritage Office Guidelines and in consultation with the NSW Heritage Office. Any proposal for major alterations and additions to the building site will be guided by the CMP.</p>	<p>At the stage of any relevant development or project application relating to the sewer pump station structure.</p> <p>At the stage of any development or project application relating to the Dalgety's Bond Store.</p>
Views to Millers Point Conservation Area	<p>50. Future development within the Barangaroo site is to retain views to Observatory Hill Park from public spaces on opposite foreshores; and to retain a panorama from Pymont Park around to the Harbour Bridge as seen from Observatory Hill Park, and as shown within the Concept Plan by the photomontage images included in the Heritage Impact Statement prepared by City Plan Heritage.</p> <p>51. Future development within the Barangaroo site is to provide adequate view corridors over and between new built form to maintain the key attributes of views from Millers Point. The key attributes to be retained are:</p> <ol style="list-style-type: none"> <li>1) views to significant tracts of the water,</li> <li>2) the junction of Darling Harbour and the Harbour proper,</li> <li>3) the opposite foreshores,</li> <li>4) panoramic qualities of existing views, and</li> <li>5) the most distinctive views to landmark structures,</li> </ol> <p>All the above are shown within the Concept Plan and illustrated by the photomontage images included in the Heritage Impact Statement prepared by City Plan Heritage.</p>	<p>To be demonstrated / assessed as part of any relevant development / project application.</p> <p>To be demonstrated / assessed as part of any development application/ project application.</p>

Subject	Commitments	Timing
Grafton Bond Store (Sandstone Wall)	<p>52. Future development within the Barangaroo site is to retain the ability to appreciate the Millers Point headland and the roofscape of terrace houses throughout Millers Point when viewed from public spaces on opposite foreshores. The detailed design of future development within Barangaroo should ensure a relationship between new built form and existing structures and design details within Millers Point Conservation Area. Consultation is to be undertaken with NSW Heritage as part of the detailed project Application Stage.</p> <p>53. An appropriately experienced and qualified heritage practitioner will be engaged to prepare Advice and a Schedule of Conservation Works that will guide the conservation of the sandstone wall on the eastern side of Hickson Road as part of the construction of any proposed pedestrian bridge across Hickson Road. The Advice and Schedule of Conservation Works will inform the design of the proposed Hickson Road bridge and, in particular, how it meets the wall, and shall include conservation works to the palisade fence, sandstone piers and plinth, the cutting wall, the existing High Street steps (southern end), in-filled steps (northern end), and the substation at the southern end. Any new fence elements shall be sympathetic to the existing significant fence fabric.</p>	<p>To be demonstrated / assessed as part of any relevant development application / project application.</p> <p>At the stage of any development or project application relating to the construction of the proposed pedestrian bridge across Hickson Road.</p>
Moreton's Hotel	<p>54. A Conservation Management Strategy (CMS) will be prepared by an appropriately experienced and qualified heritage practitioner for the Moreton's Hotel in accordance with the NSW Heritage Office guidelines and in consultation with the NSW Heritage Office. The CMS will provide specific guidelines and conservation policies for the implementation and construction of any pedestrian walkway running through (with owner's consent) or alongside the Hotel, but will not address the whole Moreton's Hotel site.</p>	<p>At the stage of any development or project application relating to Moreton's Hotel.</p>
Munn Street Terraces	<p>55. A Heritage Impact Statement (HIS) will accompany any application for works to Munn Street or in the vicinity of the Munn Street Terraces. That HIS will include an assessment of how the development proposed satisfies the following Principles:</p> <ul style="list-style-type: none"> <li>▪ The design of the building proposed adjacent to the west of the Terraces will be sympathetic in bulk and scale and retain a reasonable level of amenities for the occupants of the Terraces.</li> <li>▪ Works to Munn Street will retain and conserve the front verandas, other building elements of significance along the southern frontage and the remnant cross walls and floors from the demolished terraces attached to the western elevation.</li> <li>▪ Works to Munn Street will retain and conserve significant landscape elements associated with the former street and the Terraces, such as the sandstone retaining walls and fences.</li> </ul>	<p>At the stage of any development application / project application relating works to Munn Street or in the vicinity of the Munn Street Terrace.</p>

Subject	Commitments	Timing
Moores Wharf Building	56. A Conservation Management Strategy (CMS) should be prepared for the Moores Wharf Building in accordance with the NSW Heritage Office Guidelines if a change of use or activity is proposed that requires substantial alteration to the place. The CMS will provide guidelines for the adaptive reuse of the building, which will be implemented in association with any development application for the building. The CMS will also suggest other appropriate uses in addition to the current use for Ports Security administration, particularly uses related to harbour activities.	At the stage of any development application / project application relating to the Moores Wharf building.
Sandstone Seawall	57. An appropriately experienced and qualified heritage practitioner will be engaged to prepare Advice and a Schedule of Conservation Works that will guide the conservation of the majority of the sandstone seawall section that will be retained, subject to its condition, at the north-western end of the wharves.	At the stage of any development application / project application relating to the sandstone seawall.
Palisade Fence and High Steps (High Street)	58. The proposed pedestrian bridges over Hickson Road will include conservation works to the palisade fence, sandstone piers and plinth, the cutting wall, the existing steps (southern end), in-filled steps (northern end), and the substation at the southern end. The conservation works will be implemented through preparation and adoption of a Schedule of Conservation Works. Any new fence elements will be sympathetic to the existing significant fence fabric. An appropriately experienced and qualified heritage practitioner will be engaged to provide advice on the construction of the pedestrian bridge, how it meets the wall, and the conservation of the wall.	At the stage of any development application / project application relating to the proposed bridges over Hickson Road.
Port Operations and Communications Centre (Harbour Control Tower)	59. Any proposal for change to the Harbour Control Tower itself will be guided by the thorough assessment of the structure's significance. Any required conservation policies will be formalised in a Conservation Management Strategy format. Heritage buildings will be provided with a curtilage deemed appropriate in any CMP prepared for that heritage item. CMPs for relevant heritage items should include the whole of the site and reference and acknowledge heritage items outside that site which may be impacted by any proposal.	To be assessed at the stage of any development application / project application relating to the Harbour Control Tower.
Archaeology	60. An appropriately experienced and qualified heritage practitioner or archaeologist will be engaged to prepare an Archaeological Assessment and Management Plan (AAMP) in consultation with relevant stakeholders and statutory authorities, including the NSW Heritage Office. The AAMP will identify areas of archaeological potential and provide guidelines and strategies for the management of the archaeological resource. If significant seawalls and former wharf structures are identified through the archaeological assessment and excavation processes then their conservation and interpretation within the site will be investigated. Having regard to the condition and significance of any archaeological remains uncovered, any highly significant remains will be incorporated into further stages of development with an appropriate level of interpretation. Depending upon the recommendations of the AAMP, significant archaeological deposits may be 1) uncovered and displayed <i>in situ</i> , 2) recorded and removed with possible display or use for interpretation / public art, or 3) recorded and re-buried with above surface interpretation. If any identified archaeological relics are found, work will be stopped and the Heritage Council of NSW will be notified immediately.	Prior to the lodgement of the first development application / project application involving surface disturbance.

Subject	Commitments	Timing
Interpretation	<p>61. An appropriately experienced and qualified heritage practitioner will be engaged to prepare an Interpretation Plan for the whole Barangaroo site in accordance with the NSW Heritage Office Heritage Interpretation Policy. The Plan will explore various cultural, social and environmental themes related to the site including, but not limited to:</p> <ul style="list-style-type: none"> <li>▪ The natural landscape</li> <li>▪ Aboriginal history</li> <li>▪ Manipulation of the landscape</li> <li>▪ Maritime industry, trade and commerce</li> <li>▪ Labour, workers and social movements</li> <li>▪ Archaeology</li> </ul> <p>The plan will make recommendations for:</p> <ul style="list-style-type: none"> <li>▪ Public Art</li> <li>▪ Naming</li> <li>▪ Interpretive Signage and Installations</li> <li>▪ Display of Archaeological Deposits</li> <li>▪ Built Form Strategies</li> </ul> <p>The plan will also include strategies for:</p> <ul style="list-style-type: none"> <li>▪ Staged Implementation</li> <li>▪ Ownership</li> <li>▪ Identification of Responsible Stakeholders</li> <li>▪ Future Maintenance</li> </ul>	Prior to commencement of any works on the site including any demolition or excavation works.
Archival Recording	62. The proponent will undertake an Archival Recording of the whole Barangaroo site prior to works being undertaken. The archival recording is to be prepared in accordance with NSW Heritage Office Guidelines.	Prior to commencement of any works on the site including any demolition or excavation works.
Supervision and Advice	63. An appropriately qualified and experienced heritage professional is to be engaged to provide advice in the preparation of any proposal and to supervise in the undertaking of approved works to places or structures of heritage significance.	Prior to lodgement of any future applications and throughout works.
<p><b>ESD</b></p> <p>Water</p> <p>Energy</p>	<p>64. There is to be an environmental focus on strategies for Water, Energy, Micro-Climature, Environmental Quality / Amenity, Landscape, Transport, Waste and Materials for the development. Each building on site will achieve the primary benchmark of a "5 star" standard of Commercial: Green Star 5 star, and Residential: Green Star Residential score &gt;60, and each development will be required to demonstrate how it satisfies each of the following Key Performance Indicators for each of the ESD focus areas referred to below.</p> <p>65. There is to be a 35% reduction in Potable Water Consumption compared to a standard practice development and a 40% reduction in flow to sewer compared to a standard practice development.</p> <p>66. There is to be a 35% reduction in Greenhouse Gas Emissions compared to a standard practice development. 20% of power is to be purchased from low impact, renewable sources or alternatively there should be a 20% reduction in GHG emissions through carbon offsets. The purchase of renewable energy should be at World Best Practice level.</p>	<p>ESD report to be lodged with each development application / project application.</p> <p>To be demonstrated / assessed as part of each relevant development / project application.</p> <p>To be demonstrated / assessed as part of each relevant development / project application.</p>

Subject	Commitments	Timing
Micro Climate	67. Key public open spaces (parks and squares) are to receive direct sunlight in mid-winter.	To be demonstrated / assessed as part of each relevant development / project application.
Landscape	68. Primarily non-invasive plant species are to be used on the site.	As above.
Transport	69. Ensure that there is sufficient public transport to achieve points under the public transport credit for Green Star Rating Tools for commercial buildings and a future Green Star Tool for residential buildings.	As above.
Waste	70. Centralised recycling areas are to be provided in all buildings and 100% of waste bins for public use are to allow for waste separation.	
Wind	71. Wind tunnel modelling and verification of proposed treatments will be carried out at the building design application stage due to the significant exposure of the site to the southerly and westerly winds. Any development proposal for the southern portion of the site should be subjected to a wind tunnel study, carried out in accordance with the procedures outlined in industry recognised guidelines such as the Australasian Wind Engineering Society Quality Assurance Manual.	Wind report to be lodged with each development application / project application.
<b>Geotechnical and Environmental Site Remediation</b>	<p>72. Further site investigations and assessments will be undertaken prior to a Remedial Action Plan (RAP) being prepared. The RAP may be prepared in stages that follow the progressive redevelopment of the site and development blocks. The RAP will address a range of known existing site conditions.</p> <p>73. A Technical Working Group is to be established to oversee the preparation of the RAP. The membership of the Working Group is to be determined by the proponent team and the Barangaroo Taskforce (under its Terms of Reference dated 26 November 2006). The Terms of Reference of the Technical Working Group are to be consistent with this Statement of Commitments and endorsed by the Barangaroo Taskforce.</p> <p>74. The RAP is to be submitted by the Working Group to the Barangaroo Taskforce. The Barangaroo Taskforce will report to the IPCC on relevant matters as recommended by the Working Group. The Project Team will report to the SHFA Board on recommendations from the Working Group.</p> <p>75. Following endorsement, the RAP is to be made publicly available in a manner to be determined by the Barangaroo Taskforce.</p>	To be submitted to the Barangaroo Taskforce prior to the lodgement of any development application / project application involving surface disturbance.
<b>Residential Amenities</b>	<p>76. Building Types: In terms of the classifications under the Residential Flat Design Code (RFDC) , generally the residential buildings on the Barangaroo site are to consist of Row Apartment, Courtyard Apartment, Slab (Block), Tower and Hybrid building types.</p> <p>77. Building Heights, Floor Space Ratios and Setbacks: All building heights and setbacks are to comply with the development block envelope controls contained within the Concept Plan.</p>	To be demonstrated / assessed in any relevant development application / project applications for residential development.

Subject	Commitments	Timing
	<p>78. Building Depth: The maximum building depth, as measured from glass-to-glass excluding balconies, is limited to 18 metres. In Row Apartment, Courtyard Apartment and Slab (Block) types 15 metres glass-to-glass is preferred.</p> <p>79. Building Separation: Building separations should have regard to separation distances set out in the RFDC. Where smaller separation distances are provided consistent with the Concept Plan urban design envelopes, the amenities, privacy and solar access to existing and proposed dwellings and the public domain need to be adequately considered.</p> <p>80. Landscape Design: Generally, landscape spaces for future residents of Barangaroo will be in the form of roof terraces and balconies. All private landscape design should be consistent with the design principles set out on pp46-47 of the RFDC. Due to the frontage of the extensive new harbour-side park, the proposed street tree planting and the adjacency to the city centre, there is no requirement for deep soil planting within blocks.</p> <p>81. Apartment Mix: Housing across the Barangaroo site should provide a variety of types, sizes and configurations. Flexible live / work housing types are highly appropriate for the city centre fringe location.</p> <p>82. Solar Access: Living rooms and private open spaces for at least 70 % of apartments in a development should receive a minimum of 3 hours direct sunlight between 9 a.m. and 3 p.m. in mid-winter. For up to 30 % of dwellings, 2 hours is required (excluding south-facing units).</p> <p>83. Single Orientation Apartments: Apartment buildings should aim to maximise cross ventilation. The number of single-aspect apartments with a southerly aspect (SW-SE) should be limited to a maximum of 10 % of the total units proposed. Developments which seek to vary from the minimum standards must demonstrate how site constraints and orientation prohibit the achievement of these standards and how energy efficiency is addressed.</p>	
<b>Acoustic</b>	<p>84. All future development application / project applications will be required to include a Noise Impact Assessment &amp; Mitigation Measures report. All noise emissions from a building's plant and equipment are to be at levels complying with the recommendations of the NSW EPA Industrial Noise Policy. When setting noise emission limits for each site, the cumulative impact of noise emissions from all the sites in the fully developed precinct shall be taken into account.</p> <p>85. Any future traffic management plans will incorporate strategies that minimise transportation noise levels associated with vehicle movements.</p> <p>86. To prevent negative impacts resulting from the ordinary operation of the passenger terminal and other community facilities, the envelope of buildings constructed within Barangaroo should be designed to limit sound intrusion from these noise sources. Typical noise levels in occupied spaces adjacent to these noise sources during peak usage periods should comply with the recommended noise levels in AS2107.</p>	Noise Impact Assessment and Mitigation Measures report to be submitted with all relevant development application / project applications.

Subject	Commitments	Timing
	<p>87. Plans of management developed for noise generating community facilities shall contain measures that seek to balance the use of these facilities with the amenities of nearby potentially sensitive land uses.</p> <p>88. Where deemed appropriate, the facades of new residential and commercial buildings along Hickson Road should be designed to reduce traffic noise levels in occupied spaces in accordance with the levels recommended in AS 2107.</p> <p>89. Noise emissions from patrons within proposed licensed premises will be assessed during development approval against Liquor Administration Board Guidelines and appropriate plans for managing patrons' arrival / departure developed.</p> <p>90. All future development application / project applications will be required to include a Construction Management Plan incorporating measures for managing construction noise and vibration emissions including time limits on audible construction activities.</p>	
<b>Built Form</b>	<p>91. The built form of each development block will follow the Design Principles, Design Requirements, and Development Controls as set out in Part B. Final designs for each development block will be prepared by development partners who will be subject to the Design Excellence Strategy.</p>	<p>To be demonstrated / assessed as part of any development application / project application for commercial use.</p>
<b>Commercial Uses</b>	<p>92. All future development applications for commercial uses will be required to address how the proposal:</p> <ul style="list-style-type: none"> <li>▪ Compliments, connects with and extends the commercial activity of the existing Sydney CBD;</li> <li>▪ Contributes to the character of Barangaroo as a unique business address;</li> <li>▪ Offers opportunities for major corporate tenants;</li> <li>▪ Where appropriate includes a mix of support related commercial and retail offerings such as convenience retail, personal services, cafes, bars and health and recreation facilities;</li> <li>▪ Enhances and encourages walking and cycling and connectivity to public transport services;</li> <li>▪ Provides a clear interface to the public domain and includes publicly accessible open space or pedestrian connections and arcades within the private development.</li> </ul>	<p>To be demonstrated / assessed as part of any development application / project application for commercial use.</p>
<b>Sydney Ports Consultation</b>	<p>93. Sydney Ports Corporation shall be consulted on all aspects of the Barangaroo redevelopment that affect the operation of the Wharf 8 Passenger Terminal, any additional passenger terminal, the harbour control tower and the harbour safety function in the Moore's Wharf building, including potential use of the new harbour inlet by non-motorised recreational craft.</p> <p>94. Sydney Ports Corporation shall be consulted on the detailed exclusion zone requirements for the Wharf 8 Passenger Terminal at future project application stages of development.</p>	<p>Subject to consultation with Sydney Ports.</p>

Subject	Commitments	Timing
	<p>95. The operation of the Wharf 8 Passenger Terminal will continue uninterrupted during its temporary relocation while the final new building is constructed and during the relocation back to the existing location in the new facilities.</p> <p>96. Moores Wharf and the Harbour Control Tower will be fenced off for security purposes prior to future public access on site.</p> <p>97. Sydney Ports and NSW Maritime shall be consulted regarding any proposals associated with Port Operational Requirements that result in the extension of structures alongside or over water into Sydney Harbour.</p> <p>98. Future car parking for the Wharf 8 Passenger Terminal will be provided consistent with the current car parking provisions for the facility, and subject to the needs of the future terminal.</p>	
<p><b>Ongoing Consultation and Information</b></p>	<p>99. Ongoing consultation with Government agencies including City of Sydney Council (Strategic Planning Department, Community Services and Programs Unit and Recreation and Community Services Unit), Department of Housing NSW, NSW Maritime, Railcorp, Sydney Ports, NCOSS, private landowners, and community stakeholders will take place according to established planning and development approval procedures.</p> <p>100. NSW Maritime will be consulted in relation to the following:</p> <ul style="list-style-type: none"> <li>▪ Any proposal that has the potential to impact upon navigational safety.</li> <li>▪ The potential to expand ferry and charter boat operations within the redevelopment site.</li> <li>▪ On-going maintenance of seawalls, launching and berthing facilities.</li> <li>▪ Proposed encroachments into NSW Maritime's land at Darling Harbour.</li> <li>▪ The development of the proposed coves and inlets which will become part of the navigable waters of Sydney Harbour.</li> <li>▪ Other issues which will inevitably arise from the interface with NSW Maritime's land.</li> <li>▪ Port security matters.</li> </ul> <p>101. Further consultation and information sessions will be held as necessary to communicate the redevelopment process and to ensure all stakeholders have the opportunity to keep up to date on the progress of the redevelopment.</p>	<p>Ongoing.</p>
<p><b>CPTED</b></p>	<p>102. All future development is to be designed in accordance with the principles of the Crime Prevention Through Environmental Design.</p>	<p>To be demonstrated / assessed as part of any relevant development / project application.</p>
<p><b>Construction</b></p>	<p>103. An Environmental and Construction Management Plan will be required as part of any future development on the site.</p>	<p>To be provided with any relevant development / project application.</p>