

ENVIRONMENTAL ASSESSMENT REPORT APPROVAL MODIFICATION NO.3

Barangaroo Headland Park and Northern Cove

Client: Barangaroo Delivery Authority

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Environmental Assessment Report

Barangaroo Headland Park and Northern Cove – Main Works
10_0048 Modification No.3

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Terms used in this document

CBD	Central Business District
DDA	<i>Disability Discrimination Act 1992</i> (Cth)
DGRs	Director-General's Requirements
DP&I	NSW Department of Planning and Infrastructure
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPL	Environment Protection Licence
REP	Regional Environmental Plan
SEPP	State Environmental Planning Policy
SPC	Sydney Ports Corporation

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EXECUTIVE SUMMARY

In March 2011 the Barangaroo Headland Park and Northern Cove – Main Works was approved (Approval 10_0048) under the now repealed provisions of Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). In accordance with transitional provisions the project is characterised as a transitional Part 3A project and that part, including the provisions governing modification of approvals, continues to apply.

As part of the continuing design development process a number of refinements to the design submitted with the original project application are now proposed. These were considered against the provisions of the planning approval and it was determined that further modification to the approval is required to accommodate the changes.

The following design changes are proposed:

- Changes to the interface with Moores Wharf.
- Changes to the position orientation of Sewage Pumping Station 14. Inclusion of the fit out of this item for use as an amenities block.
- Minor changes to landscaping across the site.
- Addition of a third walkway access between Merriman Street and the park.
- Additional facilities egress from the cultural space.
- Minor changes to cultural space and car park – configuration and levels.
- Changes to the cultural space southern entry.
- Retention of the historic sea wall on the northwest edge of the site.

The proposed changes are consistent with the provisions of relevant strategic plans including *NSW 2021 - A plan to make NSW number one*, *Metropolitan Plan for Sydney 2036* and the draft *Sydney City Subregional Strategy*. Further, they comply with the provisions of relevant environmental planning instruments and are consistent with the approved concept plan for the Barangaroo site.

The proposed changes have arisen from the design development process, are needed to respond to stakeholder concerns or are otherwise needed to address building code requirements.

The revised landscape design for the project shows finished levels and demonstrates that the project, inclusive of the proposed changes would not materially change those levels. It would maximise level grade access to the Headland Park by providing an additional walkway to Merriman Street and would maintain high levels of accessibility to the foreshore. The level of visual change from key vantage points would be minimal.

Integration of the future cultural space with the southern part of the site and the adjacent areas is also improved. The proposed changes in this area, coupled with future integration works in the vicinity of Munn Reserve aim to integrate Headland Park and Munn Reserve as a one park experience.

In the vicinity of Moores Wharf, the revised design now provides access to the northernmost part of the site where a viewpoint has been created on top of the retained caisson, acting as a terminus to the language of the rocky foreshore. This will provide spectacular views back towards Headland Park as well as panoramic views of Sydney Harbour Bridge and the northern shores of the harbour. The proposed regular rows of sandstone blocks in the stepped foreshore at Moore's Wharf neatly reference those of the Moore's Wharf sandstone building. The revised design no longer includes a vertically piled wall along the Moore's Wharf boundary and this reduces the risk of construction vibration affecting the sandstone building.

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Two heritage items would be affected by the proposed changes – Sewage Pumping Station 14 and the historic sea wall located on the northwest edge of the site. The sewage pumping station would be located on a slightly different orientation and about 20 metres closer to the Moore’s Wharf building. This small change would be negligible in terms any impact on its historic context. The historic sea wall would now be retained (in contrast to the previously proposed partial demolition) and this represents a positive heritage outcome. At both sites there is some archaeological potential and so subsurface disturbance would be minimised and measures for unexpected finds would be implemented.

The proposed changes are relatively small in scale and would not give rise to a material change in impacts for most environmental aspects including water quality, noise vibration and air quality. The construction environmental management framework currently in place is adequate to address the construction related impacts of the project, inclusive of the proposed changes.

On balance, the proposed changes are considered justified and modification of planning approval MP10_0048 is therefore sought.

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1. INTRODUCTION

1.1 BACKGROUND

Barangaroo (formerly East Darling Harbour) is a 22 hectare area of Sydney's harbour foreshore immediately adjoining the western edge of Sydney's CBD which has been identified for urban renewal. Part of that renewal comprises the construction the Headland Park and Northern Cove which features a naturalistic sandstone shoreline, native vegetation plantings, picnic areas, walking paths, water access and tidal pools, and space for a new cultural centre built within the headland.

On 8 November 2010 the then Minister for Planning approved the Barangaroo Headland Park and Northern Cove – Early Works ("the Early Works")(Approval 10_0047).

On 3 March 2011 the then Minister for Planning approved the Barangaroo Headland Park and Northern Cove – Main Works ("the Project")(Approval 10_0048) under the now repealed provisions of Part 3A of the *Environmental Planning and Assessment Act 1979*. In accordance with transitional provisions included in Schedule 6A of the EP&A Act, the Project is characterised as a transitional Part 3A project. Despite its repeal, Part 3A of the EP&A Act continues to apply in respect of transitional Part 3A projects.

On 17 April 2012, Approval 10_0048 was modified to update and clarify a number of approval conditions ("Modification 2"). Approval 10_0048, inclusive of Modification 2, is referred to hereafter as the "Planning Approval". An earlier modification request, "Modification 1" was withdrawn.

As part of the continuing design development process a number of refinements to the design submitted with the project application are now proposed. These were considered against the provisions of the Planning Approval and it was determined that further modification to the approval is required to accommodate the changes.

On 16 August 2012 the Barangaroo Delivery Authority (the Authority) wrote to the Department of Planning and Infrastructure (DP&I) indicating an intention to apply for modification of the Planning Approval and seeking any further assessment requirements. DP&I responded with Director-General's Requirements (DGRs) on 27 August 2012.

1.2 PURPOSE OF THIS DOCUMENT

This document has been prepared in support of an application to modify Approval 10_0048. To that end its purpose is to:

- Describe the approved project to serve as a reference point against which the proposed changes can be considered.
- Describe the proposed changes to the project, which together are the basis of the proposed approval modification.
- Explain the consultation that has occurred in relation to the proposed changes.
- Address the DGRs for the proposed modification.

1.3 THE APPROVED PROJECT

Condition A2 of the Approval 10_0048 requires that the development will be fully undertaken in accordance with the documents and plans listed in the table to that condition. In summary these are:

- The Environmental Assessment Report (MG Planning, October 2010)
- The response to submissions (MG Planning, February 2011).
- Statement of Commitments (MG Planning, February 2011).
- Architectural plans as listed.

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The Environmental Assessment describes the scope of the Project as including the following:

- *land formation utilising fill from Stage 1, ranging from the 150,000m³ identified in the Early Works application to approximately 230,000m³ (additional 80,000m³) along with excavated material from the Headland Park site itself (120,000m³) to build the headland up to finished levels for a nominal one metre topsoil layer (total fill of 350,000m³)*
- *construction of structural earth retaining walls utilising sandstone based materials*
- *creation of a naturalistic shoreline and northern cove through excavation and formation of retaining walls using boulders etc*
- *general landscaping and planting*
- *construction of a network of pedestrian pathways connecting the foreshore walkway and surrounding areas*
- *construction of a shoreline promenade (dual use pedestrian path and cycleway)*
- *jetty / viewing platform and public wharf extending into the Northern Cove from the southern shoreline*
- *construction of a car park totalling up to 300 spaces within the headland with vehicular access from Towns Place and pedestrian access from various locations within Headland Park*
- *location and use of the former Sydney Water Sewage Pumping Station for the purposes of an amenities building*
- *construction of a space for a future use (cultural facility) comprising initially 75,000m³ and ultimately up to 100,000m³*
- *installation of relevant services and infrastructure*
- *construction of the services and piping/pumping infrastructure associated with the air conditioning system (cooling water inlet/ outlet) for the future cultural facility and car park, and*
- *site remediation for limited contamination of fill material previously identified on the Headland Park site.*

The architectural drawings referred to in Condition A2 were included in Appendix 1 of the Environmental Assessment. To assist understanding of the proposed design changes, a comparison between the approved project and the modified project is included in Appendix A. This includes relevant extracts from Appendix 1 of the Environmental Assessment.

1.4 OVERVIEW OF THE PROPOSED MODIFICATION

Various changes to the project described in the Environmental Assessment are proposed. In summary, the changes involve:

- Changes to the interface with Moores Wharf.
- Minor changes to landscaping across the site.
- Addition of a third walkway access between Merriman Street and the park.
- Additional facilities egress from the cultural space.
- Minor changes to cultural space and car park – configuration and levels.
- Changes to the cultural space southern entry.
- Retention of the historic sea wall on the northwest edge of the site.

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The changes are a product of the design development process or are otherwise required to address building code requirements. They are described in more detail in Section 2 and are shown on the drawings provided in Appendix A and Appendix B.

1.5 THE SITE

Barangaroo is located on the north western edge of the Sydney Central Business District, bounded by Sydney Harbour to the west and north; the historic precinct of Millers Point for the northern half, The Rocks and the Sydney Harbour Bridge approach to the east; and bounded to the south by a range of new development dominated by large CBD commercial uses. It has a 1.4 kilometre harbour foreshore frontage, with an eastern street frontage to the Hungry Mile (Hickson Road). Refer Figure 1-1.

The Barangaroo site has been extensively and regularly modified over time to meet the changing requirements of trade and commerce for the city, and the changing technologies for cargo handling. The hardstand apron visible today was constructed in stages from the 1960s as a response to containerisation of shipping cargo. In the process the original Millers Point headland was cut away and the shore sheds that had defined the site as a 19th and 20th century harbour port were demolished. The site today therefore provides little physical connection to either its natural or industrial past.

The site of the Headland Park is surrounded by water to the north and west and occupies an area of approximately 6 hectares situated at the northern tip of the Barangaroo Precinct. The site has been cleared of buildings and early works for the construction of the Headland Park have commenced.



Figure 1-1 Location of the Barangaroo site

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2. DESCRIPTION OF THE PROPOSED MODIFICATION

The proposed modification comprises a range of changes across the Barangaroo Headland Park site. Table 2-1 describes each change, documents the reason(s) for the change and provides a reference to the relevant drawings that best illustrate the change. It is envisaged that, should the modification be supported, Condition A2 of Approval 10_0048 would be altered to include appropriate reference to the drawings included in Appendix B of this report.

Table 2-1 Elements of the proposed modification

Ref#	Description	Comment	Drawings
1.	i. Various landscaping changes including minor adjustments to path alignments and steps, the removal of light wells above the cultural space and a number of other specific changes as detailed below.	Design development	CO-JPW-L-S3-0100
	ii. Moore's Wharf Inlet It is now proposed that one full caisson unit beyond the Moore's Wharf boundary be retained. In place of the piled concrete wall along the boundary, a 1 in 3 slope with sandstone blocks stepping down in to the water is now proposed.	The design was changed in response to stakeholder concerns regarding the proximity of the vertical piled wall to the site and in particular the potential for vibration and movement during construction, which could affect the heritage listed sandstone building. There was also some concern regarding the proposed removal of the caissons along the northern edge of the site.	CO-JPW-L-S3-0100
	iii. Egress to Clyne Reserve	Compliance with building code.	CO-JPW-L-S3-0100 A-0004-B
	iv. Changes to position and orientation of Sewage Pumping Station (SPS14). Fit out of this building for use as an amenities block.	A consequence of the changes in the vicinity of Moore's Wharf. Refer to 1(i) above.	CO-JPW-L-S3-0100 TE-JPW-A-S3-5413 TE-JPW-A-S3-5414 TE-JPW-A-S3-5415
	v. Third access to Merriman Street.	The approved project includes two access points into the park from Merriman Street. The first is a 4-metre wide pedestrian entrance at the corner of Bettington and Merriman Streets, which will allow for security and maintenance vehicle access to the top of the park. This path has 3 meters of park planting on either side. The second is a 3-metre wide pedestrian entrance at the northern end, which is in close proximity to Clyne Reserve and the harbour control tower. This path has 4 meters and 9 metres of park planting on either side of it and is intended to be in scale and in conjunction with Clyne Reserve and the control tower access. A similar third footpath from the central part of Merriman Street (i.e. in between the two approved access points) is now	CO-JPW-L-S3-0100 A-0004-B

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Ref#	Description	Comment	Drawings									
		<p>proposed. This path has 4.5 metres of park planting on either side of it and it is intended as a small neighborhood scale access. The aim of the additional pedestrian access is to improve the integration of the parkland for present and future occupants of Millers Point and in doing so, help develop a sense of ownership of the park.</p> <p>The existing Merriman Street sidewalk will not be changed except for new pavement and new lighting standards. Existing parking is unchanged.</p> <p>At the park boundary a palisade style fence will exist along the entire length creating a clear urban boundary separating skylight areas with generous park planting flanking each entrance.</p>										
	vi. Retention of historic sandstone seawall	Opportunity to retain this historic asset is available.	CO-JPW-L-S3-0100									
2.	<p>Cultural space entrance and envelope.</p> <p>Minor realignment of the main southern stairs to the west and a new southern egress from the cultural space.</p> <p>Confirmation of cultural space envelope.</p> <p>Changes to the cultural space southern entry. In effect, a land bridge rather than a recognisable bridge structure and consequential changes to plantings in the southern entry forecourt.</p> <p>Change to the cultural space Ground Reduced Level (RL) from the approved RL 4.000 to RL 2.800.</p> <p>Inclusion of reinforced concrete retaining wall for the western edge of cultural space in contrast to a structural earth retaining wall.</p>	<p>Design development.</p> <p>Confirms details that were left open in the Environmental Assessment. The current design is generally within the building envelope presented in the approved drawings.</p> <p>The volume of the cultural space would be within the 75,000 cubic metre to 100,000 cubic metre volume range contemplated by the Environmental Assessment.</p>	<p>CO-JPW-L-S3-0100</p> <p>A-0001-B</p> <p>A-0002-B</p> <p>A-0003-B</p> <p>A-0004-B</p>									
3.	<p>Changes to the car park.</p> <p>Modified car park internal circulation. This includes egress via basement level 2 and the positioning of ramps between levels at the northern end of the car park.</p> <p>Changes to basement level RLs as indicated in the following table:</p> <table><thead><tr><th></th><th>Approval</th><th>Proposed</th></tr></thead><tbody><tr><td>Basement 2</td><td>RL -2.500</td><td>RL -3.300</td></tr><tr><td>Basement 1</td><td>RL 0.500</td><td>RL -0.500</td></tr></tbody></table>		Approval	Proposed	Basement 2	RL -2.500	RL -3.300	Basement 1	RL 0.500	RL -0.500	<p>Design development.</p> <p>The proposed levels are within the excavation profile identified for the approved project.</p>	<p>A-0001-B</p> <p>A-0002-B</p> <p>A-0003-B</p> <p>A-0004-B</p> <p>A-0005-B</p>
	Approval	Proposed										
Basement 2	RL -2.500	RL -3.300										
Basement 1	RL 0.500	RL -0.500										

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Ref#	Description	Comment	Drawings
	# Finished RLs rather than excavation profile. Changes to the position of building services: adjacent to cultural space vehicle access ramp.		

3. STATUTORY AND PLANNING FRAMEWORK

3.1 MODIFICATION PROCESS

As noted in Section 1.1, Part 3A of the EP&A Act continues to apply to the project. Section 75W of the EP&A Act (within Part 3A) provides:

(2) The proponent may request the Minister to modify the Minister's approval for a project. The Minister's approval for a modification is not required if the project as modified will be consistent with the existing approval under this Part.

(3) The request for the Minister's approval is to be lodged with the Director-General. The Director-General may notify the proponent of environmental assessment requirements with respect to the proposed modification that the proponent must comply with before the matter will be considered by the Minister.

A change to the terms of a Minister's approval, including revoking or varying a condition of the approval or imposing an additional condition of the approval needs to be the subject of an application to the Minister for Planning and Infrastructure. In this case it has been decided that, as a group, the proposed changes need to be the subject of a modification application.

Figure 3-1 illustrates the process for modifying an approval.

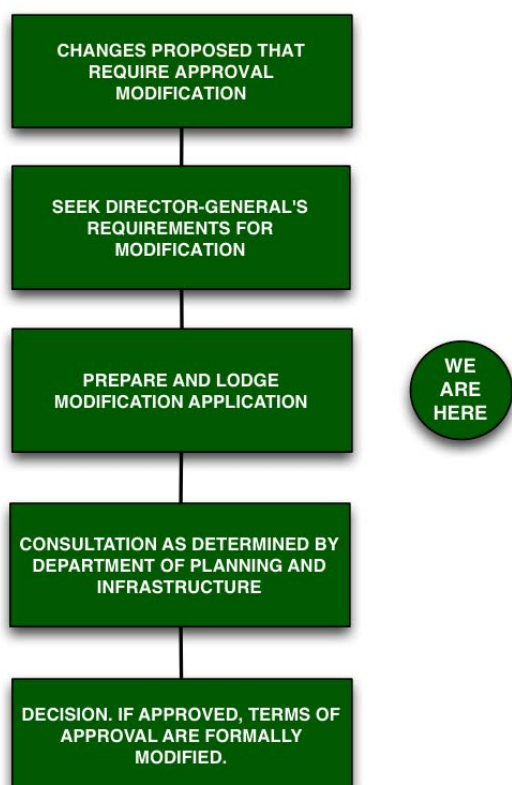


Figure 3-1 Modification process

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DP&I issued DGRs for the modification application on 27 August 2012. They are included in Appendix C along with a cross reference to how they have been addressed.

3.2 STRATEGIC PLANS

NSW 2021 - A plan to make NSW number one

NSW 2021 - A plan to make NSW number one (NSW Government 2011) sets the Government's agenda for change in NSW. *The Plan sets out five strategies under which goals are set. Those most relevant to the proposed modification are:*

- Goal 20 – Build livable centres.
- Goal 22 – Protect or natural environment.
- Goal 27 - Enhance cultural, creative, sporting and recreation opportunities.

The Barangaroo Headland Park project supports these goals by providing a high quality recreational space that will allow people greater access to the harbour foreshore. This will contribute to liveability while providing further recreational opportunities. The provision within the Headland Park of a cultural space will, subject to separate approval, provide a venue for a range of cultural events and uses. Implementation of a variety of environmentally sensitive design features and control measures during construction and subsequent use of the site is consistent with the goal of environmental protection.

The proposed changes represent a relatively minor design refinement of the approved project. In this context, they are also considered consistent with the direction set by NSW 2021.

Metropolitan Plan for Sydney 2036

The *Metropolitan Plan for Sydney 2036* identifies the Barangaroo Precinct as a vibrant destination with a mix of commercial and residential, retail, public uses and a new ferry terminal. The Headland park proposal, inclusive of the proposed changes is consistent with that vision. Considered in the context of the broader Barangaroo precinct, Headland Park supports the Metropolitan Plan's emphasis on urban renewal in identified centres.

Draft Sydney City Subregional Strategy

The *Draft Sydney City Subregional Strategy* identifies enhancing the city's prominence as a diverse global cultural centre as a key direction. A number of supporting actions outlined in the draft Strategy relate directly to Barangaroo. These include:

- F2.2.2 - The Department of Planning to continue to plan for the development of a waterfront city park at Barangaroo.
- F3.1.2 - The NSW Government to allow for cultural event spaces in the redevelopment of Barangaroo.

The Headland park proposal, inclusive of the proposed changes is consistent with these identified actions.

3.3 ENVIRONMENTAL PLANNING INSTRUMENTS

State Environmental Planning Policy (Major Development) 2005

Clause 3 of Schedule 6A to the EP&A Act provides that any State environmental planning policy or other instrument made under or for the purposes of Part 3A, as in force on the repeal of that Part and as amended after that repeal, continues to apply, to and in respect of, a transitional Part 3A project (as defined). State Environmental Planning Policy (Major Development) 2005 (Major Development SEPP) is subject to these provisions and the Project is a transitional Part 3A project.

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The Barangaroo site is listed as a State Significant Site under Part 12 of Schedule 3 of the Major Development SEPP. Relevant provisions of the Major Development SEPP are reviewed in Table 3-1.

Table 3-1 Relevant Major Development SEPP provisions

Reference	Content
Part 12, Clause 3	Provides that the only other environmental planning instruments that apply to Barangaroo are other State Environmental Planning Policies (and deemed SEPPs). Relevant environmental planning instruments are considered in this section.
Part 12, Clause 7	<p>Provides that the subject land is within zone RE1 Public Recreation and requires that the consent authority must have regard to zone objectives when determining an application within that zone.</p> <p>The objectives of the RE1 zone are:</p> <ul style="list-style-type: none"><i>(a) to enable land to be used for public open space or recreational purposes,</i><i>(b) to provide a range of recreational settings and activities and compatible land uses,</i><i>(c) to protect and enhance the natural environment for recreational purposes,</i><i>(d) to ensure the vitality and safety of the community and public domain,</i><i>(e) to promote and maintain public access to and along the foreshore,</i><i>(f) to allow land beneath the finished surface of the public domain to be used for car parking associated with development on land within Zone B4 Mixed Use if it can be demonstrated that any such use will not detract from the primary use of the land for public open space or recreational purposes,</i><i>(g) to allow the public domain to be enhanced by a variety of compatible land uses in a manner that contributes positively to, and does not dominate, the primary use of the land for public open space or recreational purposes,</i><i>(h) to allow land to be used in conjunction with the transportation of passengers by water.</i> <p>The Project, inclusive of the proposed changes, is considered consistent with these public domain and related objectives. It is also a category of development that is permitted with development consent.</p>
Part 12, Clause 21	Provides that a person must not, undertake works that affect a heritage item except with the consent of the consent authority. The proposed changes the Project would have some effect (direct or indirect) on items of heritage significance, specifically Sydney Water Sewage Pumping Station No14 and the Moores Wharf site. They would also allow the retention of the historic sandstone sea wall at the western edge of the Headland Park. These matters are considered further in section 5.8

State Environmental Planning Policy (State and Regional Development) 2011

As identified at Section 1.1, the Project is a transitional Part 3A project. As such, the proposed modification remains subject to Part 3A and the provisions of State Environmental Planning Policy (State and Regional Development) 2011 do not apply in this case.

State Environmental Planning Policy No.55 – Remediation of Land

The proposed changes do not materially affect the consideration of State Environmental Planning Policy No 55 - Remediation of Land undertaken for the approved project. Under clause 7 of SEPP 55:

(1) A consent authority must not consent to the carrying out of any development on land unless:

(a) it has considered whether the land is contaminated, and

(b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and

(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that

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purpose.

A Remedial Action Plan (RAP) for works at Headland Park has been prepared and has the following objectives:

- to document the procedures and standards to be followed in order to remove the risks posed by contamination at the Headland Park Site to future site occupants and the surrounding environment (incl. human and ecological receptors);
- to document the procedures and standards to be followed in order to ensure the suitability of Site Materials relocated from the broader Barangaroo Project Site onto the Headland Park Site; and
- to enable a Site Audit Report and Site Audit Statement(s) to be prepared by the appointed independent NSW EPA Accredited Site Auditor, confirming that the Headland Park Site can be made suitable for the proposed uses subject to the successful implementation of the proposed remedial/management measures.

The Minister for Planning and Infrastructure approved the Headland Park RAP on 19 January 2012. Measures contained in the RAP are to be applied via a Remedial Works Plan (RWP), which specifies actions for implementing and verifying the requirements of the RAP.

The Project, inclusive of the proposed changes, would be undertaken in accordance with the Headland Park RAP. In this context, it is considered that relevant requirements of SEPP 55 have been satisfied.

Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005

Since 1 July 2009, regional environmental plans (REPs) have not been part of the hierarchy of environmental planning instruments in NSW. All remaining REPs (that were not repealed as part of the reform) are now deemed SEPPs. Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 (Sydney Harbour Catchment REP) is one such deemed SEPP.

The site is located within 'Foreshores and Waterways Area' as defined by the Sydney Harbour Catchment REP. Further, the waterway (west of the site) is zoned W1 Maritime Waters although none of the proposed changes extend outside of the Barangaroo site. The Sydney Harbour Catchment REP does not contain any specific provisions relevant to the proposed development.

Part 3 Division 2 of the Sydney Harbour Catchment REP includes various matters for consideration. While these do not specifically apply to transitional Part 3A projects, they have been considered in recognition of the reference to the REP in the DGRs.

Table 3-2 Sydney Harbour Catchment REP Part 3 Division 2 matters

Clause	Matter	Comment
21	Contains a number of matters in relation to biodiversity, ecology and environmental protection.	The proposed changes are expected to have at a neutral effect on water quality with the implementation of appropriate safeguards and mitigation measures.
22	Public access to foreshores and waterways	The proposed changes would improve access to harbour foreshores.
23	Maintenance of a working harbour	No impact.
24	Interrelationship of waterway and foreshore uses	The proposed changes would improve access to harbour foreshores. It would not affect waterway dependant uses.
25	Scenic quality	The proposed changes would not result in a significant difference in scenic quality when compared to the Approved Project.

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Clause	Matter	Comment
26	Maintenance, protection and enhancement of views	The proposed changes would not obstruct or reduce the quality of views.
27	Boat storage	No impact.

Clause 63 sets out matters in relation to the protection of wetlands.

Table 3-3 Sydney Harbour Catchment REP Clause 63 matters

Matter	Comment
Neutral or beneficial effect on water quality. Adequate erosion and sedimentation control.	The Approved Project is subject to a range of measures to protect water quality. These measures would also apply to the proposed changes.
Impacts on flora and fauna and their habitats. Protection of native vegetation.	The proposed changes would not affect flora, fauna or their habitats.
Impacts on surface and groundwater characteristics of the site.	The nature and scale of the proposed changes are such that they would not result in a material change to surface and groundwater characteristics when compared to the Approved Project
Measures to protect the environment.	The Approved Project is subject to a range of measures to protect the environment. These measures would also apply to the proposed changes.
Protection of the inter tidal zone from pollution.	The proposed changes would not affect the intertidal zone.
Protection of aquatic ecological communities.	The proposed changes would not directly affect aquatic ecological communities. With the implementation of the proposed safeguards and mitigation measures, indirect impacts are also not expected.
Preservation or enhancement of surrounding wetlands.	No direct or indirect impact expected.

3.4 CONCEPT PLAN MP06_0162 (AS MODIFIED)

The instrument of approval for the Barangaroo Concept Plan as amended on 16 December 2010 provides:

A1. Development Description

Concept approval is granted only to the carrying out of the development solely within the Concept Plan area as described in the documents titled "East Darling Harbour State Significant Site Proposal, Concept Plan & Environmental Assessment (Volume 1 & 2)" prepared by JBA Urban Planning Consultants & SHFA (dated October 2006) and amended by Barangaroo Part 3A Modification Report (Volume 1 & 2) prepared by MG Planning Pty Ltd & SHFA (dated June 2008) and amended by Barangaroo Part 3A Modification Report – Headland Park and Northern Cove prepared by MG Planning Pty Ltd on behalf of Sydney Harbour Foreshore Authority and dated January 2009 and amended by Barangaroo South Concept Plan Modification and Major Development SEPP Amendment Environmental Assessment Report prepared by JBA Urban Planning Consultants (dated August 2010) including:

(1) A mixed use development involving a maximum of 563,965sqm gross floor area (GFA), comprised of:

(a) a maximum of 128,763sqm and a minimum of 84,595sqm residential GFA;

(b) a maximum of 50,000sqm GFA for tourist uses;

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- (c) a maximum of 39,000sqm GFA for retail uses;*
- (d) a maximum of 4,500sqm GFA for active uses in the Public Recreation zone (3,000sqm of which will be in Barangaroo South); and*
- (d) a minimum of 12,000sqm GFA for community uses (10,000sqm of which will be in Barangaroo South).*
- (2) Approximately 11 hectares of new public open space/public domain, with a range of formal and informal open spaces serving separate recreational functions and including an approximate 2.2km public foreshore promenade.*
- (3) Built form design principles, maximum building heights and GFA for each development block within the mixed use zone.*
- (4) Public domain landscape concept, including parks, streets and pedestrian connections.*
- (5) Alteration of the existing seawalls and creation of a partial new shoreline to the harbour.*

The Project, inclusive of the proposed changes would be consistent with this development description. Conditions B1 and B2 are concerned with the Northern Headland and Northern Cove public domain areas. These conditions provide.

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) the reinstatement of a 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, to allow 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 surveillance of the park to enhance security while limiting vehicular access into and through the park;*
 - (d) 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) public safety through the day and night considering surveillance, lighting, planting and materials; and*
 - (f) the impact on and the treatment of the Sewage Pumping Station.*
- (3) The above redesign may include provision of a public car park within the headland.*

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:*

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(a) *an enlargement of the water intrusion; and*

(b) *a greater naturalised shape, form and edges including treatment surrounding the cove.*

The Project, inclusive of the proposed changes, is considered consistent with the above requirements. The changes are relatively minor and the naturalised shape and form of the headland is consistent with that previously proposed. There is a minor change to the position and orientation of SPS14 and this has been considered in Section 5.8.

The revised Statement of Commitments for the MP06_0162 includes 129 commitments that apply across the Barangaroo site. Those most relevant to the proposed changes are reviewed in Table 3-4.

Table 3-4 Review of relevant MP06_0162 commitments

Commitment	Terms	Consistency
15	<p>The Public Domain Plan(s) is to provide details with respect to the following:</p> <ul style="list-style-type: none"> - Indicative levels in parks, edge conditions of parks and pedestrian connections through parks - Materials and planting - Safe and convenient walking routes and facilities - Street furniture - Design standards for 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. - Mix of parking/loading/other kerb controls - Design guidelines/requirements for integrated water management/water sensitive urban design consistent with Water Management Plan - Design requirements and details relating to recreational facilities - Requirement for public parking structure of up to 300 spaces in Headland Park area. 	<p>Consistent.</p> <p>Note that the Approved Project, inclusive of the proposed changes, would not result in the provision of more than 300 car spaces.</p>
52	<p>A Heritage Impact Statement is to be prepared to for the sewage pumping station to guide its future treatment. The Heritage Impact Statement is to consider the following options:</p> <ul style="list-style-type: none"> - retention of Pumping Station in situ, albeit buried, as a future archaeological resource; or - its relocation and adaptive reuse within Barangaroo site (including a recommended methodology for this course of action); - its relocation to a relevant location (including a recommended methodology for this course of action) ; or 	<p>The Approved Project includes the location and use of SPS0014 as shown on the drawings included in Appendix 1 of the Environmental Assessment. This was considered by the Heritage Impact Statement in Appendix 5 of the Environmental Assessment.</p> <p>A minor variation to that location has now been proposed. The heritage impacts of the variation are considered in Section 5.8.</p>

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Commitment	Terms	Consistency
	- recommendations for its interpretation both within the Barangaroo site and elsewhere, should the study conclude that this is the most appropriate course of action.	
53	53. The Heritage Impact Statement is to be prepared in consultation with a heritage experienced engineer to ensure minimum alteration and damage to the fabric. Moving the whole structure in one piece should be investigated.	Refer above.
54	If the Heritage Impact Statement recommends either relocation or demolition, archival recording of the structure will be prepared in accordance with the NSW Heritage Office's Guidelines.	Refer above.
65	A Heritage Impact Statement is to be prepared in relation to the proposed relocation and reuse of sandstone seawall in the vicinity of the Headland Park.	It is now proposed that the seawall be retained. The heritage aspects of retention are considered in Section 5.8.

4. CONSULTATION

Consultation previously undertaken for the Barangaroo Headland Park and Northern Cove – Main Works was documented in detail in Appendix 9 of the original Environmental Assessment Report (MG Planning, October 2010). Details of consultation more directly related to the proposed modification is considered below.

4.1 COMMUNITY CONSULTATION

The Authority undertakes broad consultation and engagement including community information and consultation forums, stakeholder meetings, regular newsletters and construction updates, web based information, and attendance at public community meetings.

Specific consultation in relation to this proposal has occurred with the residents of Merriman Street, City of Sydney and relevant agencies.

Consultation with residents of Merriman Street

The Authority has been in regular contact with the residents of Merriman Street in relation to design and construction of the Headland Park since 2010.

On 21 August 2012 the Authority met with residents of Merriman Street, Dalgety Road and Bettington Street. Topics included a proposed third access path from Merriman Street into the park.

Issues raised by residents specially relating to connections into Merriman Street included:

- Safety and security, especially at night, including a request from residents for appropriate lighting in the park, privacy concerns given homes in Merriman Street open directly onto the footpath and a fence with lockable gates between Merriman Street and the park.
- A request from residents for there to be a maximum of one access point from Merriman Street to the park (from the end of Bettington Street).
- A request by residents to minimise vehicle traffic into Merriman Street and protect street parking for residents adjacent to the park.

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- Possible loss of views as a result of trees being planted in Headland Park.

Authority's response

The Authority is seeking to balance the needs of Sydney as a global city and the concerns from nearby residents, including those living in Merriman Street.

As a direct result of early discussions with residents during design development of the park, Munn Reserve was established as the key pedestrian connection from The Rocks to the Headland Park.

Park designers, Peter Walker and Partners, explain:

The three Merriman Street pedestrian connections are intending strike a balance between the existing neighborhood scale and the scale of a large city park.

The majority of the flow of pedestrians will naturally flow from Argyle Street through the redesigned Munn Reserve. Visually this will be the most dominant and obvious way to enter the park, when approaching from the east. This being said, Merriman Street is an important adjacent edge with great potential for direct access to the most open and user-friendly part of the new park. Much sensitive debate has occurred in order to arrive at the solution as outlined below.

The existing Merriman Street sidewalk will not be changed except for new pavement and new lighting standards. Existing parking is unchanged. It is strongly recommended that general sidewalk widening along the south side of Bettington Street be implemented in order to improve a very poor existing condition, giving the landmark Palisade Hotel Building improved pedestrian access.

At the park boundary a palisade style fence will exist along the entire length creating a clear urban boundary separating skylight areas with generous park planting flanking each entrance. The skylight openings will have the glass covering them, positioned well below the level of Merriman Street. The proposed palisade fence and a lower balustrade fence on the park side, is designed as open metal construction that will allow for a visual sense of the park on the Merriman Street side of the skylights, allowing for park plantings to be the dominant feature as viewed from Merriman Street. The generous park planting at each pedestrian entrance will come right up to the palisade fence creating the sense of park at Merriman Street, and breaking up the length of skylights opening up to the cultural space below.

There is a 4-meter wide pedestrian entrance at the corner of Bettington and Merriman Streets, which will allow for security and maintenance vehicle access to the top of the park. This path has 3 meters of park planting on either side of it.

There is a 3-meter wide pedestrian entrance at the northern end, which is in close proximity to Clyne Reserve and the harbour control tower. This path has 4 meters and 9 meters of park planting on either side of it and is intended to be in scale and in conjunction with Clyne Reserve and the control tower access.

There is a 1.5-meter wide pedestrian entrance in the middle of Merriman Street. This path has 4.5 meters of park planting on either side of it and it is intended as a small neighborhood scale access.

The top of the new Headland Park is a large open lawn area designed for passive recreational use and with fantastic views out to the Sydney Harbour. Every attempt has been made to provide sensitive public access, respecting the scale of the existing neighborhood, with the huge public improvements and amenities that Barangaroo Headland Park will offer to all citizens of Sydney.

While there has been some strong opposition from adjacent neighbors to any park access along Merriman Street, a compromise has been proposed which balances those opinions with the

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demands of the greater Sydney population which is entitled to access to the Headland Park from a public street.

The Authority has also considered other issues raised by the residents.

In relation to safety and security, the Authority notes that the Headland Park will be a 24 hour accessible public open space in keeping with the approach to urban parklands within the Sydney area. Consideration to restricting access via the addition of gates is not included as part of this modification application. An operational Plan of Management will be prepared prior to the opening of the park and will consider management of access points.

In relation to residents' concerns about increased local traffic and protection of street parking, the Authority will be encouraging the vast majority of visitors to Barangaroo to use public transport. The 300 space car park under the headland Park will be available to park visitors. Street parking and traffic signage are matters to be raised with the City of Sydney.

Consultation with other Millers Point residents

The Authority recently conducted consultation about proposed public domain works in areas adjacent to the new Headland Park in Millers Point. A key element of these works would be changes to Munn Reserve to create a key pedestrian connection into the Headland Park.

The proposal for Munn Reserve seeks to enhance the park and create greater visual awareness of the park from the Argyle Cut and The Rocks. It is proposed to extend the Reserve, increase the sense of Munn Reserve and the surrounding area as a neighbourhood centre, widen nearby footpaths and open up the entrance to the park by relocating two existing fig trees.

Consultation included a community meeting and workshop held on 11 July 2012, as well as a range a stakeholder meetings.

The concept of extending and re-landscaping the Reserve was broadly supported with some reservations expressed about the need to relocate two fig trees. The Millers Point Resident Action Group was concerned about encouraging more tourists and pedestrian to travel through what the Group says is essentially a residential area. Merriman Street residents have supported the creation of Munn Reserve as a key pedestrian access point to minimise the numbers of visitors accessing the park from Merriman Street.

4.2 AGENCY CONSULTATION

A briefing was provided to representatives of the City of Sydney Council on 20 September 2012. This included discussion about the nature and extent of the proposed changes. It is understood that the City of Sydney Council will be formally consulted by DP&I as part of the assessment process for the modification.

The Authority has advised Roads and Maritime Services about the proposed modification, including the changes near Moore's Wharf and the retention of most of the historic seawall.

The Authority meets regularly with Sydney Ports Corporation (SPC) on a range of topics. SPC has previously raised concerns about contiguous piling and potential vibration impacts on the Moore's Wharf site or building. The proposed design change responds to concerns regarding the proximity of the vertical piled wall to the site and in particular the potential for vibration and movement during construction.

The Authority has consulted with SPC who are supportive of the design change at Moore's Wharf. SPC has requested that the treatment to the boundary fence at Moore's Wharf is discussed with SPC prior to its finalisation. The Authority has agreed to this request.

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5. ENVIRONMENTAL ASSESSMENT

This section of the report assesses the proposed changes that are the subject of the modification application. The assessment has been prepared to address the matters relevant to the Project, inclusive of the proposed changes, included in the DGRs.

The proposed changes are relatively small scale variations to what was previously proposed and all fall within the Approved Project site. It is considered that construction of the Project, inclusive of the proposed changes, can be appropriately managed within the construction environmental management framework for the Project. Figure 5-1 illustrates this framework.

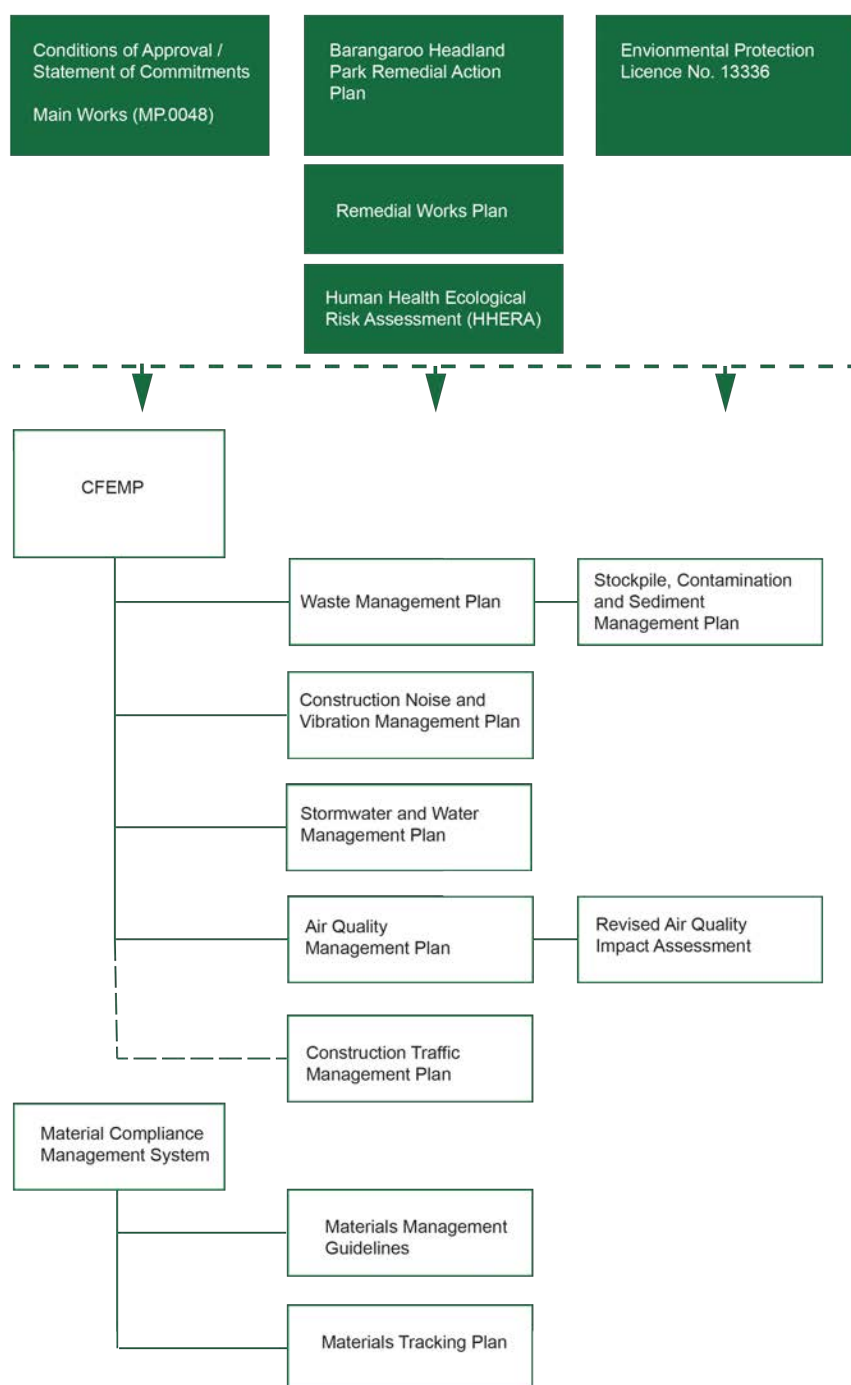


Figure 5-1 Construction environmental management framework

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A number of specific areas that require assessment under the DGRs are considered below in Section 5.1 through to 5.8.

5.1 URBAN DESIGN AND PUBLIC DOMAIN

The *Barangaroo Public Domain Plan* and the *Barangaroo Headland Park Public Domain Sub Plan* were included in Appendix 10 and Appendix 12 respectively of the Environmental Assessment. The vision, governing principles for design, public domain design and other matters outlined in these documents remain applicable to and are generally consistent with the Project, inclusive of the proposed changes. Some changes to the public domain design are proposed and these have been explained in section 2 and are shown on the revised landscape design (drawing CO-JPW-L-S3-0100), which is included in Appendix B.

The findings of the Barangaroo Headland Park Access Review (Morris Goding Accessibility Consulting, 2010) (included in Appendix 25 of the Environmental Assessment) remain applicable to the Project, inclusive of the proposed changes. This includes the requirement to ensure that the detailed design complies with the requirements of the *Disability Discrimination Act 1992* (Cth) (DDA), the *Disability (Access to Premises – Buildings) Standards 2010* and relevant Australian Standards.

5.2 LANDSCAPE DESIGN

The revised landscape design (drawing CO-JPW-L-S3-0100) for the Project is included in Appendix B. The drawing shows finished levels and demonstrates that the Project, inclusive of the proposed changes would not materially change finished levels. In relation to the matters raised by DGR No.4, the following is specifically noted:

- Finished levels on the eastern edge of the Headland Park are not altered by the proposed changes.
- Views over the Headland Park are not materially altered and are not obstructed by the proposed changes. At the Merriman Street interface, the proposed palisade fence and a lower balustrade fence on the park side, is designed as open metal construction that will allow for a visual sense of the park on the Merriman Street side of the skylights, allowing for park plantings to be the dominant feature as viewed from Merriman Street. The generous park planting at each pedestrian entrance will come right up to the palisade fence creating the sense of park at Merriman Street, and breaking up the length of skylights opening up to the cultural space below.
- The proposed changes maximise level grade access to the Headland Park by providing an additional walkway to Merriman Street.
- Grades on the site are not materially different to those for the Approved Project. Only minor variation to the configuration of pathways and spaces has been proposed.
- Consistent with the Approved Project, the proposed changes would maintain high levels of accessibility to the foreshore.
- Integration of the future cultural space with the southern part of the site and the adjacent areas is improved by the proposed changes (specifically No.7). The existing Headland Park interface with Munn Reserve obscures and isolates the park entrance. The proposed changes in this area, coupled with future integration works in the vicinity of Munn Reserve aim to integrate Headland Park and Munn Reserve integrated as one park experience. This is illustrated by Figure 5-2.

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Figure 5-2 View east from the Headland Park cultural space entrance at the bush level

Source: Barangaroo Delivery Authority

In relation to the proposed changes in the vicinity of Moores Wharf, the revised design now provides access to the northernmost part of the site where a viewpoint has been created on top of the retained caisson, acting as a terminus to the language of the rocky foreshore. This will provide spectacular views back towards Headland Park as well as panoramic views of Sydney Harbour Bridge and the northern shores of the harbour. Lighting, planting and seating is provided along the path adjacent to the boundary and will visually separate the Moores Wharf yard from Headland Park.

At this location the design now proposes a 1 in 3 slope with sandstone blocks stepping down in to the water. This provides a transition from the rocky foreshore associated with most of the Headland Park into a semi-formal layout before it joins the vertical walls, in the same way the foreshore transitions to more regular steps within the Northern Cove before it transitions to the vertical walls of Barangaroo Central. The proposed regular rows of sandstone blocks in the stepped foreshore at Moore's Wharf reference those of the Moore's Wharf sandstone building.

5.3 VISUAL IMPACT AND VIEWS

A Visual Impact Assessment was prepared for the Barangaroo Headland Park project application in November 2010. The Barangaroo Headland Park Visual Impact and Views Report was prepared by Johnson Pilton Walker/ Peter Walker Partners and examined view points from around Sydney Harbour to the site of the proposed Headland Park to determine the visual impact of the Park development.

This report analysed the various views from the major nearby 'vantage points' which are:

1. Blues Point
2. Balls Head
3. Ballast Point Park
4. Balmain East
5. Pyrmont

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6. Millers Point

A Visual Assessment from these vantage points was then made. The creation of the Headland Park is seen as a significant aesthetic improvement over the current situation with a green parkland replacing the existing asphalt landscape.

Johnson Pilton Walker has recently considered the proposed changes. Taking into account the nature and small scale of the changes, they have concluded that the findings of the original Visual Impact Report remain applicable to the Project, inclusive of the proposed changes.

5.4 TRAFFIC MANAGEMENT AND ACCESSIBILITY IMPACTS

The proposed changes would not increase construction vehicle movements and arrangements for construction traffic management outlined for the Approved Project would remain unaltered. Refer to Section 7.6 and Appendix 20 of the Environmental Assessment. The nature and small scale of the proposed changes would not give rise to cumulative traffic and effects associated with other construction activities on the Barangaroo site.

The proposed change along the eastern boundary primarily consists of the addition of a third walkway access to Merriman Street. This would maximise level grade access to the Headland Park. It would not materially change construction impacts on the eastern boundary.

5.5 AIR AND ODOUR

When compared with the Approved Project, the proposed changes are not of a nature or scale that is expected to cause a material change to air quality or odour impacts, both in terms of the scale of impacts and the areas affected. Impacts of the project, inclusive of the proposed changes, are considered to be consistent with the assessment detailed in Section 7.7 and Appendix 21 of the Environmental Assessment.

JBS Environmental Pty Ltd (JBS) recently prepared the *Air Quality and Health Impact Assessment Main Works – Headland Park, Baulderstone, Barangaroo Headland Park and Northern Cove, Hickson Road, Sydney, NSW revision D* (JBS Environmental, August 2012)(JBS, 2012). They also provided advice on the preparation of the *Air Quality Management Plan Barangaroo Headland Park* (Baulderstone, 2012).

JBS was subsequently commissioned to review the proposed changes to Approved Project (refer to Appendix D) and have advised that the proposed changes would have no significant impact on the air quality impacts reported in JBS (2012). The advice notes that there is no evidence that the proposed 'rates' of handling of materials would change, this being the most important factor in the estimation of air emissions and associated impacts.

The JBS advice further notes that the scope of air quality controls already identified for the project remains sufficient. The most significant component of air quality management is identified as the reactive management strategy detailed in the *Air Quality Management Plan Barangaroo Headland Park* (Baulderstone, 2012). JBS notes that, by its nature, the reactive management strategy is able to adapt environmental monitoring and implementation of air quality controls to differing air emission scenarios on the site.

5.6 SOIL AND WATER

When compared with the Approved Project, the proposed changes are not of a nature or scale that would cause a material change to the surface and groundwater hydrology or quality, marine ecology or marine vegetation. Impacts of the project, inclusive of the proposed changes are considered to be consistent with the assessment detailed in Section 7.3.1, Section 7.3.2 and Appendix 13 of the Environmental Assessment.

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The proposed changes were considered during the development of the Soil and Water Management Plan (SWMP) for the Project. The SWMP is required by condition B23 of Approval 10_0048. Discharge of water from site would be subject to the SWMP and regulatory requirements including the provisions of Environmental Protection Licence No 13336.

The proposed changes have been reviewed by WSP, the authors of the Soil and Water Report that was included in Appendix 13 of Environmental Assessment (refer to Appendix E). WSP has advised that the proposed changes to the Approved Project are unlikely to result in substantial alterations in the surface or groundwater hydrology or quality, marine ecology or marine vegetation. They further advise that the Management Protocols provided in Section 3 of earlier Soil and Water Report remain applicable in relation to the proposed modifications.

5.7 NOISE AND VIBRATION

Noise and vibration impacts of the Project were most recently considered in a Construction Noise and Vibration Assessment prepared by Wilkinson Murray in August 2012. The assessment took account of the currently proposed construction method and equipment, but also considered the Project, inclusive of the proposed design changes.

The main findings of the assessment were as follows:

- The greatest potential exceedance of noise management levels at residential receivers, up to 16 dBA at High Street residences, is likely to occur during extended hours on Saturdays when construction noise management levels are the most stringent for the daytime. A similar magnitude of exceedance is predicted at Dawes Point Residences.
- All construction noise levels are well below the highly affected construction noise level of 75 dBA.
- Compliance with the 70 dBA noise management level is indicated at all surrounding commercial premises with the exception of Universal Music when excavation works in North Cove occur and an exceedance of 3 dBA is predicted.
- Commercial receivers that have operable windows would be subjected to construction noise levels approximately 10 - 15 dBA louder if windows were open. Therefore windows may need to be closed during intensive periods of construction.
- Construction noise levels in play areas of identified Preschools are predicted to comply with the 65 dBA noise objective for active recreation areas. In the case of internal areas an exceedance of internal noise objectives by up to 11 dBA when windows are open is expected at the High Street Childcare centre. Therefore windows may need to be closed during intensive periods of construction at this location.
- Cumulative noise levels from Barangaroo South and Headland Park construction sites indicate that noise from construction when combined from both sites will increase at surrounding receivers by up to 3 dBA. This increase is at High Street residences, which is to be expected as these residences are located between the two sites.
- Compliance with human comfort and building damage vibration criteria is expected.
- Trial testing should be conducted if rockbreaking by heavy rockbreakers is required at distances of less than 20 metres from surrounding residential and commercial receivers.

Having regard to the finding of the Noise and Vibration Assessment and the likely sources of noise management level exceedances, it is not considered that the proposed changes would represent a significant contribution to construction noise and vibration. Wilkinson Murray have confirmed that the

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proposed changes do not affect the predictions, findings or recommendations of their August 2012 assessment (refer to Appendix F).

5.8 HERITAGE

Godden Mackay Logan was engaged to provide advice on two heritage items that are affected by the proposed changes – Sewage Pumping Station 14 and the historic sea wall located on the north west edge of the site. A summary of the advice received is provided below (refer to Appendix G for the advice in full). The Sydney Harbour Control Tower would not be affected by the proposed changes and accordingly is not considered further.

Sewage Pumping Station No.14

The Barangaroo Headland Park Main Works Application Heritage Impact Statement (Conybeare Morrison, January 2011) does not include a detailed assessment of the heritage impact of the proposed siting of the relocated pumping station on the northern section of the Headland Park, focussing on the heritage impacts of the relocation itself. It does however include the following (Section 7.1.3):

SPS 14 would be diminutive in scale adjacent to Moore's Wharf Building. Being on the edge of the reconstructed headland, SPS 14 would be part of the gradation from period buildings to the proposed reconstructed Headland Park.

Given the extent of wholesale change that has occurred in this sector of the Barangaroo precinct since the creation of the existing wharf platform area, the difference between the approved and the proposed siting of the relocated pumping station would be negligible in terms any impact on its historic context. Although the alternate siting is approximately 20 metres closer to the Moore's Wharf building, as noted in the heritage impact statement, the difference in scale between the two buildings means that there will be no substantive impact on views of the Moore's Wharf building.

In terms of archaeological potential, the alternate siting of the relocated pump house is in a section of the Barangaroo precinct that was near to the original shoreline of the headland. Maritime-related development has been undertaken in this area since the mid 19th century, and the area contains extensive fill deposits associated with reclamation of this part of the site from that period. The alternate siting of the relocated pump house is situated close to an area identified as having historical archaeological potential (Archaeological Test Excavation Report—Barangaroo Headland Park, Austral Archaeology, January 2012,).

While recent archaeological testing to the north of the alternate siting has revealed intact archaeological remains, the actual proposed alternate siting is likely to have been subject to at least some subsurface disturbance that would have affected the archaeological potential of the area. The archaeological potential of the alternate siting of the relocated pump house is therefore considered to be low.

The proposed reuse of the pump house as a toilet block would require localised excavation for the installation of underground sewer and water services. This proposed localised disturbance would have limited potential to expose or disturb any archaeological evidence that may survive in this part of the site.

On this basis, the alternate siting of the relocated pump house is considered acceptable in terms of its impact on archaeological potential. The current Headland Park Main Works approval condition D2 sets out the general procedures for archaeological discovery during excavation. Nevertheless, to mitigate any potential archaeological impacts that may be associated with the alternate siting of the relocated pump house, the following mitigation measures are proposed:

- Any proposed subsurface disturbance in this area associated with relocation and servicing of the pump house should be minimised.

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- In the event that any archaeological remains are exposed during excavation works, they would be recorded and incorporated into the broader program of archaeological works associated with the excavation of Moore's Wharf inlet.

The proposed fit out of the SPS 14 building for use as an amenities block has been developed in consultation with heritage advisors Conybeare Morrison and in consideration of the heritage significance of the building (refer to Appendix G).

Historic sea wall

The Barangaroo Headland Park Main Works Application Heritage Impact Statement (Conybeare Morrison, January 2011) includes the following description of the Sandstone Sea Wall (Section 3.2):

A 120m long retaining wall of sandstone blocks protects the north-western edge of the East Darling Harbour roll-on, roll-off dock. It was built in 1913 from locally quarried stone at a time when the Sydney Harbour Trust was working to design and install a uniform system of wharves to accommodate the larger cargo ships trading with Sydney than had been the case in the nineteenth century. The construction of the new sandstone seawall squared off the western edge of Millers Point. The wharf behind the sandstone seawall was used by Dalgety & Company, as agents for the White Star Line. Prior to 1900 the wharf area consisted of privately-owned timber wharves. Most had been built in the 1830's and 40's and were in poor condition by 1900. Remnants of these wharves and their trading functions may remain in the fill behind the 1913 sandstone wall.

The HIS includes the following assessment of the impact of the substantial demolition of the sea wall (Section 7.1.2):

The rearrangement of the 1913 sandstone seawall into a more naturalistic shoreline alignment would diminish the heritage significance of this local heritage item. The rearrangement would remove evidence for the placement of this seawall as part of the works of the Sydney Harbour Trust to redevelop the dilapidated timber wharves into a dock suitable for larger cargo ships. With interpretation, some of the heritage value of these stones could be retained if they are used to define the original alignment of the sea wall. Consideration should be given to retaining a small number of stones in their existing location as a means of identifying the 1913 shoreline. It should be noted that the multitude of stormwater pipes penetrating and chased into the sandstone has impacted on the significance of the seawall (see Fig. 3.4). Exposing a different face of the stone blocks may disguise this impact.

It is clear that the proposed retention of the sandstone sea wall would be a positive heritage outcome. The approach will conserve one of the few tangible elements that survive in the Barangaroo precinct that provide evidence of its complex late 19th and early 20th century maritime history.

The sea wall would be retained to a height approximately 400mm above the paved level although it is noted that the existing wall is undulating along its length and appears to have been supplemented over time by additional sandstone and concrete blocks to achieve the required level.

Some reinforcing of the wall is likely to be required. These works would minimise impacts on original fabric and retain the undulating character and patina of age of the sea wall.

It is likely that archaeological relics and works survive in the fill behind the sea wall. The current Headland Park Main Works approval condition D2 sets out the general procedures for archaeological discovery during excavation. Nevertheless, if it is necessary to undertake any excavation behind the wall for structural reinforcement or services, the following measures are proposed to mitigate any potential archaeological impacts:

- Any proposed subsurface disturbance in this area should be minimised, and;

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Barangaroo Headland Park and Northern Cove – Main Works
10_0048 Modification No.3

- In the event that any archaeological remains are exposed during excavation works, they would be recorded and incorporated into the broader program of archaeological works for the Barangaroo precinct.

6. CONCLUSION AND JUSTIFICATION

As part of the continuing design development process a number of refinements to the design submitted with the project application are now proposed and a modification of planning approval MP10_0048 is being sought. Each of the changes has been described and potential environmental impacts associated with the changes have been discussed.

The proposed changes would deliver a number of benefits including improved access and amenity, better opportunity for integration of the site with adjacent areas and retention of heritage values. They would also assist in ensuring compliance with building code requirements in respect of building egress. Adverse impacts have been identified as relatively minor and are amenable to mitigation and management measures that already form part of the environmental management framework for the site.

On balance, the proposed changes are considered justified and modification of planning approval MP10_0048 is therefore sought.

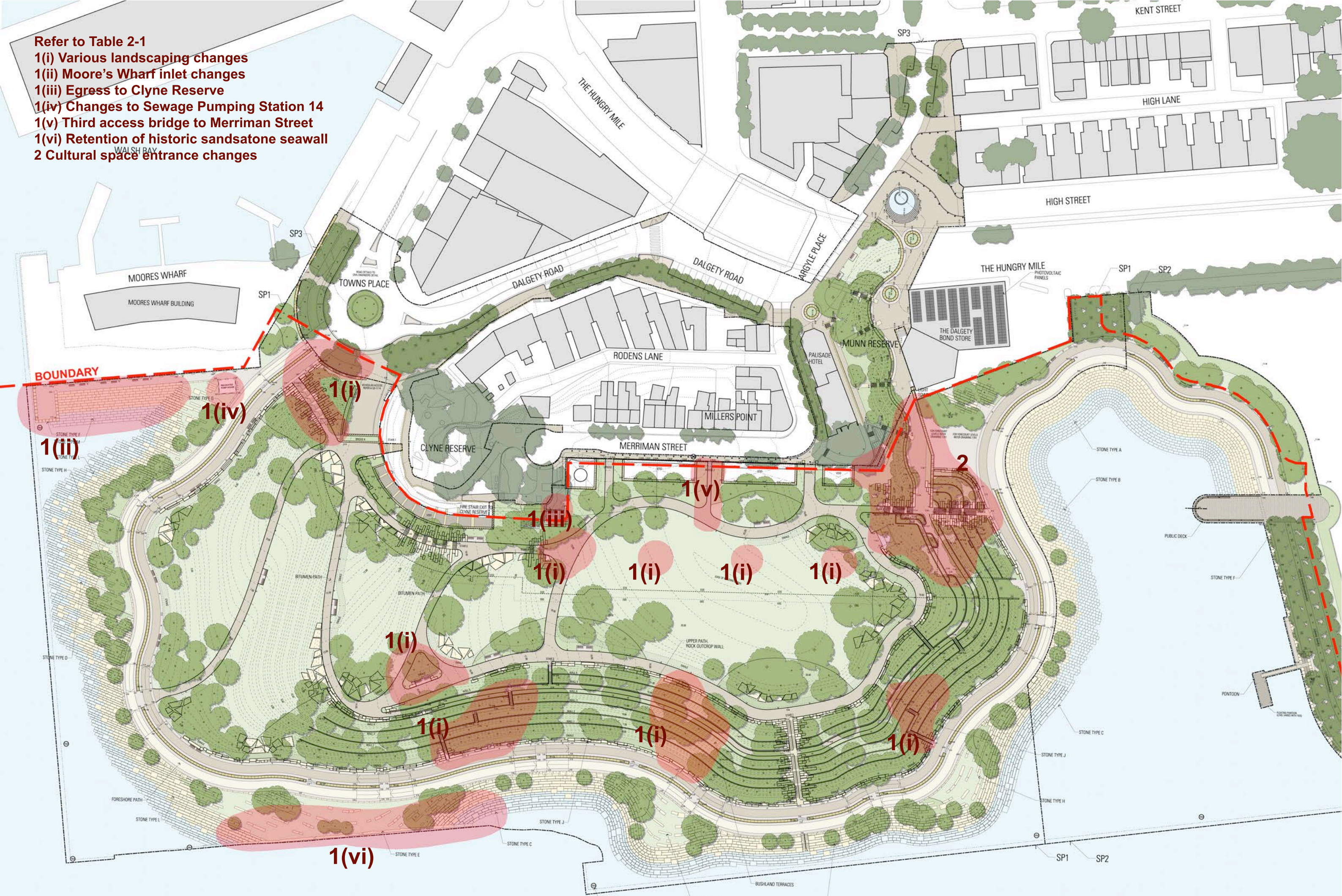
Environmental Assessment Report

Barangaroo Headland Park and Northern Cove – Main Works
10_0048 Modification No.3

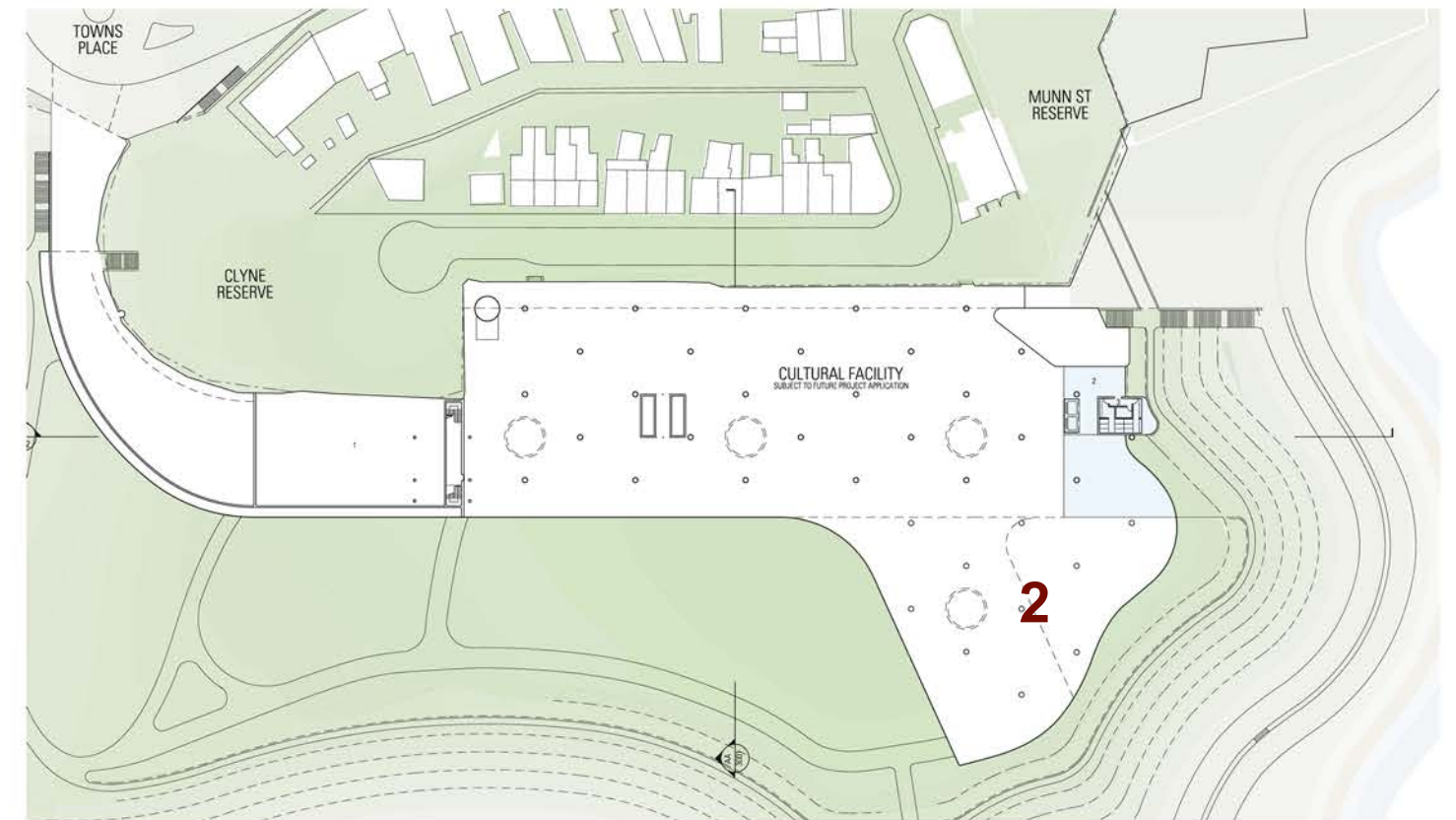
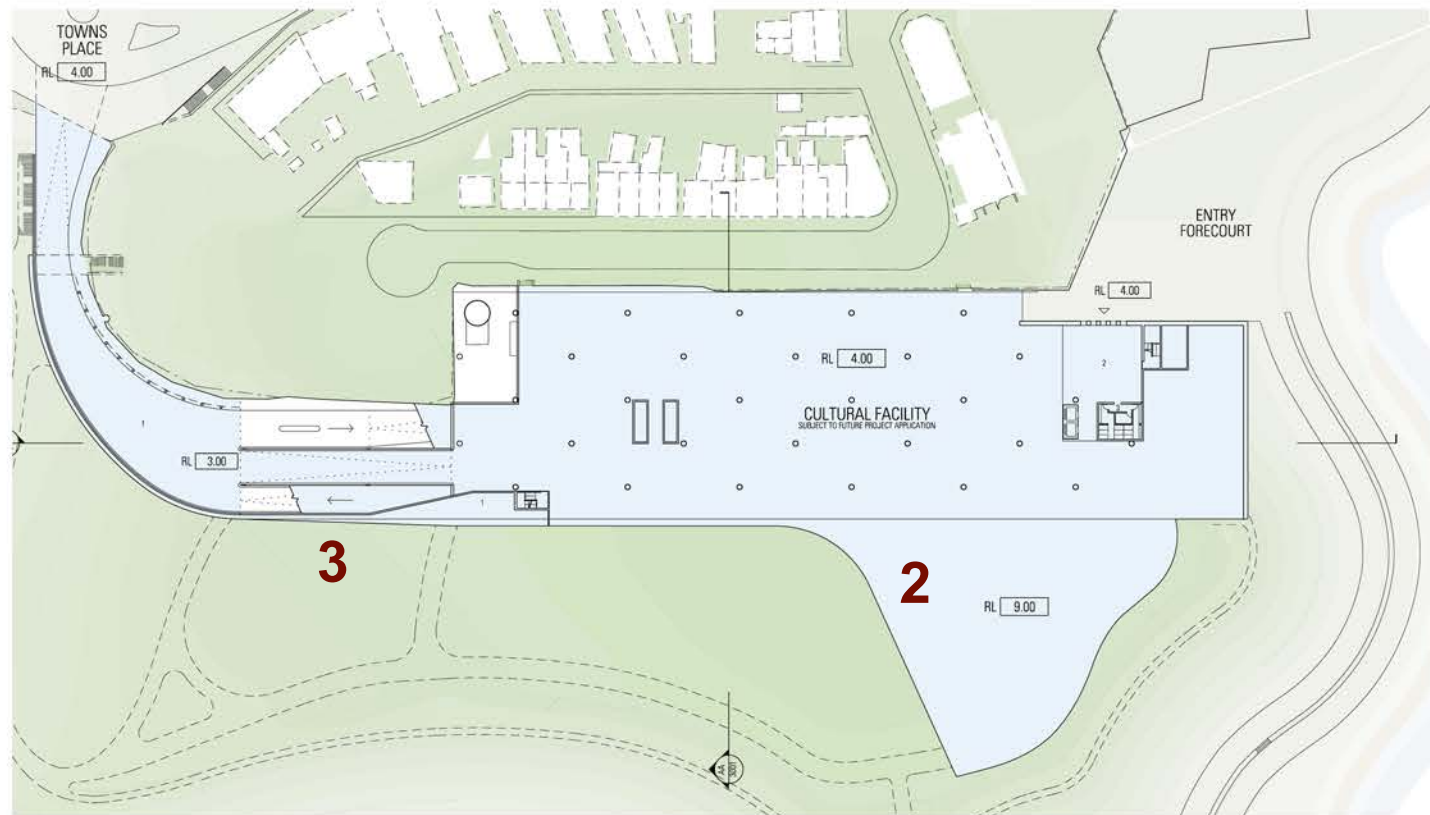
APPENDIX A

COMPARISON BETWEEN THE APPROVED PROJECT AND THE MODIFIED PROJECT

- Refer to Table 2-1
- 1(i) Various landscaping changes
- 1(ii) Moore's Wharf inlet changes
- 1(iii) Egress to Clyne Reserve
- 1(iv) Changes to Sewage Pumping Station 14
- 1(v) Third access bridge to Merriman Street
- 1(vi) Retention of historic sandsatone seawall
- 2 Cultural space entrance changes

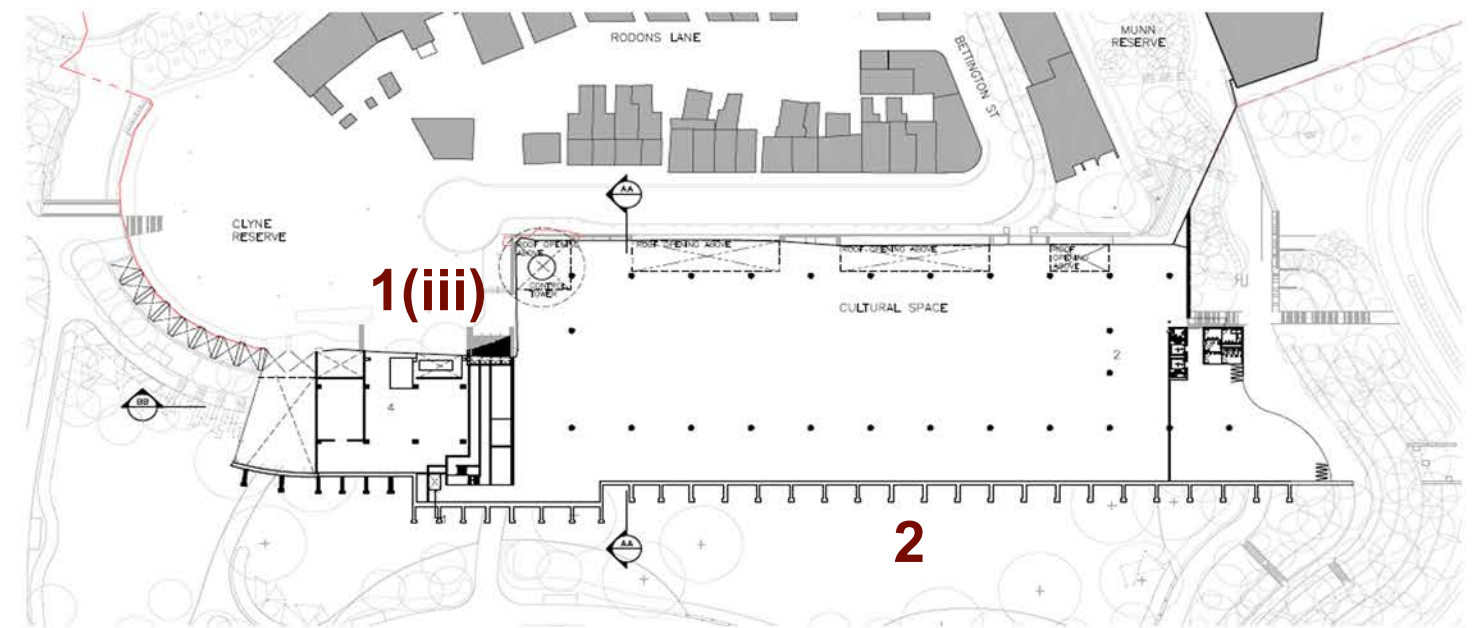
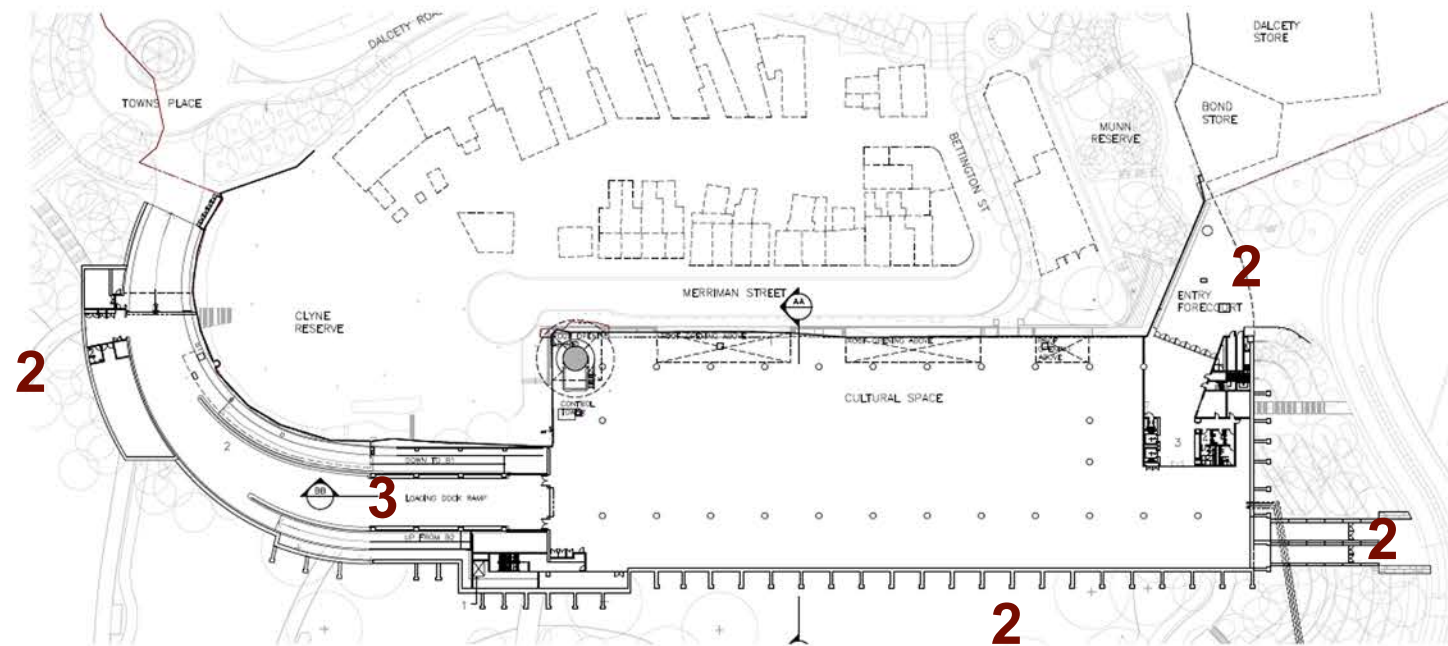


BARANGAROO HEADLAND PARK - UPDATED (S75W) SITE PLAN



ORIGINAL GROUND PLAN

ORIGINAL RL13.0 PLAN

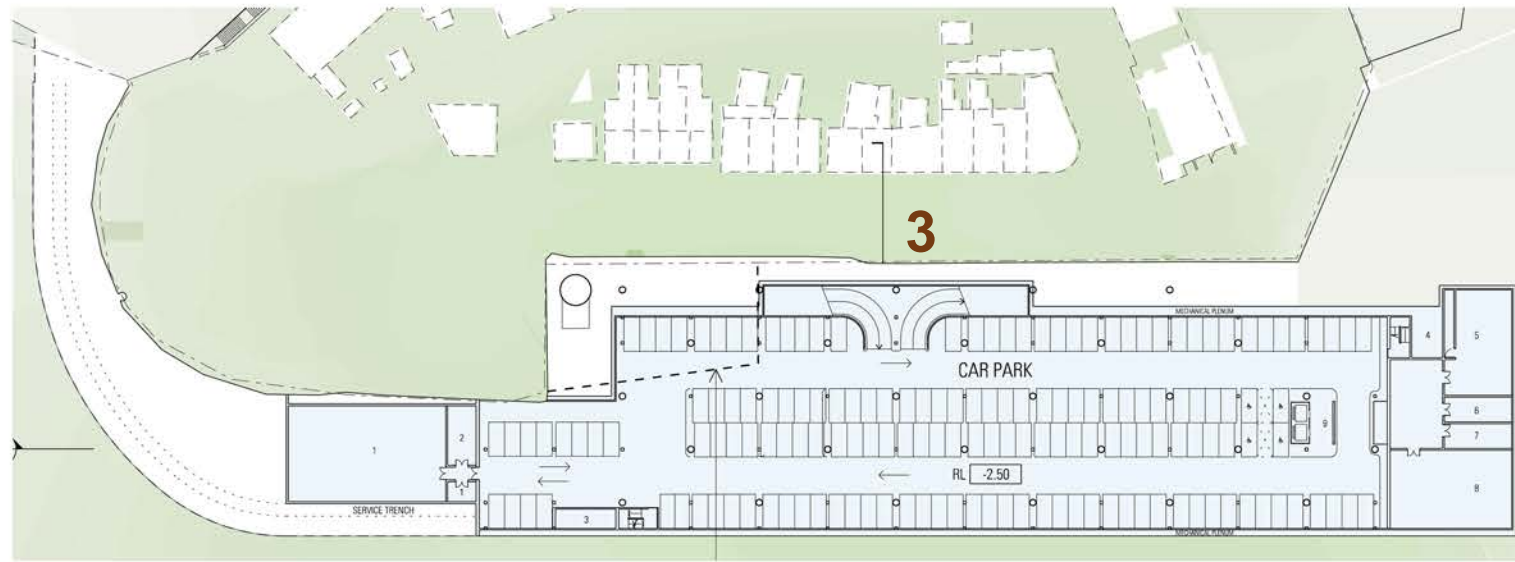


UPDATED GROUND PLAN

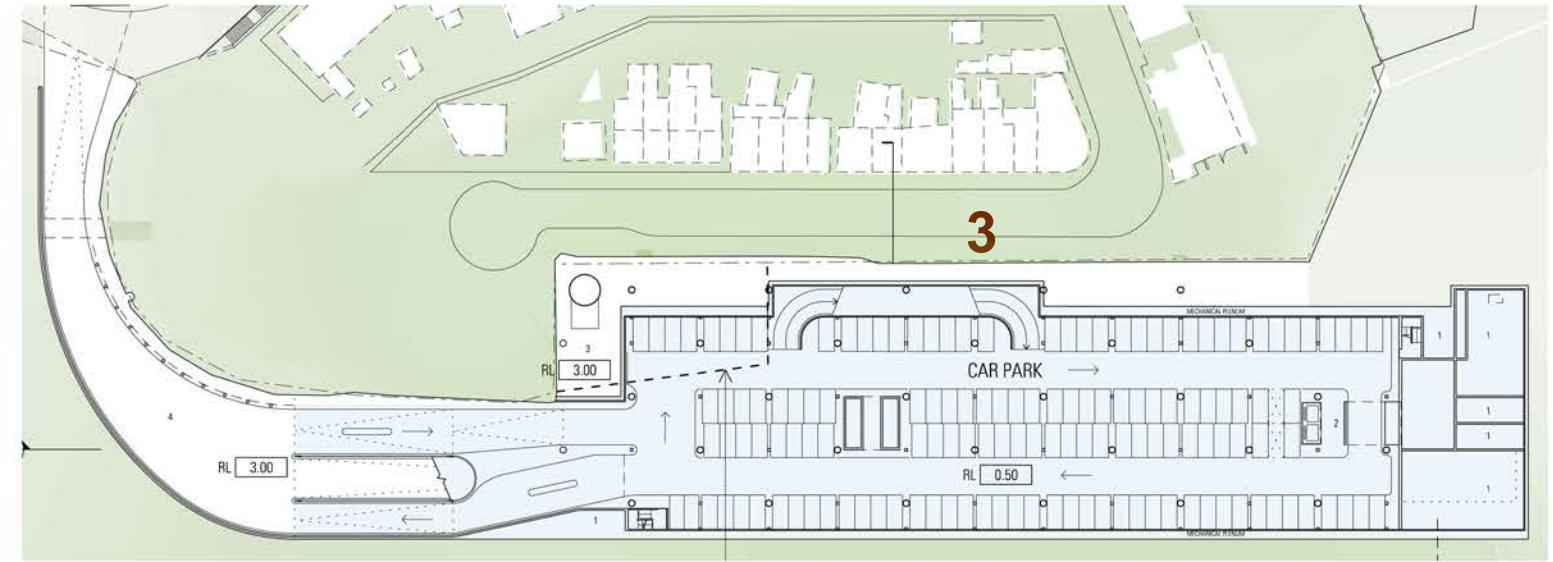
UPDATED RL13.0 PLAN

- 1(iii) Egress to Clyne Reserve
- 2 Cultural space entry and envelope changes
- 3 Changes to car park

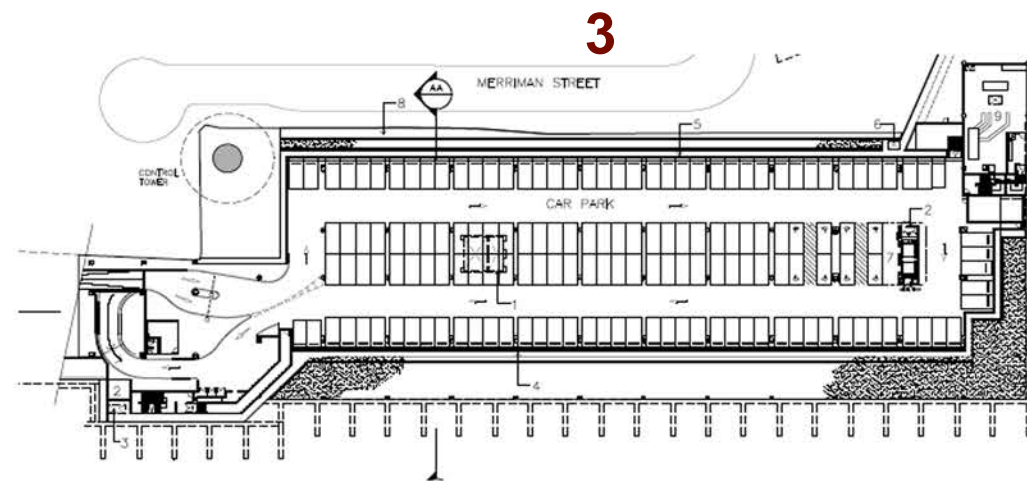
BARANGAROO HEADLAND PARK - UPPER FLOORS



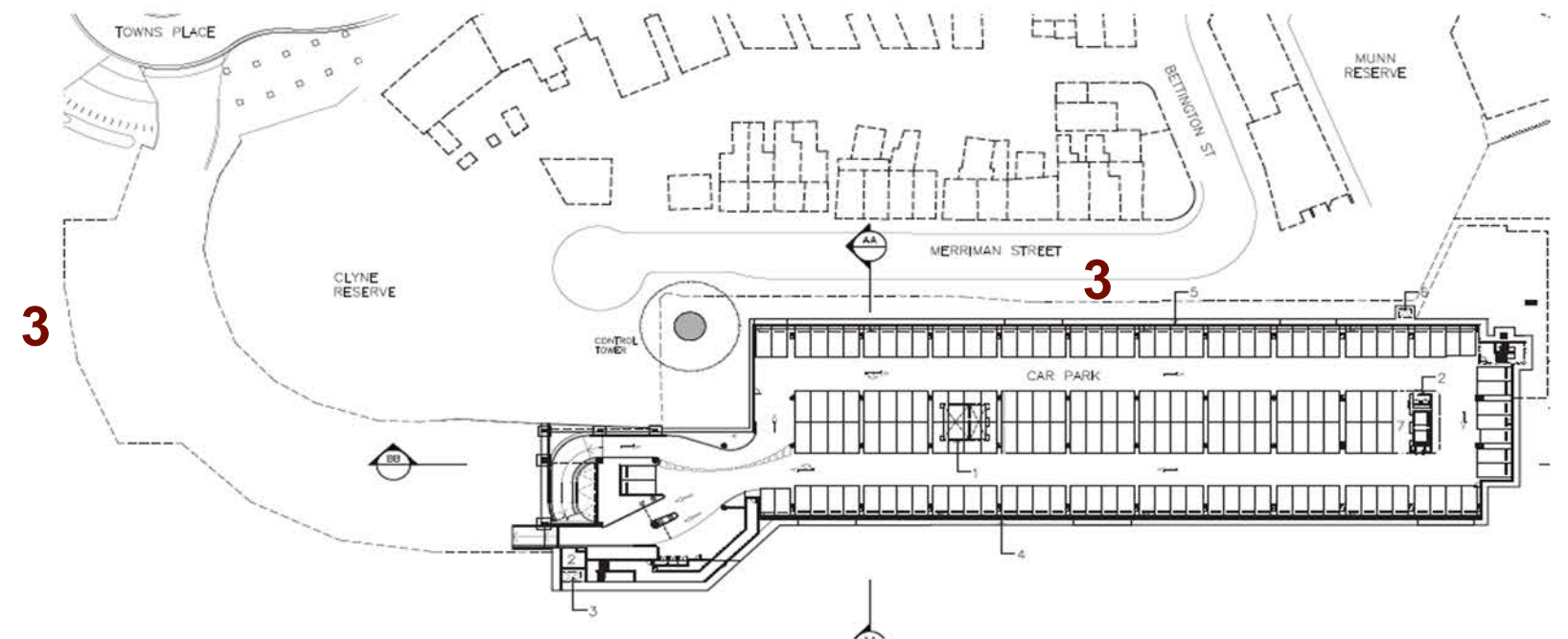
ORIGINAL LEVEL B2 PLAN



ORIGINAL LEVEL B1 PLAN



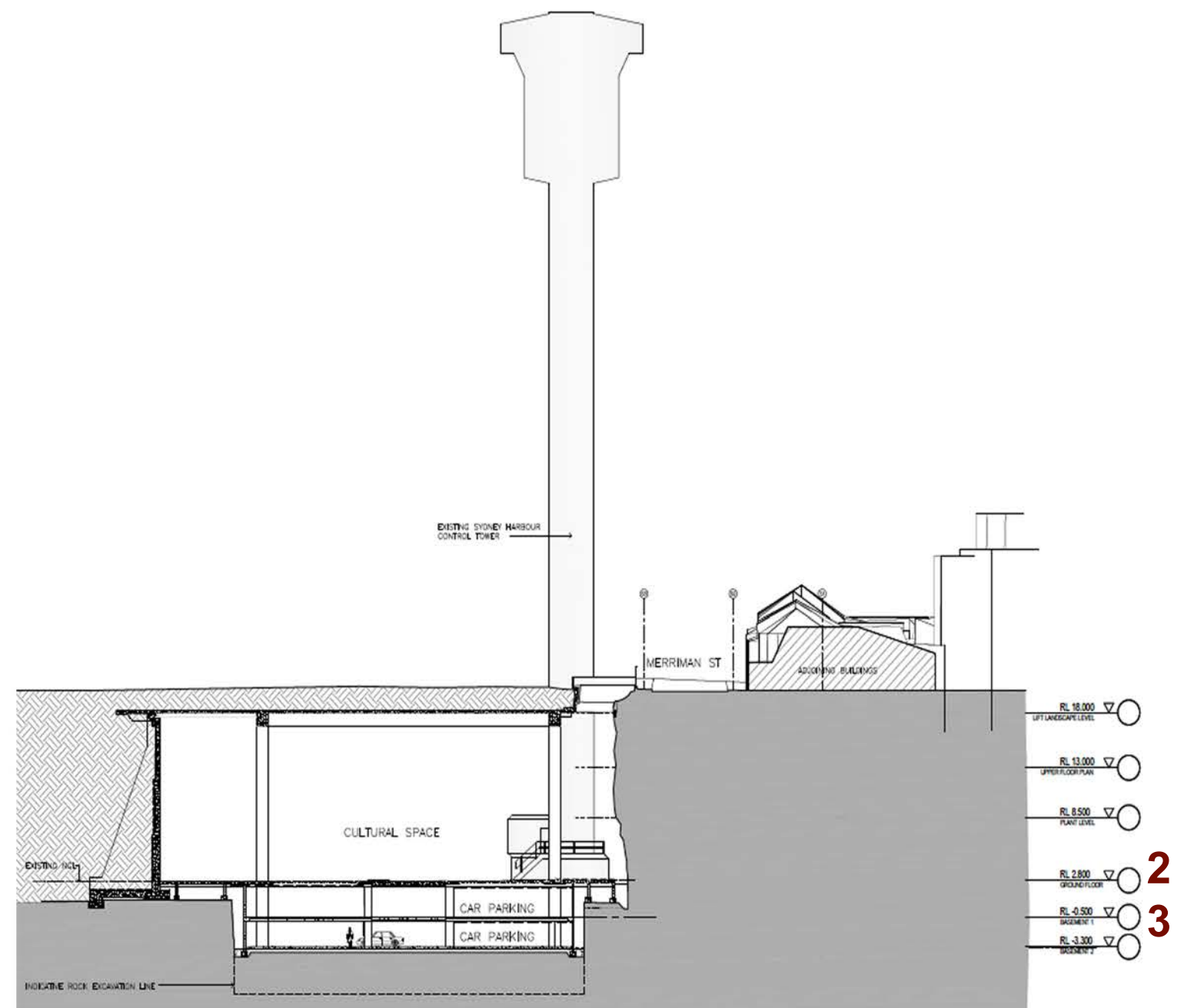
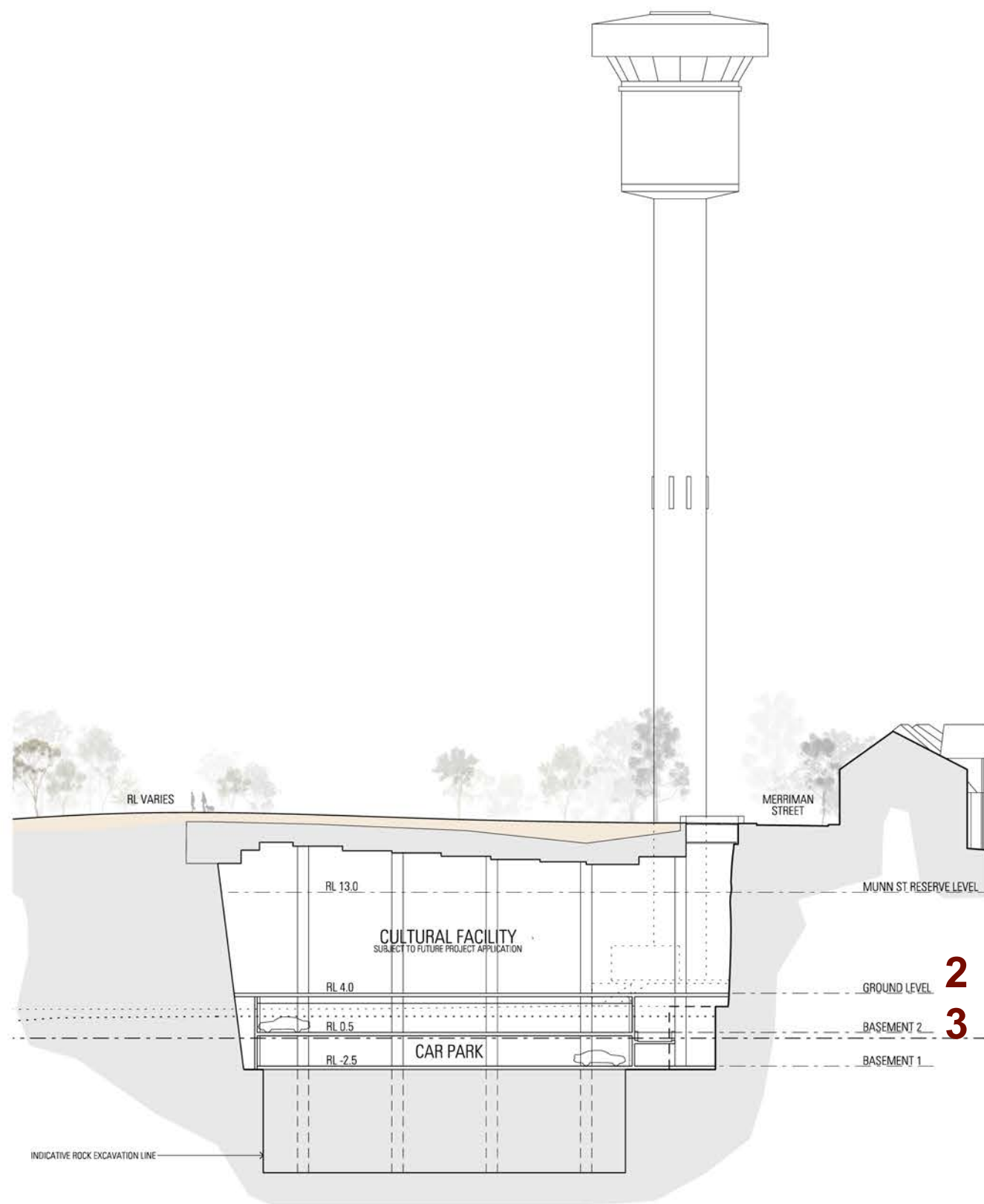
UPDATED LEVEL B2 PLAN



UPDATED LEVEL B1 PLAN

Refer to Table 2-1
3 Changes to the car park

BARANGAROO HEADLAND PARK - CARPARK COMPARISON



ORIGINAL CROSS SECTION

UPDATED CROSS SECTION

Refer to Table 2-1

2 Change to cultural space ground level

3 change to car park levels

BARANGAROO HEADLAND PARK - SECTION

Environmental Assessment Report

Barangaroo Headland Park and Northern Cove – Main Works
10_0048 Modification No.3

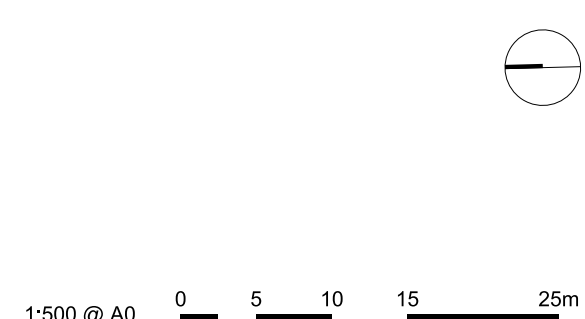
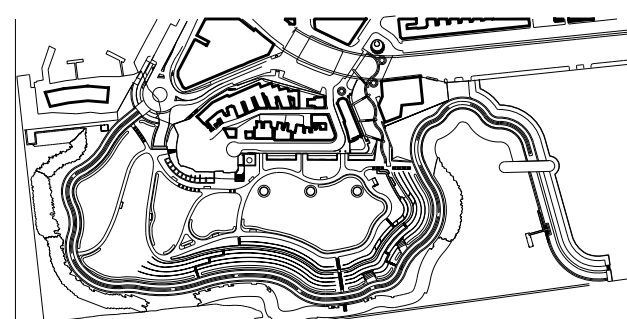
APPENDIX B

DESIGN DRAWINGS



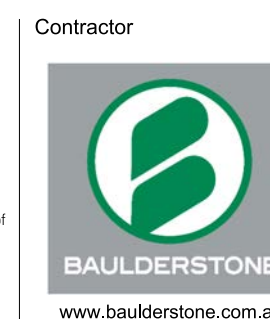
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Rev	App	Ckd	Revision or reason for issue	Date



DRAWN
AR
DESIGNED
AR
CHECKED
MR
APPROVED
AP

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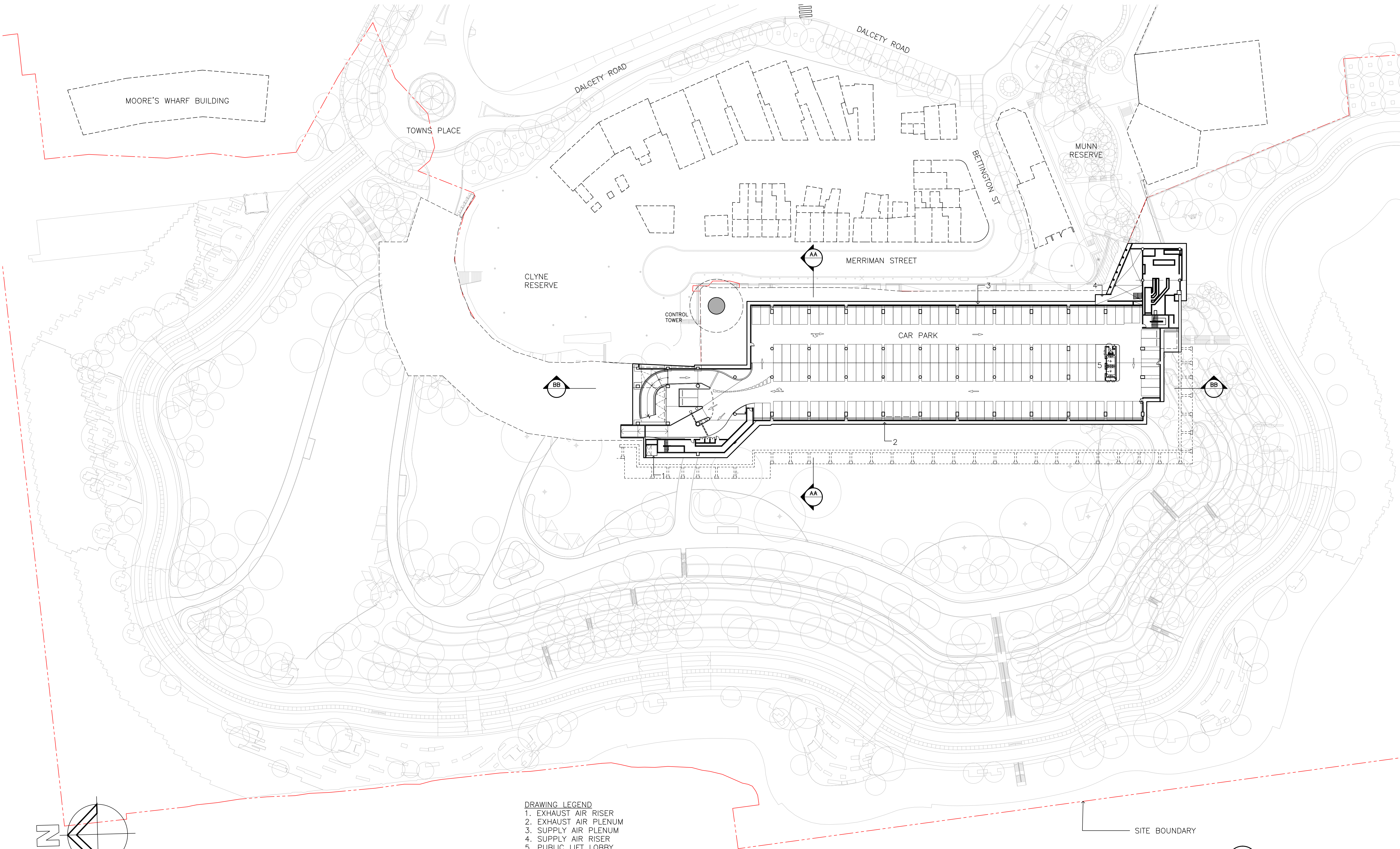


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Project Name
**BARANGAROO HEADLAND PARK
PUBLIC DOMAIN MAIN WORKS**
Barangaroo

Project Number
12020
Drawing Number
CO-JPW-L-S3-0100

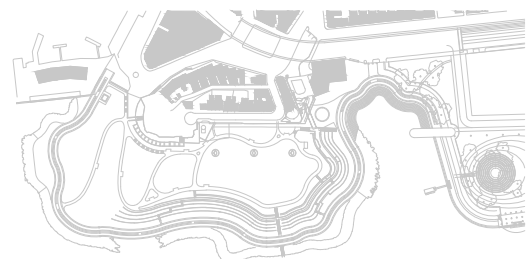
Documentation Stage
CONSTRUCTION
Revision
01



- DRAWING LEGEND
- 1. EXHAUST AIR RISER
 - 2. EXHAUST AIR PLENUM
 - 3. SUPPLY AIR PLENUM
 - 4. SUPPLY AIR RISER
 - 5. PUBLIC LIFT LOBBY

1 BASEMENT PLAN 2
1: 500 @A1/ 1:1000@A3

Rev	App	Ckd	Revision or reason for issue	Date	Rev	App	Ckd	Revision or reason for issue	Date	Scales @ A1 Original
A			UPDATED LAYOUT SHOWN	12.10.12						
B			UPDATED WITH BDA COMMENTS	19.11.12						



DRAWN GR
DESIGNED RW
CHECKED RW
APPROVED

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Facsimile: 02 9299 0402
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ABN 25 082 956 929

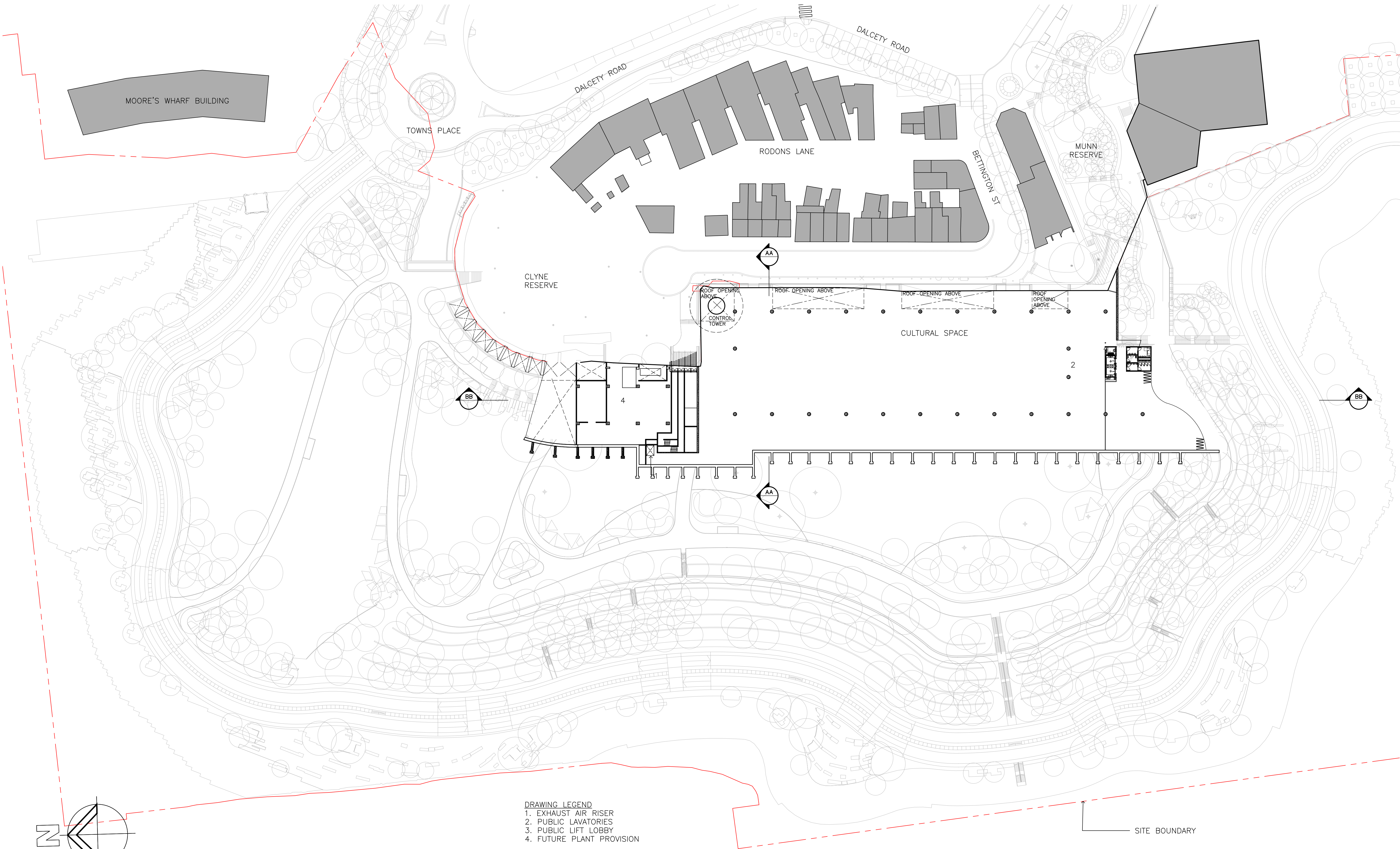
Contractor

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Facsimile: +61 2 9935 7080
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Project Name
**BARANGAROO HEADLAND PARK
PUBLIC DOMAIN MAIN WORKS**






Drawing Title
BASEMENT PLAN 2
Project Number
1244
Drawing Number
A-0001

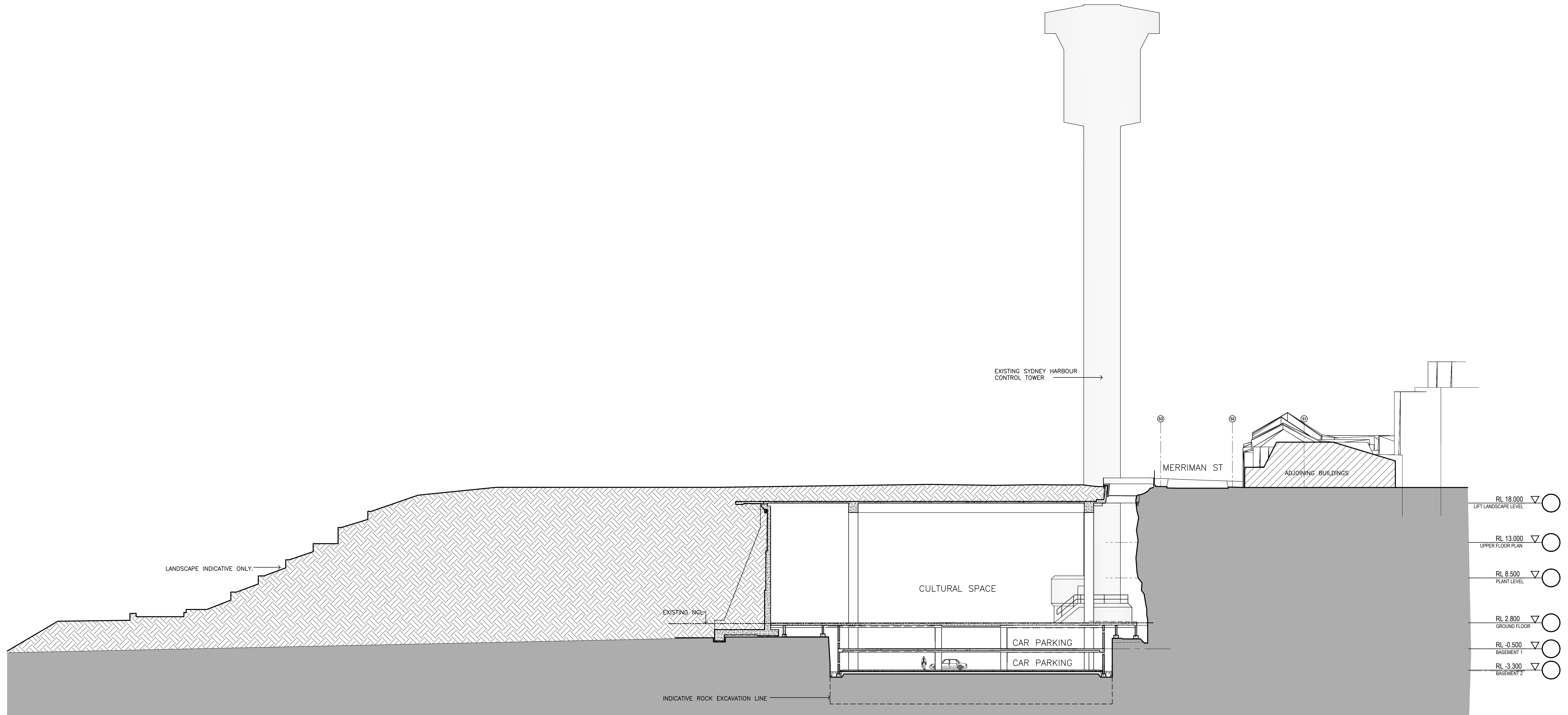
Documentation Stage
MOD 3
Revision
B



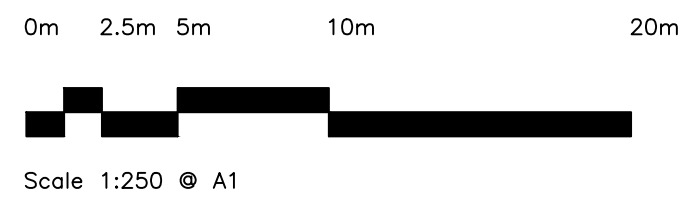
DRAWING LEGEND
1. EXHAUST AIR RISER
2. PUBLIC LAVATORIES
3. PUBLIC LIFT LOBBY
4. FUTURE PLANT PROVISION

1
-
UPPER FLOOR RL 13.000
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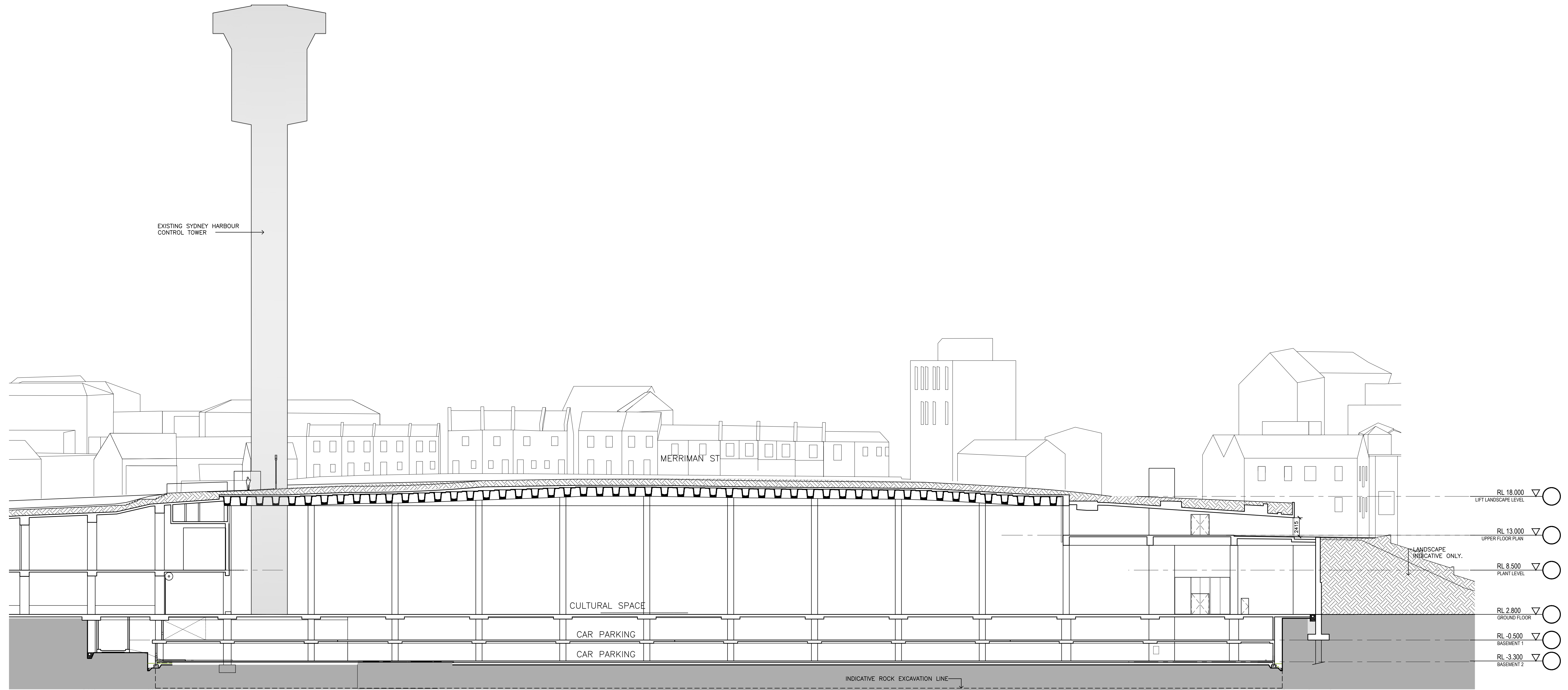
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B			UPDATED TO BDA COMMENTS	19.11.2012						Telephone: 02 9299 0401 Facsimile: 02 9299 0402 www.wmkarchitecture.com ABN 25 082 956 929			Telephone: +61 2 9935 7100 Facsimile: +61 2 9935 7080							



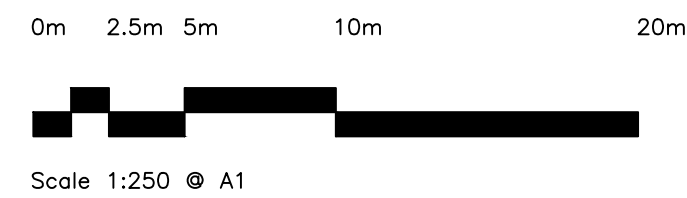
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- SECTION A-A 1: 250



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A			UPDATED LAYOUT SHOWN	12.10.2012										WMK Architecture Level 1, 346-348 Kent St Sydney NSW 2000	Boulderstone Pty Ltd Trinity Business Campus Level 4 39 Delhi Rd North Ryde NSW 2113 Australia	BARANGAROO HEADLAND PARK PUBLIC DOMAIN MAIN WORKS	SECTION A-A
B			UPDATED TO BDA COMMENTS	19.11.2012								CHECKED	CW	Telephone: 02 9299 0401 Facsimile: 02 9299 0402 www.wmkarchitecture.com ABN 25 082 956 929	 www.boulderstone.com.au	Barangaroo	Project Number 1244 Drawing Number A-0005
												APPROVED	-				Documentation Stage MOD 3 Revision B



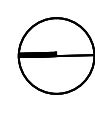
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Rev	App	Ckd	Revision or reason for issue	Date
A			UPDATED LAYOUTS SHOWN	12.10.2012
B			UPDATED TO BDA COMMENTS	19.11.2012

Rev	App	Ckd	Revision or reason for issue	Date

Scales @ A1 Original



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DESIGNED	CW
CHECKED	CW
APPROVED	-

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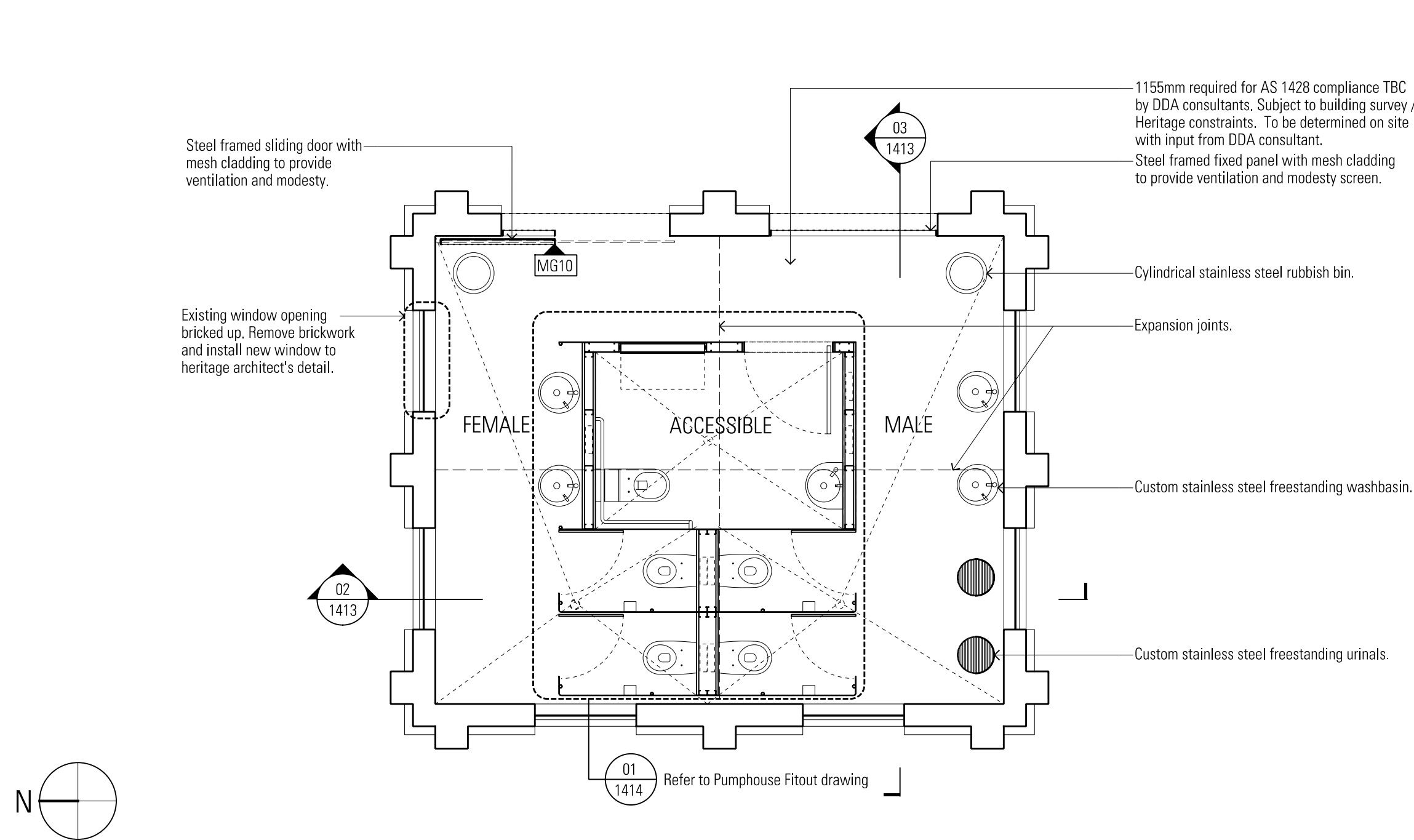
Project Name
**BARANGAROO HEADLAND PARK
PUBLIC DOMAIN MAIN WORKS**

Barangaroo

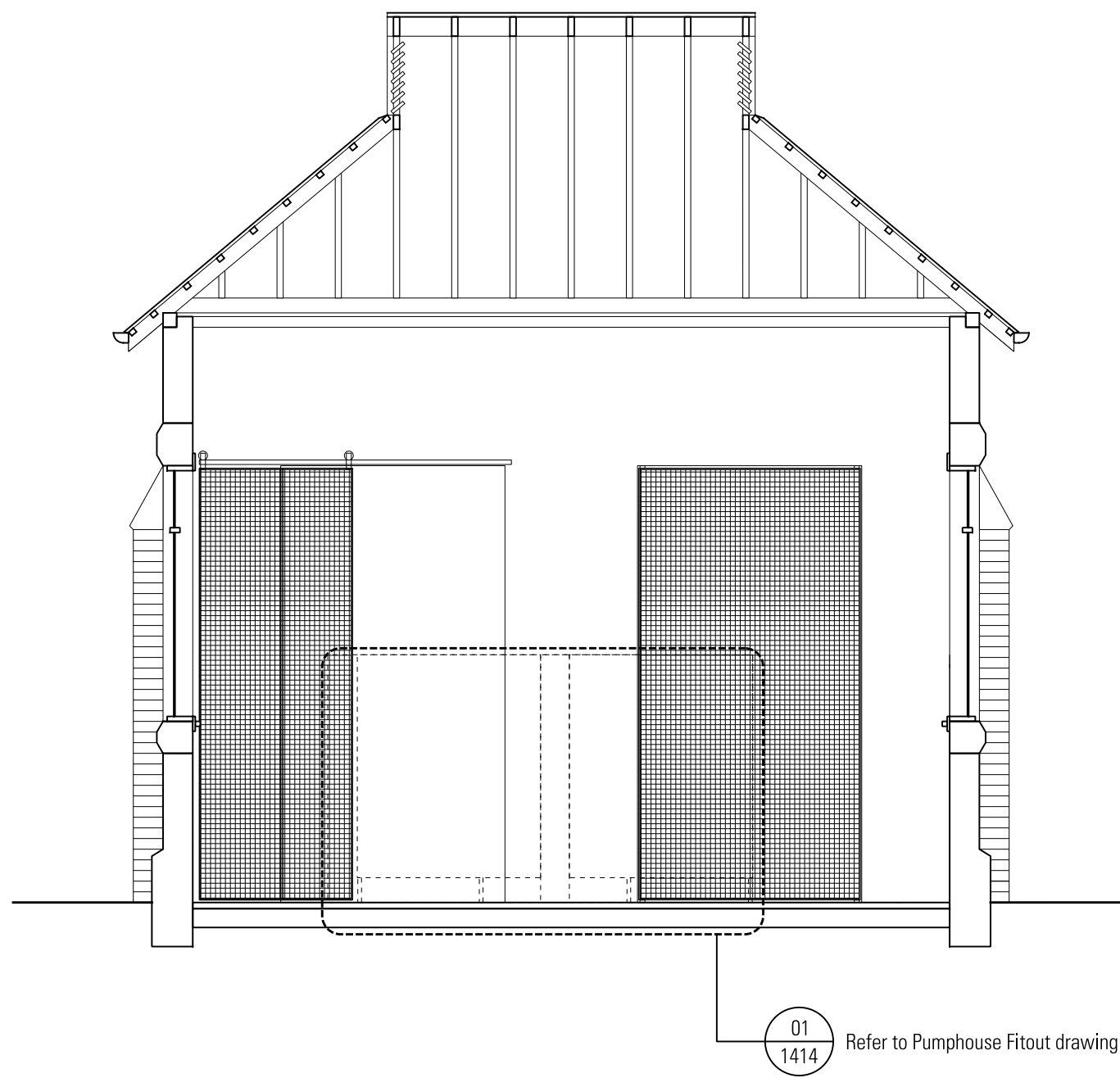
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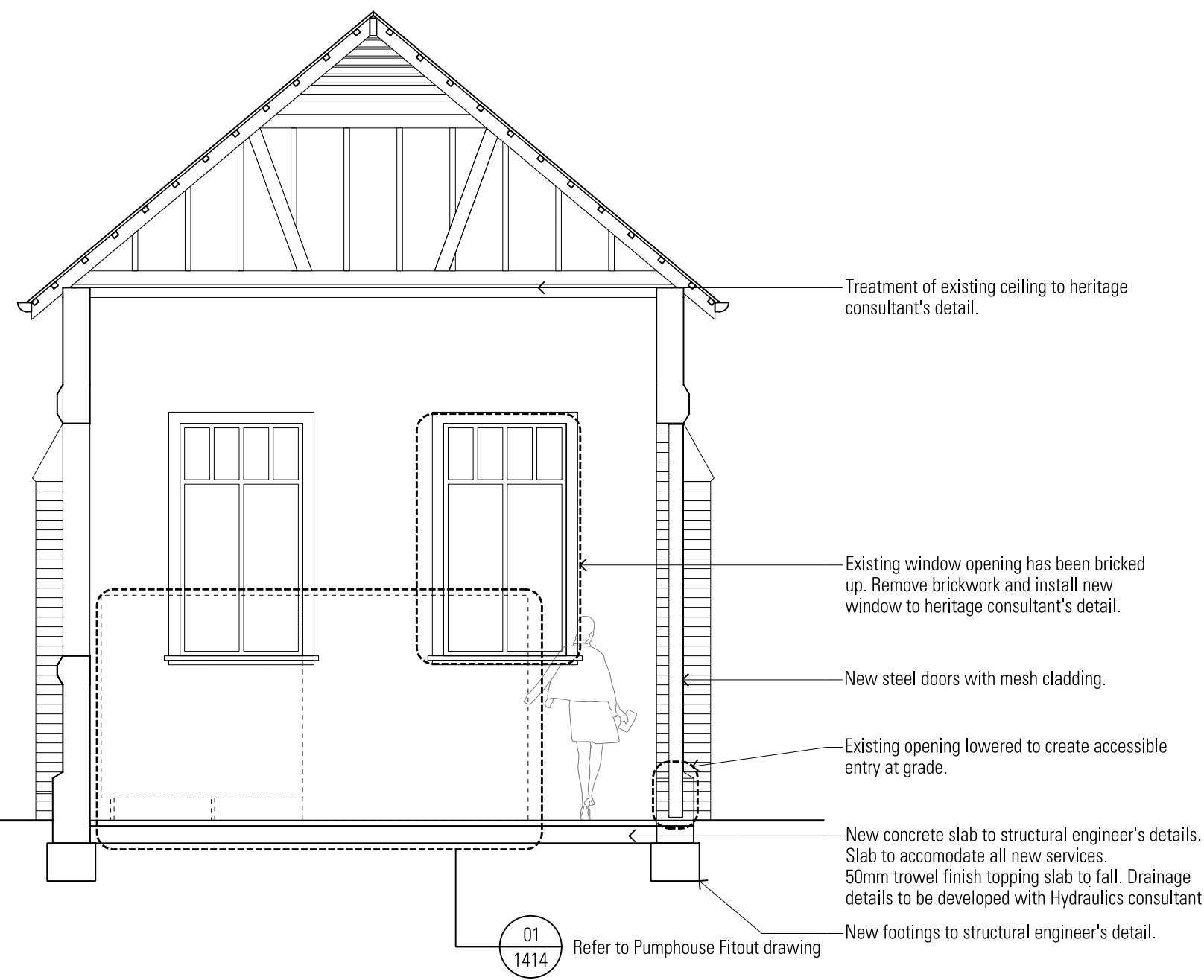
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MOD 3
Revision
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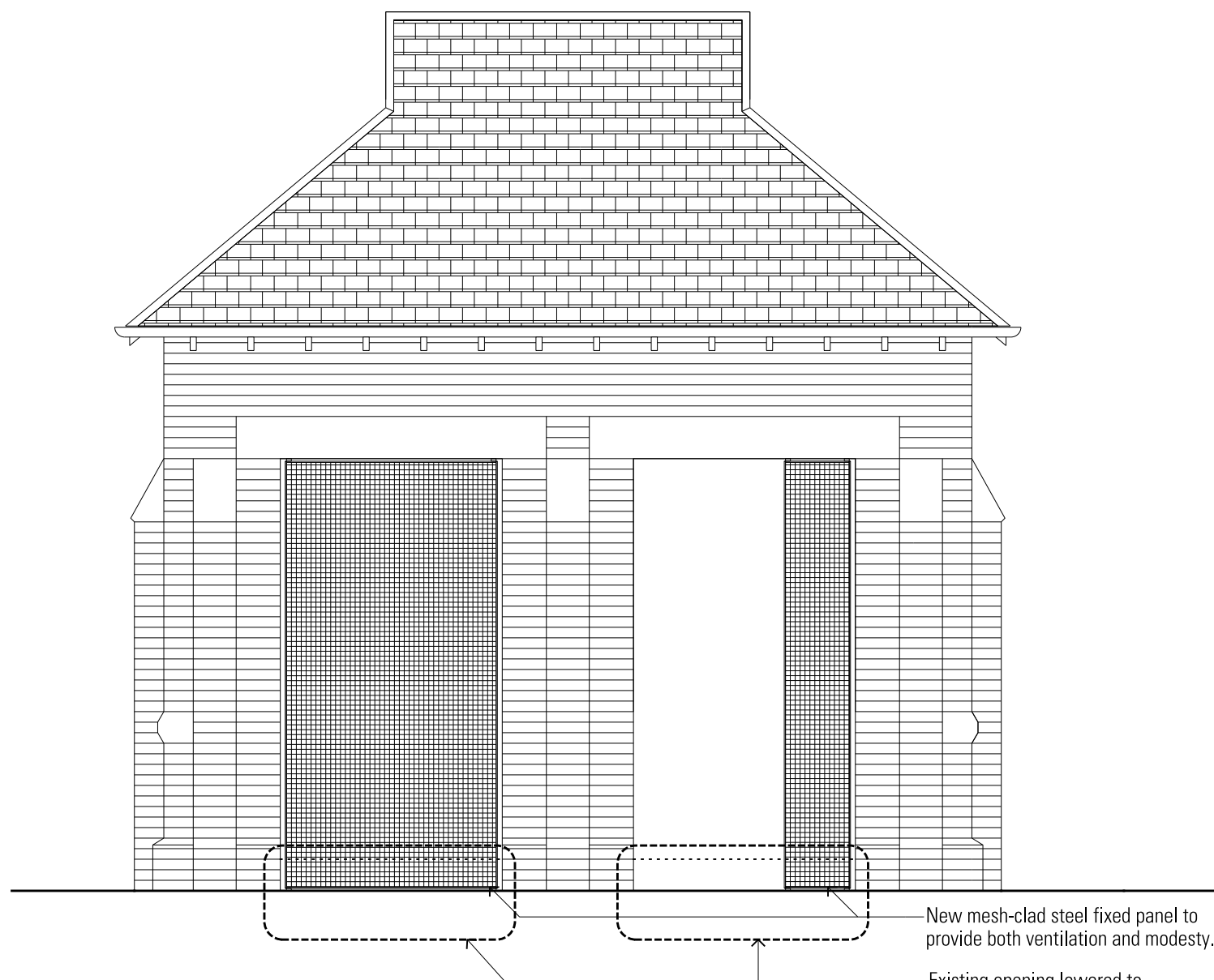
01 PUMPHOUSE PLAN
SCALE 1:50



02 NORTH-SOUTH SECTION
SCALE 1:50



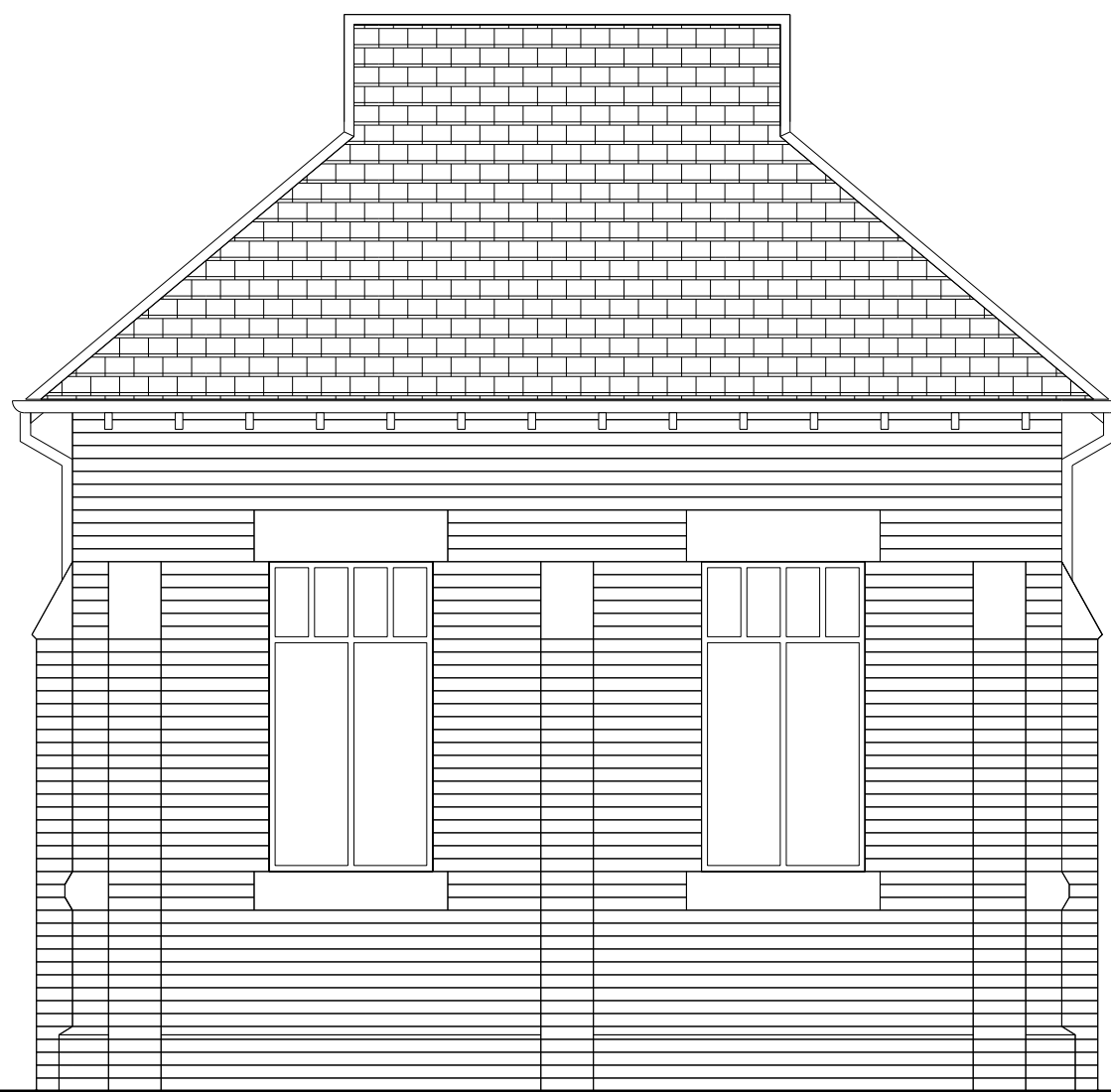
03 EAST-WEST SECTION
SCALE 1:50



04 EAST ELEVATION
SCALE 1:50



05 SOUTH ELEVATION
SCALE 1:50



06 WEST ELEVATION
SCALE 1:50



07 NORTH ELEVATION
SCALE 1:50

These drawings document building works to be undertaken after relocation from original pumphouse site to new location. It is assumed that prior to this, the pumphouse is to be fully decommissioned with all machinery, steel structure and amenities without heritage significance removed.

It is understood the method of relocation recommended by Heritage consultants and engineers is to cut the building superstructure from the concrete wells below and lift the building out in one piece for relocation.

This process of relocation will require coordination between heritage consultants, architects, engineers and landscape architects.

All details, specifications and method statement requirements for works to the heritage fabric of the building are to be developed by/with heritage consultant. Drawings approximated from existing archive drawing A1429. All dimensions to be confirmed.

General notes					Rev		App	Ckd	Revision or reason for issue	Date
1) Do not scale from drawing, use marked dimensions and levels.					A				Issued for Measurement	13.07.2011
2) Builder / contractor to verify all dimensions and coordinate services and components prior to commencement of site work or off-site fabrication and installation					B				Issued for Tender	29.07.2011
3) To be read in conjunction with all consultant's documentation					D				Issued for Tender	26.08.2011
4) The superintendent is to be immediately notified of any discrepancies.					E				Issued for Tender	16.09.2011
5) Copyright on this drawing retained by the architect / landscape architect.										
6) For wall types refer to TE-JPW-A-S3-5609, refer to structural engineers documentation										
7) Architectural drawings to be read in conjunction with landscape Drawings, typically refer to TE-JPW-I-series documentation for all information filter medium / drainage layer and above										
8) Architectural drawings to be read in conjunction with schedules and specification										
9) Waterproofing design subject to detailed development with waterproofing consultant to prevent water ingress into building, refer to waterproofing consultant specification										

1:50 @ A1 0 0.5 1 1.5 2.5m

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Project Name
**BARANGAROO HEADLAND PARK
CAR PARK & CULTURAL FACILITY SHELL**

**BARANGAROO
SYDNEY
AUSTRALIA**

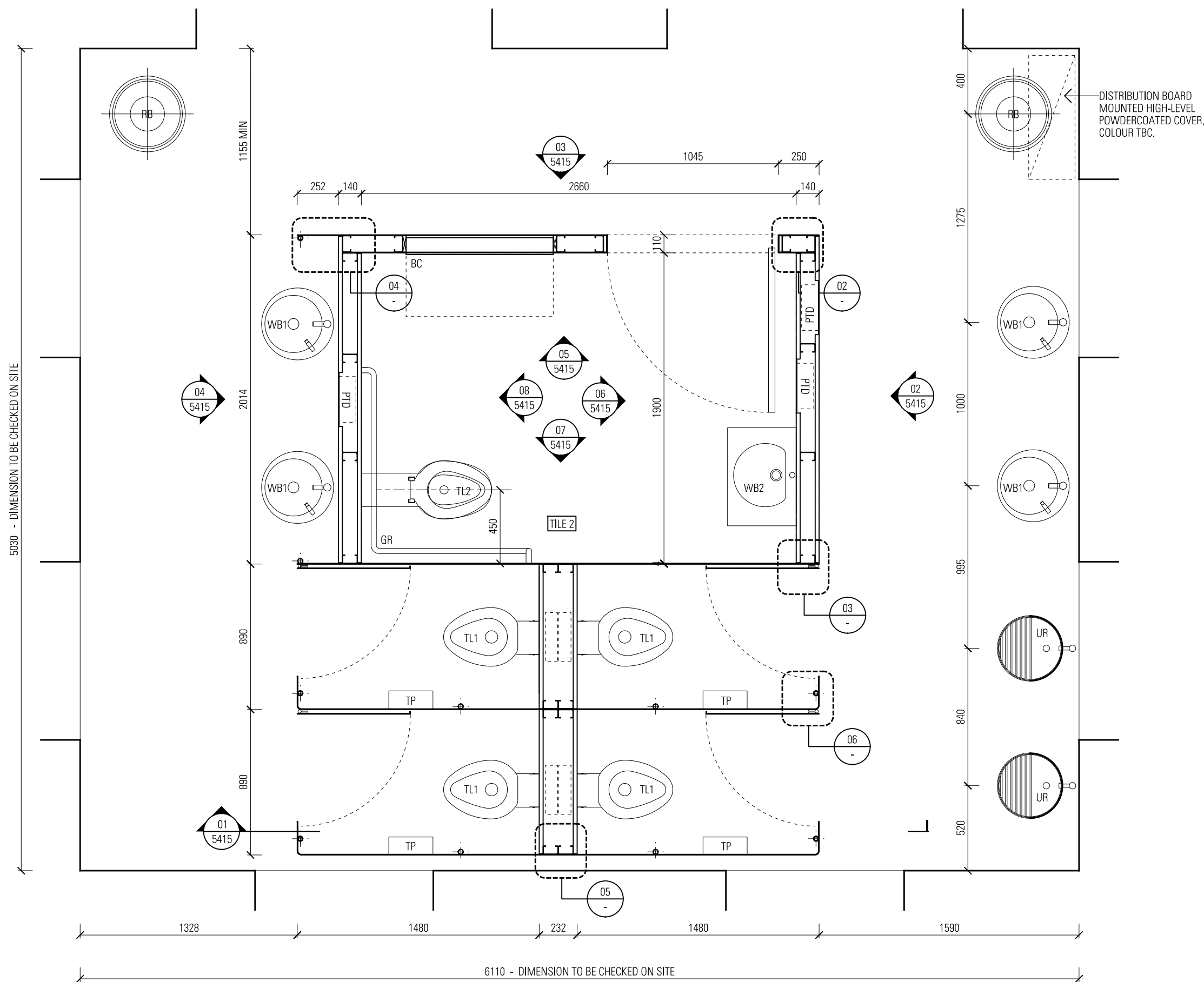
PUMPHOUSE TOILETS - MAIN BUILDING WORKS

Project Number
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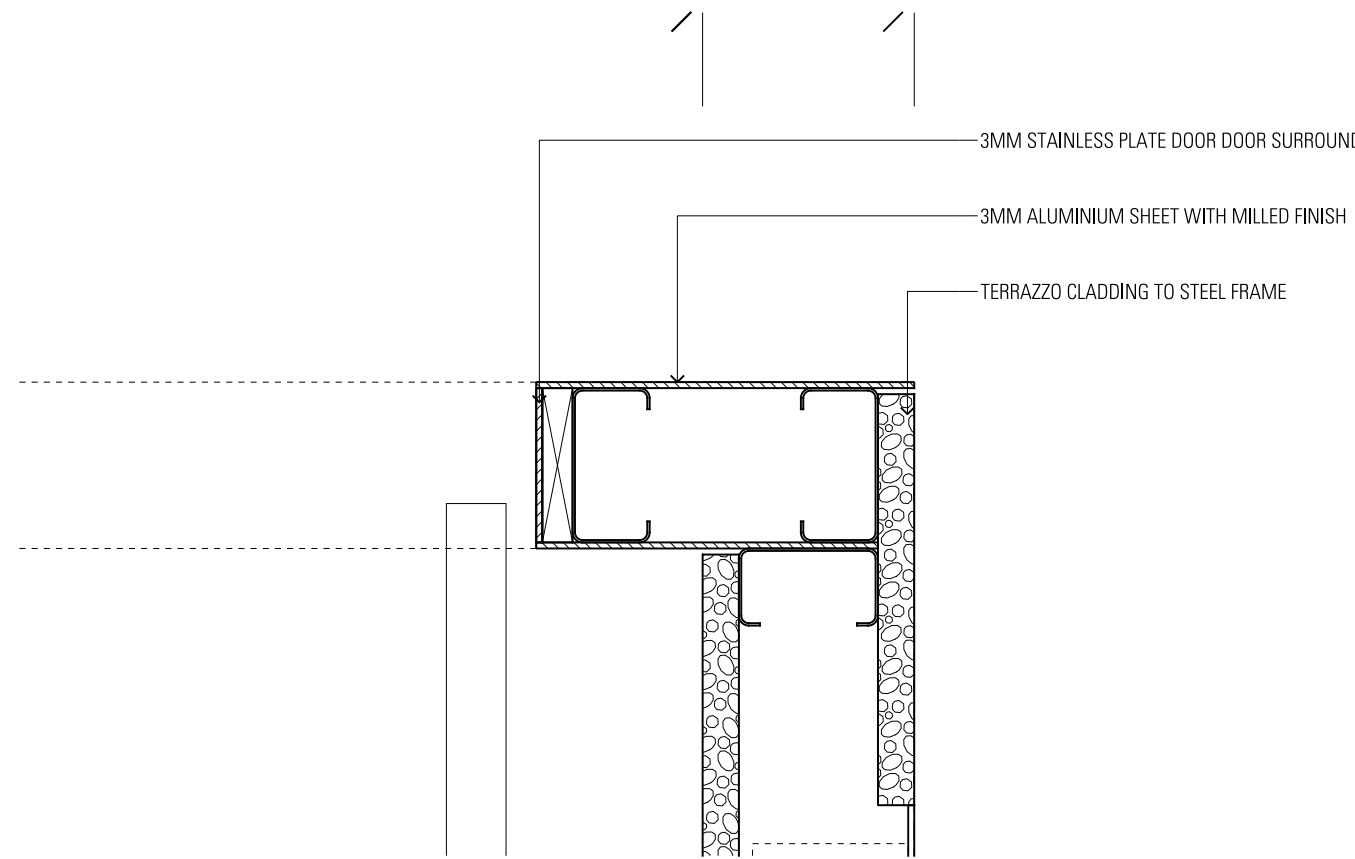
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Documentation Stage
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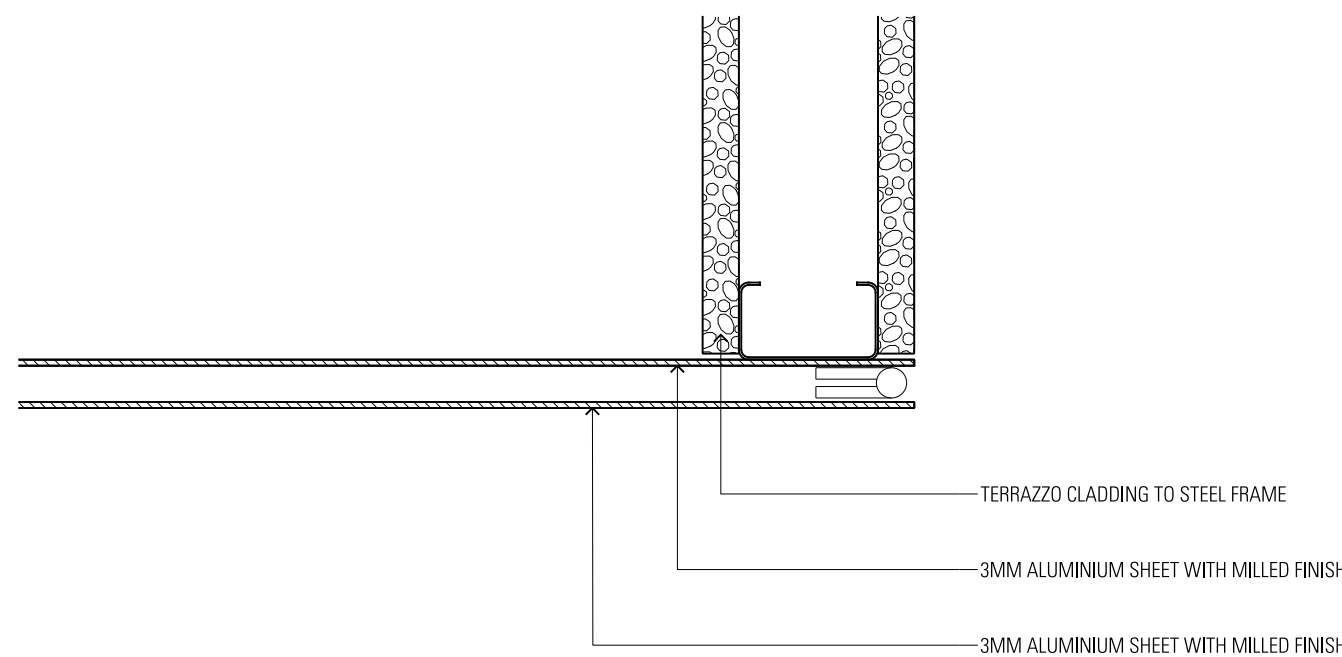
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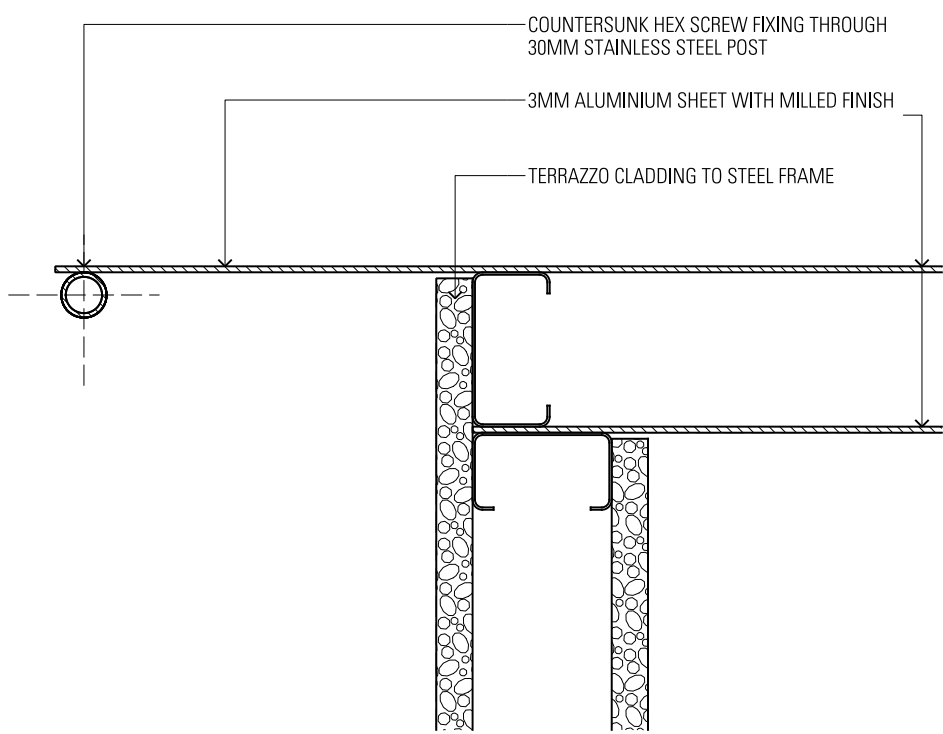
01 PLAN - FITOUT
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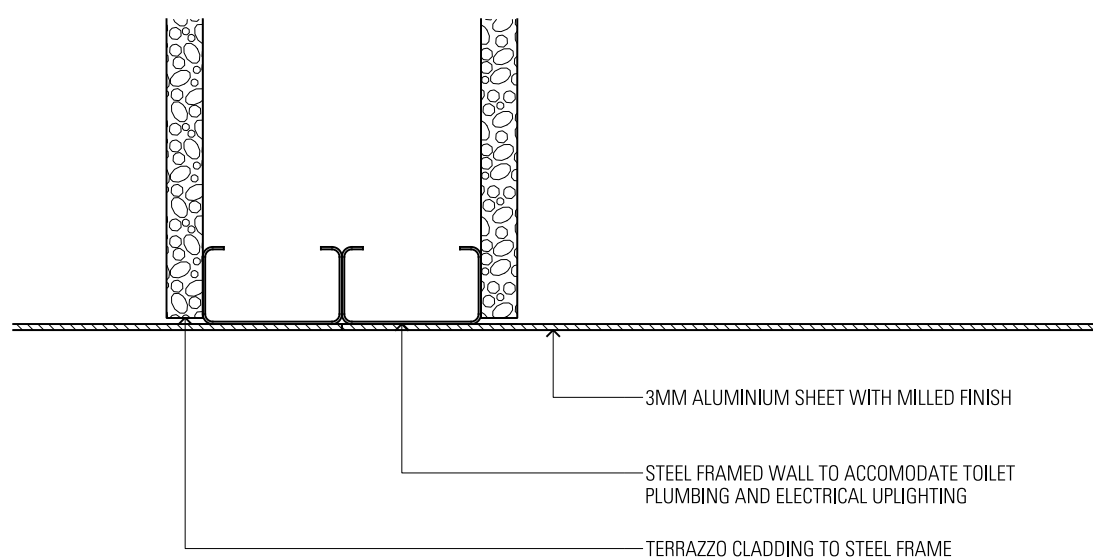
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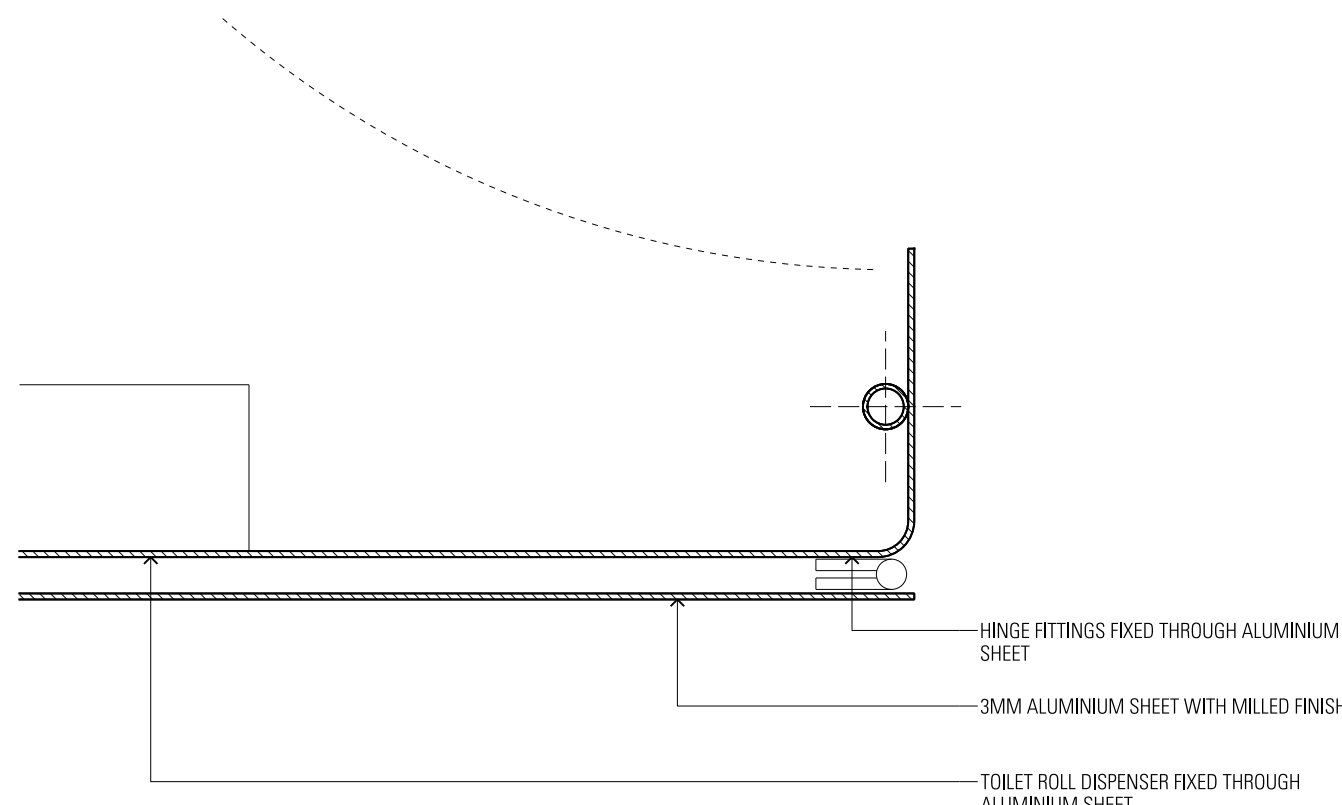
03 PLAN - DETAIL
SCALE 1:5



04 PLAN - DETAIL
SCALE 1:5



05 PLAN - DETAIL
SCALE 1:5



06 PLAN - DETAIL
SCALE 1:5

FITTINGS AND FINISHES SCHEDULE

AL	- 3MM ALUMINIUM SHEET WITH MILLED FINISH
BC	- BABY CHANGE TABLE: RBA-43110 - SS/RE
GR	- GRAB RAIL: RBA4041-910
PTD	- RBA-83844 PAPER TOWEL DISPENSER
RB	- RBA-820400 STAINLESS STEEL RUBBISH BIN
TL1	- WALL FACED WC PAN: RBA8841-100
TL2	- ACCESSIBLE S TRAP PAN: RBA8851-428
TP	- TOILET PAPER HOLDER: RBA-2383
UR	- CUSTOM FREESTANDING URINAL - REFER TO DRAWING 9/5415
WB1	- CUSTOM FREESTANDING WASHBASIN - REFER TO DRAWING 10/5415
WB2	- STAINLESS STEEL WASHBASIN: RBA8889-1
TZ	- COMPOSITE STONE PANEL: TERRAZZO MT104 - HONED

General notes
1) Do not scale from drawing, use marked dimensions and levels.
2) Builder / contractor to verify all dimensions and coordinate services and components prior to commencement of site work or off-site fabrication and installation.
3) To be read in conjunction with all consultant's documentation.
4) The superintendent is to be immediately notified of any discrepancies.
5) Copyright on this drawing retained by the architect / landscape architect.
6) For wall types refer to TE-JPW-A-S3-5609, refer to structural engineers' documentation.
7) Architectural drawings to be read in conjunction with landscape Drawings, typically refer to TE-JPW-A-series documentation for all information (filler medium / drainage layer and above).
8) Architectural drawings to be read in conjunction with schedules and specification.
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E			Issued for Tender	16.09.2011

FINISHES ABBREVIATIONS LEGEND (Refer Architectural Finishes Schedule)	
BRK	RECYCLED BRICKWORK
FC	FIBRE CEMENT SHEETING
PBD	PLASTERBOARD
GL	GLASS TYPE
BLK	CONCRETE BLOCKWORK
PTFE	POLYTETRAFLUORETHYLENE GLASS FIBRE FABRIC
PC	PRECAST CONCRETE
ACCG	ACOUSTIC CEILING
CONC	CONCRETE TYPES
EX	EXISTING

EXISTING SANDSTONE CLIFF	
EPDX	EPOXY SEALER
HDG	PREFAB GALVANISED STEEL METALWORK
GL	GLASS TYPES
MM	METAL MESH SYSTEMS
ST	STONE TYPES
PD	POWDERCOAT TYPES
ASPHLT	ASPHALT
S/S	STAINLESS STEEL
PT	PAINT TYPES

1:5 @ A1
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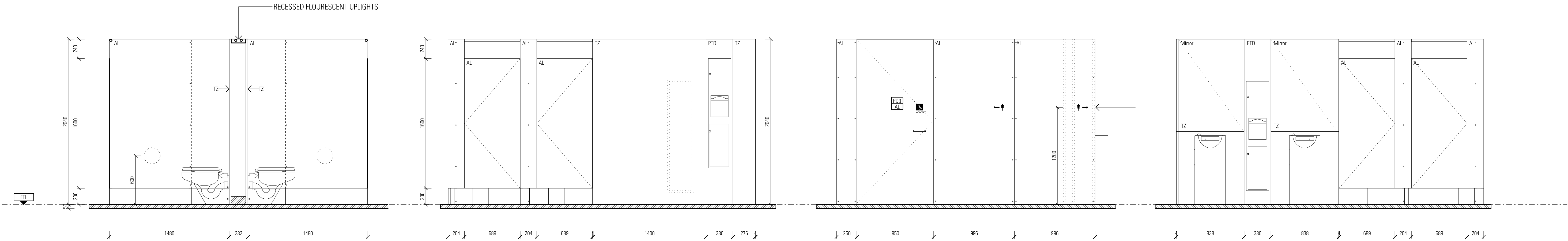
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www.jpw.com.au

Project Name
**BARANGAROO HEADLAND PARK
CAR PARK & CULTURAL FACILITY SHELL**
**BARANGAROO
SYDNEY
AUSTRALIA**

PUMPHOUSE TOILETS - FITOUT SHEET 1

Project Number
1004
Drawing Number
TE-JPW-A-S3-5414

Documentation Stage
TENDER
Revision
E

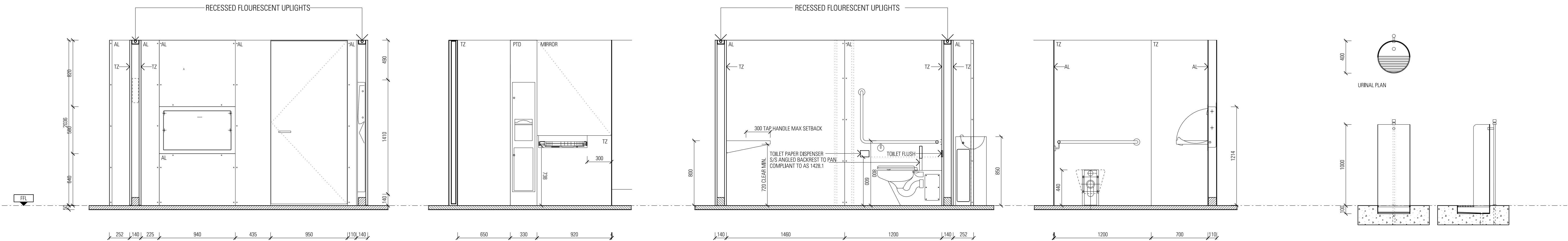


01 SECTION - FITOUT
SCALE 1:25

02 ELEVATION - FITOUT
SCALE 1:25

03 ELEVATION - FITOUT
SCALE 1:25

04 ELEVATION - FITOUT
SCALE 1:25



05 ELEVATION - ACCESSIBLE WC
SCALE 1:25

06 ELEVATION - ACCESSIBLE WC
SCALE 1:25

07 ELEVATION - ACCESSIBLE WC
SCALE 1:25

08 ELEVATION - ACCESSIBLE WC
SCALE 1:25

09 CUSTOM FREESTANDING URINAL
SCALE 1:25

FITTINGS AND FINISHES SCHEDULE

AL	- 3MM ALUMINIUM SHEET WITH MILLED FINISH
BC	- BABY CHANGE TABLE: RBA - KB110 - SSRE
GR	- GRAB RAIL: RBA401-810
PTD	- RBA-32844 PAPER TOWEL DISPENSER
RB	- RBA-82400 STAINLESS STEEL RUBBISH BIN
TL1	- WALL FACED WC PAN: RBA841-100
TZ	- ACCESSIBLE S TRAP PAN: RBA885-428
TP	- TOILET PAPER HOLDER: RBA 2890
UR	- CUSTOM FREESTANDING URINAL - REFER TO DRAWING 9/5415
WB1	- CUSTOM FREESTANDING WASHBASIN - REFER TO DRAWING 10/5415
WB2	- STAINLESS STEEL WASHBASIN: RBA888-1
TZ	- COMPOSITE STONE PANEL: TERRAZZO MT104 - HONED

FILES
DWG
RVT
PDF
3D
2D
1D
0D
0C
0B
0A
09
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06
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03
02
01
00

General notes
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FINISHES ABBREVIATIONS LEGEND (Refer Architectural Finishes Schedule)

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FC	FIBRE CEMENT SHEETING	PC	PRECAST CONCRETE
PBD	PLASTERBOARD	ACCG	ACOUSTIC CEILING
GL	GLASS TYPE	CONC	CONCRETE TYPES
BLK	CONCRETE BLOCKWORK	EX	EXISTING

EXISTING SANDSTONE CLIFF

EPDX	EPoxy SEALER	HDC	PREFAB GALVANISED STEEL METALWORK
TILE	TILE TYPE	GL	GLASS TYPES
ASPHLT	ASPHALT	MM	METAL MESH SYSTEMS
S/S	STAINLESS STEEL	ST	STONE TYPES
PT	PAINT TYPES	PO	POWDERCOAT TYPES

1:25 @ A1
0 0.25 0.5 0.75 1.25m

Project Landscape Architect and Architect
PWP Landscape Architecture
739 Allston Way, Berkeley, California 94710, USA
Telephone +1 510 849 9494 Facsimile +1 510 849 9333
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Project Name
**BARANGAROO HEADLAND PARK
CAR PARK & CULTURAL FACILITY SHELL**
**BARANGAROO
SYDNEY
AUSTRALIA**

PUMPHOUSE TOILETS - FITOUT SHEET 2
Project Number
1004
Drawing Number
TE-JPW-A-S3-5415
Documentation Stage
TENDER
Revision
E

Environmental Assessment Report

Barangaroo Headland Park and Northern Cove – Main Works
10_0048 Modification No.3

APPENDIX C

DIRECTOR-GENERAL'S REQUIREMENTS

Environmental Assessment Report

Barangaroo Headland Park and Northern Cove – Main Works
10_0048 Modification No.3

Requirement	Where addressed
1. Relevant EPI's, Policies and Guidelines	
Demonstrate that the application will comply with the requirements set out in the following provisions:	
<ul style="list-style-type: none"> Clauses 8 and 9 of Part 12 (Barangaroo site) of Schedule 3 to State Environmental Planning Policy (Major Development) 2005. 	Section 3.3
<ul style="list-style-type: none"> Address the relevant statutory provisions applying to the site contained in the relevant EPIs, including: <ul style="list-style-type: none"> State Environmental Planning Policy (State and Regional Development) 2011; State Environmental Planning Policy (Major Development) 2005; State Environmental Planning Policy No 55- Remediation of Land; and Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005. 	Section 3.3
<ul style="list-style-type: none"> Demonstrate that the project is consistent with NSW 2021, Metropolitan Plan for Sydney 2036 and the draft Sydney City Subregional Strategy. 	Section 3.2
<ul style="list-style-type: none"> Demonstrate consistency with the terms of approval of Concept Plan MP06_0162 (as modified). 	Section 3.4
2. Concept Plan	Section 3.4
The modification application shall demonstrate consistency with the terms of approval of Concept Plan MP06_0162 (as amended) and justify any areas of inconsistency.	
3. Urban Design and Public Domain	Section 5.1
<ul style="list-style-type: none"> A revised Public Domain Plan is to be prepared for the Headland Park and Northern Cove, which is to address: <ul style="list-style-type: none"> all planning, accessibility and design issues related to the connectivity of the Headland Park to its surrounding environment, including integration of walking and cycling connections within and to the site; heritage conservation and adaptive reuse as part of the urban and landscape design, including management and interpretation; and compliance with the Disability Discrimination Act. 	Section 5.2 Section 5.8 Landscape Design (Appendix B)
4. Landscape Design	Section 5.2
<ul style="list-style-type: none"> The modification shall to demonstrate that the final landform shape of the Headland. Park has been determined by relevant design principles, rather than an engineering/fill driven outcome. Such principles may include: <ul style="list-style-type: none"> finished levels on the eastern edge of Headland Park should align with, and not exceed, the levels of adjacent streets and public domain; views over the Headland Park are to be maintained, particularly from adjacent streets and public open spaces; level grade access into the Headland Park is to be maximised; the gradient is to be designed to maximise accessibility and the gradient transition from central parkland to Headland Park is to provide accessible walking and cycle paths, and grading should create a variety of topographic experiences, including maximising useable passive recreation spaces; any structures within the Headland Park (including a possible cultural facility) are to integrate with the landscape design of the public domain to maximise opportunities for activation of the surrounding parkland; and accessible paths to all public/cultural facilities within the Headland Park are to be provided from the central parkland. Detailed documentation of the proposed grading and finished levels is to be provided with the modification application, including detailed spot levels and 	Landscape Design (Appendix B)

Environmental Assessment Report

Barangaroo Headland Park and Northern Cove – Main Works
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Requirement	Where addressed
multiple sections through the site particularly relating to useable spaces and access points.	
6. Traffic Management and Accessibility Impacts	Section 5.4
<ul style="list-style-type: none"> Assess the likely impacts from the new works proposed on the eastern boundary of the site on surrounding areas -and residents during the construction, demolition and excavation phases. This assessment should outline whether the modification will result in any cumulative impacts associated with other construction activities on the Barangaroo site in addition to those already assessed under the original project approval. 	
7. Air and Odour	Section 5.5
<ul style="list-style-type: none"> The modification application must include an Air Quality Impact Assessment, including: <ul style="list-style-type: none"> Identifying whether the application will cause additional air quality impacts beyond those assessed under the original project application; and proposed air quality management and monitoring procedures during construction, particularly in relation to the proposed works along the eastern boundary of the site. 	
8. Soil and Water	Section 5.6
<ul style="list-style-type: none"> The modification application should: <ul style="list-style-type: none"> Identify whether the modification will result on any additional impacts on surface and groundwater hydrology and quality beyond those approved under the project application; Identify whether the modification will result on any additional impacts on marine vegetation and aquatic ecology beyond those approved under the project application; Identify whether the modification will require changes to the approved stormwater management strategies during construction; Identify whether the modification will result in any impacts on estuarine circulation, estuarine water quality and aquatic ecology of land formation works (including impacts on aquatic vegetation from direct smothering and any changes that may result from altered hydrological regimes of surrounding waters and bays) beyond those assessed under the original project application. Any modification of estuarine foreshores (including the incorporation of measures to improve the habitat value of newly created waters (such as environmentally friendly seawalls) should consider <i>Environmentally Friendly Seawalls - A Guide to Improving the Environmental Value of Seawalls and Seawall-lined Foreshores in Estuaries</i> (DECC, 2009); and Confirm that the discharge of stormwater or other water will comply with the relevant water quality objectives and environmental values for Sydney Harbour estuarine waters, see: http://www.environment.nsw.gov.au/ieo/index.htm for NSW Water Quality Objectives; and refer to related <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality</i> (2000): http://www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality. 	
9. Noise Impacts	Section 5.7
<ul style="list-style-type: none"> The modification should include an assessment of the noise and vibration impacts associated with the works along the eastern boundary of the site. All feasible and reasonable noise impact mitigation measures should be implemented. The assessment should be prepared in accordance with the NSW government's <i>Interim Construction Noise Guideline, Industrial Noise Policy and Application Notes, Environmental Criteria for Road Traffic Noise and Assessing Vibration: A Technical Guide</i>, as appropriate, available at http://www.environment.nsw.gov.au/noise/. 	

Environmental Assessment Report

Barangaroo Headland Park and Northern Cove – Main Works
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Requirement	Where addressed
10. Heritage An assessment of the likely impacts of the proposal on heritage and archaeological items and proposed conservation - including the MWS&DB Sewage Pumping Station, existing sandstone seawall and Sydney Harbour Control Tower – and mitigation measures.	Section 5.8
11 . Consultation Undertake an appropriate and justified level of consultation in accordance with the Department's <i>Major Project Community Consultation Guidelines</i> October 2007.	Section 4.1 Section 4.2

Environmental Assessment Report

Barangaroo Headland Park and Northern Cove – Main Works
10_0048 Modification No.3

APPENDIX D

LETTER OF ADVICE – AIR QUALITY

JBS41961-52296

5 November 2012

ATT: Michael Seibel
Systems Manager
Boulderstone
T1, Level 3, 39 Delhi Road
North Ryde, NSW 2113
(via email: mseibel@boulderstone.com.au)

**Air Quality Management Plan and Air Quality and Health Impact Assessment
Barangaroo Headland Park**

Dear Mr Seibel,

JBS Environmental Pty Ltd (JBS) has been recently engaged by Boulderstone to prepare *Air Quality and Health Impact Assessment Main Works – Headland Park, Barangaroo Headland Park and Northern Cove, Hickson Road, Sydney, NSW revision D*, JBS Environmental, August 2012 (JBS 2012a). JBS has also recently assisted Boulderstone in the completion of *Air Quality Management Plan Barangaroo Headland Park*, Boulderstone, 2012 (Boulderstone 2012a). JBS has previously prepared *Air Quality and Health Impact Assessment Early Works – Headland Park Barangaroo Delivery Authority Barangaroo Headland Park and Northern Cove Hickson Road, Sydney, NSW, revision I*, JBS Environmental, May 2011 (JBS 2011a) for the Barangaroo Delivery Authority. JBS has previously issued advice as per *Air Quality Management Plan and Air Quality and Health Impact Assessment Barangaroo Headland Park*, JBS Environmental, 3rd September 2012 (JBS 2012b) for the purposes of revising the management requirements of JBS (2011a), as documented in Boulderstone (2012), on the basis of a proposed alteration in the assessment of fill material received at the site.

Boulderstone has recently issued Environmental Assessment Report Approval Modification No. 3 Barangaroo Headland Park Public Domain, Boulderstone, October 2012 (Boulderstone 2012b). Boulderstone (2012b) reports a number of minor modifications to the proposed works at the Barangaroo Headland Park. Boulderstone has requested JBS to assess the advice provided in JBS (2012a and 2012b) and the proposed management of air quality impacts in Boulderstone (2012a) as to the modified works in Boulderstone (2012b).

JBS considers that the proposed modified works will have no significant impact on the air quality impacts reported in JBS (2012a). There is no evidence that the proposed 'rates' of handling of materials will differ with the modifications to the works. The rates of material handling are the most important factor in the estimation of air emissions and associated impacts. The types of activities that will potentially generate air emissions are unchanged. The scope of air quality controls identified in JBS (2012a and 2012b) are considered to remain sufficient.

The most significant component of air quality management is considered to be the reactive management strategy as detailed in Boulderstone (2012a). By its nature, the reactive management strategy is able to adapt environmental monitoring and implementation of air quality controls to differing air emission scenarios on the site. To this extent, Boulderstone (2012a) does not require revision for the proposed modifications reported in Boulderstone (2012b).

Should you have any queries or require further clarification, please feel free to contact me on 8338 1011 or by email mparkinson@jbsgroup.com.au.

Prepared by:



Matthew Parkinson
Environmental Consultant
JBS Environmental Pty Ltd

Attachments: (1) Limitations

Attachment 1 – Limitations

This report has been prepared for use by the client who commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties. The report has been prepared specifically for the client for the purposes of the commission, including use by the Site Auditor acting as an agent of the client in this respect. No warranties, express or implied, are offered to any third parties and no liability will be accepted for use or interpretation of this report by any third party.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS Environmental Pty Ltd.

Limited sampling and laboratory analyses were undertaken as part of the investigations reviewed, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS Environmental Pty Ltd reserves the right to review the report in the context of the additional information.

Environmental Assessment Report

Barangaroo Headland Park and Northern Cove – Main Works
10_0048 Modification No.3

APPENDIX E

LETTER OF ADVICE – SOIL AND WATER QUALITY

Our ref: 00035597_Lt 2

19 November 2012

Boulderstone Pty Ltd
Gate 5A
Hickson Road
Millers Point NSW 2000

Email only: PGallart@boulderstone.com.au

Attn: Mr. Peter Gallart
Building NSW/ACT Design Manager

Dear Peter,

Re: Main Works Management Protocols for Barangaroo Headland Park Modifications

As part of the continuing design development of Barangaroo Headland Park, WSP Environmental Pty Ltd (WSP) has been commissioned by Boulderstone to:

- Review a recent modification application to be made under Section 75W of the Environmental Planning & Assessment Act 1979 (EP&A Act); and
- Provide an opinion as to whether the proposed modifications would alter the terms of the Approval in relation to Management Protocols – Soil and Water (Section 8 of the Director General's Requirements).

Reviewed Information

As part of providing this advice, WSP has reviewed relevant information from the following:

- Environmental Assessment Report Approval Modification No. 3, Barangaroo Headland Park Public Domain (the 'Modification Report').
- WSP (October 2010) Soil and Water Report to Support the Environmental Assessment for Headland Park (prepared for Barangaroo Delivery Authority).

The WSP 2010 Soil and Water Report was prepared to comply with Condition B23 of Approval No. 10_0045.

Background

On 3 March 2011 the then Minister for Planning approved the Barangaroo Headland Park and Northern Cove – Main Works (Approval No. 10_0048) under Part 3A of the EP&A Act (now repealed).

As part of the continuing design development, some changes to the original Approval are proposed, which are the subject of a modification application, and may require changes to the conditions of the Approval. The changes are summarised as (taken from the Modification Report):

- Changes to the interface with Moores Wharf.
- Minor changes to landscaping across the site.
- Additional facilities egress from the cultural space.
- Minor changes to cultural space and car park – configuration and levels.
- Changes to the cultural space southern entry.
- Retention of the historic sea wall on the northwest edge of the site.

Details of Proposed Modifications

Section 2 of the Modification Report tabulates descriptions and the corresponding reason for each of the 11 modifications. These have been reproduced below, along with WSP's opinion as to whether these are considered to result in change in the Management Protocols – Soil and Water as described in the Soil and Water Report.

Ref	Description*	Reason*	WSP Opinion
1	Changes to the inlet near Moore's Wharf. It is now proposed that one full caisson unit beyond the Moore's Wharf boundary be retained. In place of the piled concrete wall along the boundary, a 1 in 3 slope with sandstone blocks stepping down in to the water is now proposed.	The design was changed in response to stakeholder concerns regarding the proximity of the vertical piled wall to the site and in particular the potential for vibration and movement during construction, which could affect the heritage listed sandstone building. There was also some concern regarding the proposed removal of the caissons along the northern edge of the site.	Proposed modification is not considered to change requirements in Management Protocols – described in the Soil and Water Report.
2	Changes to the position and orientation of the relocated Sewage Pumping Station (SPS0014). Fit out of the pumping station building for use as an amenities block.	A consequence of the changes in the vicinity of Moores Wharf	Proposed modification is not considered to change requirements in Management Protocols – described in the Soil and Water Report.
3	Landscaping changes in the vicinity of the northern entrance from Towns Place. This includes minor realignment of the entrance path, minor changes to steps and the addition of a planting edge to the Clyne Reserve access.	Design development. Consistency with proposed integration works in Towns Place.	Proposed modification is not considered to change requirements in Management Protocols – described in the Soil and Water Report.
4	Minor changes to the upper path and steps to foreshore. This includes a minor change to the upper path near its northern intersection with the bush walk and the removal of one staircase group between the upper path and the foreshore path.	Design development.	Proposed modification is not considered to change requirements in Management Protocols – described in the Soil and Water Report.
5	Addition of an emergency egress to Clyne Reserve.	Compliance with building code.	Proposed modification is not considered to change requirements in Management Protocols – described in the Soil and Water Report.
6	Addition of a third walkway bridge to Merriman Street.	This change is a consequence of the proposed Super T roof design for the cultural space. The previously proposed linear open space adjacent Merriman Street is segmented by the revised roof design, affording an opportunity to more closely integrate Headland Park with the adjacent area.	Proposed modification is not considered to change requirements in Management Protocols – described in the Soil and Water Report.
7	Minor realignment to the west of the main southern stairs. New southern egress from the cultural space. Changes to the cultural space southern entry. In effect a land bridge rather than a recognisable bridge structure	Design development. The new southern egress is required to address building code requirements.	Proposed modification is not considered to change requirements in Management Protocols – described in the Soil and Water Report.

	and consequential changes to plantings in the southern entry forecourt.		
8	<p>Various changes to the cultural space and car park. These include:</p> <ul style="list-style-type: none"> Modified car park internal circulation. This includes egress via basement level 2 and the positioning of ramps between levels at the northern end of the car park. Segmentation of the linear skylight near Merriman Street as a consequence of the Super T roof design. Removal of light wells. Changes to the position of building services: adjacent to cultural facility vehicle access ramp. 	Design development.	Proposed modification is not considered to change requirements in Management Protocols – described in the Soil and Water Report.
9	<p>Confirmation of cultural space envelope. Inclusion of reinforced concrete buttress retaining wall for the western edge of cultural space as opposed to a structural earth retaining wall.</p>	Design development. Confirms details that were left open in the Environmental Assessment. The current design is generally within the building envelope presented in the approval drawings. The volume would be within the 75,000 to 100,000 cubic metre volume range contemplated by the Environmental Assessment.	Proposed modification is not considered to change requirements in Management Protocols – described in the Soil and Water Report.
10	Retention of the historic sea wall on the western edge of the headland.	Opportunity to retain available	Proposed modification is not considered to change requirements in Management Protocols – described in the Soil and Water Report.
11	<p>Changes to Reduced Levels (RLs):</p> <ul style="list-style-type: none"> Basement 2: Approval RL -2.500; Proposed RL -3.200. Basement 1: Approval RL 0.500; Proposed RL -0.500. Ground: Approval RL 4.00; Proposed RL 2.800. Cultural Facility: Approval RL 13.000; Proposed RL 13.000 	Design development.	Proposed modification is not considered to change requirements in Management Protocols – described in the Soil and Water Report.

* Taken from Table 2.1 of Modification Report

Conclusions and Recommendations

WSP considers that the proposed modifications from the original Main Works Approval for Barangaroo Headland Park (Approval No. 10_0045) are unlikely to result in substantial alterations in the surface or groundwater hydrology or quality, marine ecology or marine vegetation. As such, the Management Protocols provided in Section 3 of WSP (2010) Soil and Water Report remain applicable in relation to the proposed modifications.

We trust that we have interpreted your requirements correctly. If you have any queries or wish to discuss any points in greater detail, please do not hesitate to contact us.

Yours sincerely



Silja Kuerzinger
Senior Environmental Consultant



Peter Moore
Principal Engineer

Limitations

WSP has relied on the information presented in third-party reports that did not include targeted sampling or analysis in any of the areas relating to the proposed changes as described in the Modification Report.

The conclusions herein are the professional opinion of WSP personnel who conducted the review. There are data gaps associated with relaying on third-party investigations. WSP assumes no responsibility or liability for these and data gaps or any situations outside the scope of works of providing an opinion on soil and water management requirements resulting from the proposed modification for Barangaroo Headland Park.

Environmental Assessment Report

Barangaroo Headland Park and Northern Cove – Main Works
10_0048 Modification No.3

APPENDIX F

LETTER OF ADVICE - NOISE

15 November 2012

WM Project Number: 12213
Our Ref: 12213 Ltr 151112bc.doc
Email: pgallart@boulderstone.com.au

Peter Gallart
Boulderstone
Level 3, 39 Delhi Road
NORTH RYDE 2113 NSW

Dear Peter

**Re: Barangaroo Headland Park
Public Domain- Construction Noise and Vibration Assessment.
Approval Modification No 3**

Wilkinson Murray Pty Limited was engaged by Boulderstone Pty Limited to assess noise and vibration associated with Waterfront Promenade and Interim Public Domain excavation and construction works within Barangaroo Central Site. The following Construction Noise and Vibration Assessment was prepared for the site.

- BARANGAROO HEADLAND PARK-CONSTRUCTION NOISE AND VIBRATION ASSESSMENT REPORT NO. 12213 - VERSION C - AUGUST 2012

Further to the above assessments it is noted that Approval modification Number 3 is to be submitted for the project. In summary the following design changes are proposed:

- Changes to the interface with Moores Wharf.
- Minor changes to landscaping across the site.
- Additional facilities egress from the cultural space.
- Minor changes to cultural space and car park – configuration and levels.
- Changes to the cultural space southern entry.
- Retention of the historic sea wall on the northwest edge of the site.

These modifications to the construction have been reviewed with respect to the assessment detailed in the above report noted above and it has been determined that these changes will not affect the predictions, findings or recommendations of the assessment.



Therefore the assessment is applicable and relevant to the project application which includes the Approval modification Number 3.

I trust this information is sufficient. Please contact us if you have any further queries.

Yours faithfully

WILKINSON MURRAY

A handwritten signature in cursive script that reads "Brian Clarke". The signature is written in a dark ink and is positioned below the company name.

Brian Clarke
Senior Associate

Environmental Assessment Report

Barangaroo Headland Park and Northern Cove – Main Works
10_0048 Modification No.3

APPENDIX G

LETTERS OF ADVICE - HERITAGE

21 September 2012

Boulderstone Headland Park Project
Gate 4, Hickson Road
MILLERS POINT NSW 2000

Attn: Mr Michael Seibel, Systems Manager

Our Ref: 12-0458MSc02

**Re: Barangaroo Headland Park – Sewage Pumping Station Relocation
Section 75W Application**

Dear Mr Seibel,

We refer to our engagement to provide advice to Boulderstone in regard to the proposal to submit a Section 75W application to modify the Headland Park Main Works approval. The scope of the variations includes a change in the siting for the approved relocation of the Sewage Pumping Station SPS14.

Scope

The current Project Approval allows for the relocation of the pumping station to a specified location on the northern section of the Headland Park on the southern alignment of the proposed new foreshore road and approximately 40 metres from the Moore's Wharf building. The approval provides for the relocated building to be converted to a toilet block.

The proposed Section 75W application to modify the Headland Park Main Works approval includes a change in the siting of the relocated pumping station to a location on the northern alignment of the proposed new foreshore road and approximately 20 metres to the west of the Moore's Wharf building.

In preparing this preliminary advice we have inspected the site, reviewed the heritage background reports including the Barangaroo Sewage Pumping Station SPS0014 Conservation Management Plan (Conybeare Morrison, October 2010) and the Barangaroo Headland Park Main Works Application Heritage Impact Statement (Conybeare Morrison, January 2011), and the relevant approvals documents including the Project Approval (3 March 2011) and the Section 75W Director-General's Requirements (27 August 2012).

Heritage Impacts

The CMP includes the following Statement of Significance (Section 4.13):

Sewage Pumping Station 14 has local heritage significance as part of the major infrastructure project begun in the 1890s to redirect sewage from Sydney Harbour to the Bondi Ocean Outfall Sewer. This work provides evidence for the resolve of the NSW Government to improve the amenity of Sydney Harbour and minimise

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the spread of disease such as typhoid. The remaining original structure of SPS 14 demonstrates the technology and processes to raise sewage in the Federation period. The Federation Queen Anne superstructure represents the high quality of work achieved by the Department of Public Works in the period and its domestic idiom demonstrates a concern to disguise the function of the building. SPS 14 is representative of the group of 14 remaining pumping stations from the first group constructed in Sydney after trial structures had been completed.

The HIS does not include a detailed assessment of the heritage impact of the proposed siting of the relocated pumping station on the northern section of the Headland Park, focussing on the heritage impacts of the relocation itself. It does however include the following (Section 7.1.3):

SPS 14 would be diminutive in scale adjacent to Moore's Wharf Building. Being on the edge of the reconstructed headland, SPS 14 would be part of the gradation from period buildings to the proposed reconstructed Headland Park.

Given the extent of wholesale change that has occurred in this sector of the Barangaroo precinct since the creation of the existing wharf platform area, the difference between the approved and the proposed siting of the relocated pumping station be negligible in terms any impact on its historic context. Although the alternate siting is approximately 20 metres closer to the Moore's Wharf building, as noted in the HIS, the difference in scale between the two buildings means that there will be no substantive impact on views of the Moore's Wharf building.

In terms of archaeological potential, the alternate siting of the relocated pump house is in a section of the Barangaroo precinct that was near to the original shoreline of the headland. Maritime-related development has been undertaken in this area since the mid 19th century, and the area contains extensive fill deposits associated with reclamation of this part of the site from that period.

The alternate siting of the relocated pump house is situated close to an area identified as having historical archaeological potential (*Archaeological Test Excavation Report—Barangaroo Headland Park*, Austral Archaeology, January 2012.). Recent archaeological testing to the north of the alternate siting has revealed intact archaeological remains, as well as evidence of extensive previous disturbance that has affected its archaeological potential (including the installation of numerous underground services and foundations of former built elements).

However, the actual proposed alternate siting is likely to have been subject to at least some subsurface disturbance that would have affected the archaeological potential of the area. The archaeological potential of the alternate siting of the relocated pump house is therefore considered to be Low.

The proposed reuse of the pump house as a toilet block would require localised excavation for the installation of underground sewer and water services. This proposed localised disturbance would have limited potential to expose or disturb any archaeological evidence that may survive in this part of the site.

On this basis, the alternate siting of the relocated pump house is considered acceptable in terms of its impact on archaeological potential. The current Headland Park Main Works approval condition of consent (D2) sets out the general procedures for archaeological discovery during excavation. Nevertheless, to mitigate any potential archaeological impacts that may be associated with the alternate siting of the relocated pump house, the following mitigative measures are recommended:

- Any proposed subsurface disturbance in this area associated with relocation and servicing of the pump house should be minimised, and;

- In the event that any archaeological remains are exposed during excavation works, they should be recorded and incorporated into the broader program of archaeological works associated with the excavation of Moore's Wharf inlet.

Conclusion

In summary, as set out above, the difference between the approved and the proposed siting of the relocated pumping station would be negligible in terms of impact on its historic context, and there will be no substantive impact on views of the Moore's Wharf building. Therefore, there is no heritage impediment to the approval of the proposed alternate siting of the pumping station.

However, the alternate siting of the relocated pump house is in a section of the Barangaroo precinct that was near to the original shoreline of the headland, and is situated close to an area identified as having historical archaeological potential.

Although the actual proposed alternate siting is likely to have been subject to at least some subsurface disturbance, to mitigate any potential archaeological impacts that may be associated with the alternate siting of the relocated pump house, the following mitigate measures are recommended:

- Any proposed subsurface disturbance in this area associated with relocation and servicing of the pump house should be minimised, and;
- In the event that any archaeological remains are exposed during excavation works, they should be recorded and incorporated into the broader program of archaeological works associated with the excavation of Moore's Wharf inlet.

If you require clarification of any of the above, please contact me.

Yours sincerely,

Godden Mackay Logan



Peter Romey
Partner

21 September 2012

Boulderstone Headland Park Project
Gate 4, Hickson Road
MILLERS POINT NSW 2000

Attn: Mr Michael Seibel, Systems Manager

Our Ref: 12-0458MSc03

Re: Barangaroo Headland Park – Sea Wall Section 75W Application

Dear Mr Seibel,

We refer to our engagement to provide advice to Boulderstone in regard to the proposal to submit a Section 75W application to modify the Headland Park Main Works approval. The scope of the variations includes the retention of the existing sandstone sea wall.

Scope

The current Project Approval allows for the historic sandstone sea wall at the western edge of the Headland Park to be substantially demolished and a random stepped edge constructed to the water line using recycled sandstone blocks. We understand that the proposed Section 75W application to modify the Headland Park Main Works approval includes a proposal for the insitu retention of the seawall (approx. 100m in length).

In preparing this preliminary advice we have inspected the site, reviewed the heritage background reports including the Barangaroo Headland Park Main Works Application Heritage Impact Statement (Conybeare Morrison, January 2011), and the relevant approvals documents including the Project Approval (3 March 2011) and the Section 75W Director-General's Requirements (27 August 2012).

Heritage Impacts

The HIS includes the following description of the Sandstone Sea Wall (Section 3.2):

A 120m long retaining wall of sandstone blocks protects the north-western edge of the East Darling Harbour roll-on, roll-off dock. It was built in 1913 from locally quarried stone at a time when the Sydney Harbour Trust was working to design and install a uniform system of wharves to accommodate the larger cargo ships trading with Sydney than had been the case in the nineteenth century. The construction of the new sandstone seawall squared off the western edge of Millers Point. The wharf behind the sandstone seawall was used by Dalgety & Company, as agents for the White Star Line.

Prior to 1900 the wharf area consisted of privately-owned timber wharves. Most had been built in the 1830's and 40's and were in poor condition by 1900. Remnants of

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these wharves and their trading functions may remain in the fill behind the 1913 sandstone wall.

The HIS includes the following assessment of the impact of the substantial demolition of the sea wall (Section 7.1.2):

The rearrangement of the 1913 sandstone seawall into a more naturalistic shoreline alignment would diminish the heritage significance of this local heritage item. The rearrangement would remove evidence for the placement of this seawall as part of the works of the Sydney Harbour Trust to redevelop the dilapidated timber wharves into a dock suitable for larger cargo ships. With interpretation, some of the heritage value of these stones could be retained if they are used to define the original alignment of the sea wall. Consideration should be given to retaining a small number of stones in their existing location as a means of identifying the 1913 shoreline. It should be noted that the multitude of stormwater pipes penetrating and chased into the sandstone has impacted on the significance of the seawall (see Fig. 3.4). Exposing a different face of the stone blocks may disguise this impact.

It is clear that the proposed retention of the sandstone sea wall would be a positive heritage outcome. The approach will conserve one of the few tangible elements that survive in the Barangaroo precinct that provide evidence of its complex late 19th and early 20th century maritime history.

The preliminary documentation for the retention of the historic sea wall (Dwg. TE-PWP-L-S3-9001 Revision A, PWP Landscape Architecture, 2/3/2012) shows the sea wall retained to a height approximately 400mm above the paved level. In fact the existing wall is underlating along its length and appears to have been supplemented over time by additional sandstone and concrete blocks to achieve the required level. The preliminary documentation also shows the insertion of vertical reinforcing rods through the wall to provide additional stabilisation. It is important that whatever repair or stabilisation works are undertaken minimise impacts on original fabric and retain the underlating character and patina of age of the sea wall.

It is likely however that archaeological relics and works survive in the fill behind the sea wall. The current Headland Park Main Works approval condition of consent (D2) sets out the general procedures for archaeological discovery during excavation. Nevertheless, if it is necessary to undertake any excavation behind the wall for structural reinforcement or services, the following measures are recommended to mitigate any potential archaeological impacts:

- Any proposed subsurface disturbance in this area associated with relocation and servicing of the pump house should be minimised, and;
- In the event that any archaeological remains are exposed during excavation works, they should be recorded and incorporated into the broader program of archaeological works for the Barangaroo Precinct.

Conclusion

In summary, as set out above, the proposed retention of the sandstone sea wall would be a positive heritage outcome, and there is no heritage impediment to its approval. However, whatever repair or stabilisation works undertaken should minimise impacts on original fabric and retain the underlating character and patina of age of the sea wall.

If it is necessary to undertake any excavation behind the wall for structural reinforcement or services, the following mitigative measures are recommended:

- Any proposed subsurface disturbance in this area should be minimised, and;
- In the event that any archaeological remains are exposed during excavation works, they should be recorded and incorporated into the broader program of archaeological works for the Barangaroo precinct.

If you require clarification of any of the above, please contact me.

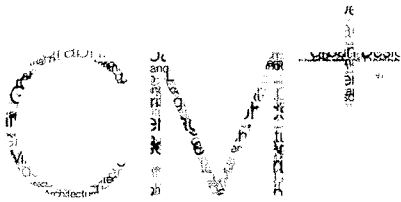
Yours sincerely,

Godden Mackay Logan

A handwritten signature in black ink, appearing to read 'Peter Romey', with a stylized, cursive script.

Peter Romey

Partner



19 November 2012

Mr Peter Gallart
Building NSW/ACT Design Manager
Boulderstone
Level 4, 39 Delhi Road
North Ryde NSW 2113

e. pgallart@boulderstone.com.au

Dear Mr Gallart

**PROPOSED TOILET ADAPTIVE REUSE
SPS 14 PUMPING STATION
BARANGAROO HEADLAND PARK**

With regard to the proposed adaptive reuse of the SPS 14 Pumping Station as male and female toilets, including an Accessible toilet, we confirm our review of various sketch designs. We also refer to the tender drawings TE-JPW-A-S3-5413 to 5415, prepared by Jonson Pilton Walker.

In reviewing the initial sketch designs by JPW we have noted the approach has taken into account the heritage significance of the building. The current drawings have maintained this approach and we do not have any concerns on heritage grounds with the proposed adaptive reuse of the Pumping Station continuing to the next stage of approval.

Yours sincerely
Conybeare Morrison

Garry McDonald
Associate
Heritage

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Ref: gm/gm Date: 19 November 2012