

Central Barangaroo MOD 9

Supplementary
Response to Submissions

Prepared for
Aqualand
June 2024

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Mecone acknowledges the Traditional Custodians of the land on where this project is undertaken and across the Mecone offices that this report is prepared, paying respect to the Elders past and present. We recognise the ongoing connection of Aboriginal and Torres Strait Islander peoples to land, waters, and culture.

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* This document is for discussion purposes only unless signed and dated by the persons identified. This document has been reviewed by the Project Director.

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1 Introduction

This report has been prepared by Mecone Group (**Mecone**) on behalf of Aqualand C/- Infrastructure NSW (the **Applicant**) in relation to Barangaroo Concept Plan Modification 9 (**MP06_0162 MOD 9**).

The MOD 9 Response to Submissions (**RtS**) was submitted to the Department of Planning Housing and Infrastructure (**DPHI**) in November 2023 and was publicly exhibited between 11 January 2024 to 21 February 2024.

The purpose of this report is to provide DPHI with a comprehensive response to the following:

- Schedule 1 of the Response to Submissions (**RtS**) Key Issues letter dated 15 March 2024,
- Feedback provided by the Government Architect NSW (**GANSW**) dated 15 March 2024, and
- Feedback provided by state agencies, including City of Sydney and Heritage NSW .

This report should be read in conjunction with the following addendum reports and plans:

- **Appendix 1** – Indicative Massing Principles prepared by SJB Architects
- **Appendix 2** - Central Barangaroo Response by SJB Architects dated April 2024, and
- **Appendix 3** –Design Excellence Strategy prepared by Mecone dated May 2024,
- **Appendix 4** – Supplement to View and Visual Impact Assessment by AECOM dated May 2024
- **Appendix 5** – Supplement to Heritage Impact Statement by GML dated May 2024, and
- **Appendix 6** – Indicative Massing Overshadowing Analysis by SJB Architects dated May 2024.



2 Background to Central Barangaroo

2.1 NSW Government Bid Process

The planning and development of Central Barangaroo has been the subject of extensive investigation by NSW Government to ensure it aligns with the scale of Barangaroo South and supports the Government's investment in the Barangaroo metro station.

In March 2014 the former Barangaroo Delivery Authority (**BDA**) sought Director General's Requirements (**DGRs**) for approval under Section 75W of the *Environmental Planning and Assessment Act 1979 (EP&A Act)* to modify the approved Concept Plan, including the development of **up to 120,000sqm** of GFA.

In April 2014, the BDA announced a 'Call for Expressions of Interest' for the development of Central Barangaroo and in October 2014 it issued a request for development bids and a Master Plan for Central Barangaroo. The master plan contemplated a maximum **GFA of 120,000sqm** but with bids to comply with the existing Concept Plan height limits.

However, in June 2015, the NSW Government announced the Sydney Metro including plans to build a station at Central Barangaroo. This announcement led to a review, and ultimately termination, of the bid process for Central Barangaroo that had commenced in April 2014.

In November 2015, shortly after the NSW Government confirmed a new metro station would be located at Central Barangaroo, the BDA resumed the bid process for Central Barangaroo. The updated process included development of **up to 150,000sqm**, without any height limits, to respond to the renewed objectives aligned with the new metro station. In December 2015, the BDA issued a second Request for Development bids and a revised Central Barangaroo Master Plan. The Master Plan removed the references to maintenance of existing height limits and invited development proposals that exceed the heights in the Concept Plan.

2.2 Concept Plan Modification 9 (MOD 9)

In April 2022, MOD 9 was lodged with DPHI for the updated concept plan for Barangaroo Central. This included 116,189sqm of above ground floorspace and 28,000sqm of below ground floorspace. This reflected a total GFA of 144,355sqm and was considered to align with the overall tender process and renewed objectives for Central Barangaroo.



2.3 Concept Plan Modification 9 (MOD 9 RtS)

Following exhibition of MOD 9 between 12 July 2022 to 8 August 2022, DPHI wrote to the Applicant requesting a response to a number of items raised in submissions. The Applicant responded with a revised MOD 9 proposal, known as the MOD 9 Response to Submissions (**RtS**), which is the subject of this application.

The MOD 9 RtS reflects a simplified building envelope at a reduced scale, including reduction of the maximum GFA to a total of 104,000sqm (of which 92,908sqm is above ground), additional public domain and deletion of the previously proposed tower element on Block 7, which was a key focus of many of the concerns expressed regarding the original exhibition of MOD 9.

2.4 Concept Plan GFA for Central Barangaroo

There has been a consistent approach by the NSW Government to increase density at Barangaroo over the last two decades. This is evidenced by the substantial changes in GFA in Barangaroo South and consistent with the original Concept Plan application, which specifically stated:

“The final GFA per block may be subject to change during the lifespan of the redevelopment to take account of major shifts in development economics and priorities”.

East Darling Harbour State Significant Site Proposal, Concept Plan & Environmental Assessment (Volume 1 & 2)” prepared by JBA Urban Planning Consultants & SHFA (dated October 2006)

The GFA resulting from various MODs across Barangaroo over the last 20 years has changed significantly, as illustrated at **Figure 1**.

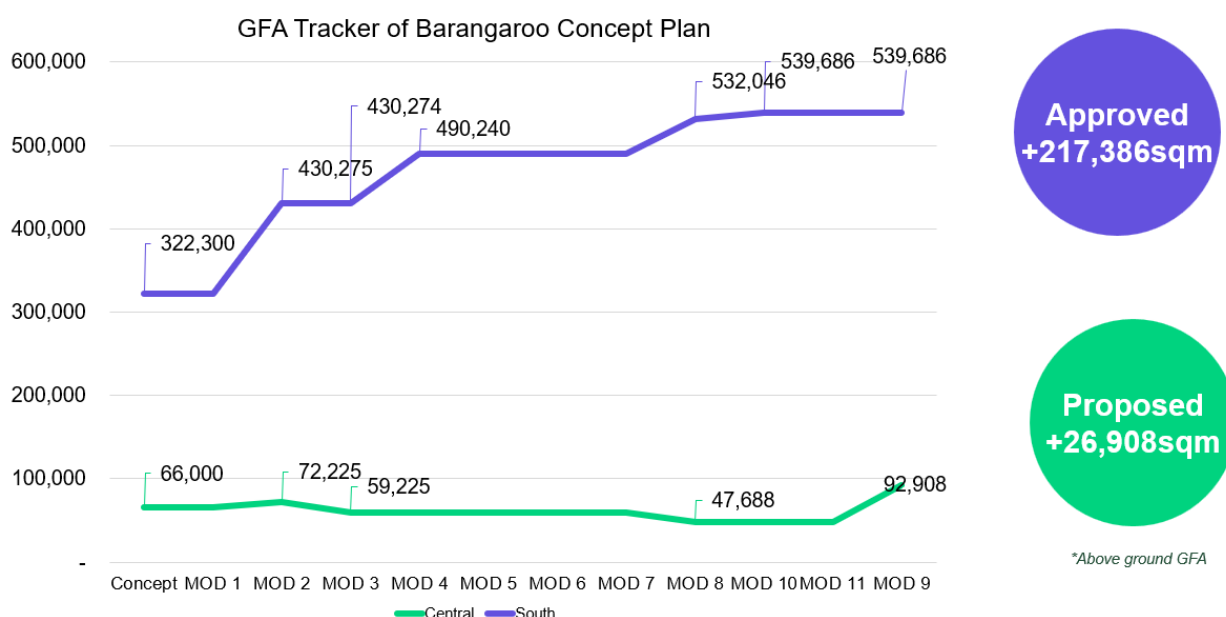


Figure 1 – Changes in gross floor area across the Barangaroo Concept Plan



Justification for Increase in GFA

As detailed in the original MOD 9 Environmental Assessment Report (**EAR**), since the approval of the Concept Plan in 2007 there have been significant advances in the strategic planning framework governing Metropolitan Sydney, including increased population projections (resident and worker) and a significant investment and planning of transport infrastructure. Accordingly, to align these two priorities and appropriately manage growth of the region, a new strategic vision for Greater Sydney emerged in 2018 of Sydney as a metropolis of three cities, where residents live within 30 minutes of their jobs, education and health facilities, services and great places.

This vision was embedded within the applicable Greater Sydney Region Plan, Eastern City District Plan and State Infrastructure Strategy, and demonstrates a new policy direction to approach transport and land use planning.

These changes in the policy approach to transport and land use planning across Greater Sydney, together with the recognised strategic importance of Central Barangaroo in its ability to deliver housing and jobs in a manner that integrates with catalytic transport infrastructure (Sydney Metro), provides an opportunity to revisit the approved Concept Plan and reconsider the height, density and mix of land uses across the site.

In the midst of the current housing crisis, there is even more urgency and need to deliver housing in the right locations. The NSW government has acknowledged that there is a once-in-a-lifetime chance to shape the Six Cities Region's city planning around Sydney's new world-class metro system and leverage existing rail stations to serve generations to come. A direct solution to resolving the housing crisis is building more housing near the metro and rail stations, enabling more people to live close to transport, jobs, services, night life and amenities.

In order to capitalise on this unique opportunity, MOD 9 RtS seeks to increase the GFA for Central Barangaroo to ensure Central Barangaroo more appropriately responds to contextual changes including significant infrastructure investment and strategic objectives at a government level that were unknown at the time of the initial determination of the approved Concept Plan.

The proposed density of the overall Barangaroo site and the Central Barangaroo site through the increase in floor space across Blocks 5, 6 and 7 is acceptable in respect of the strategic context, configuration of the built form and corresponding architectural and urban design, and impact of the density on environmental amenity and infrastructure. The additional density is justified in this location because:

- It will optimise the significant government investment in transport infrastructure with the future Barangaroo Station and deliver upon strategic priorities at a State and Regional level to provide increased employment generating floor space and associated jobs near homes, align land use and infrastructure planning, and elevate Sydney as 21st-Century Global 30 Minute City.
- It will support a greater mix of land uses to support additional activity in Barangaroo throughout both day and night, which will drive higher levels of patronage on the new Metro rail.
- The additional density will create a vibrant mixed-use precinct, accommodated within development zone footprints creating Central Barangaroo's own distinct identity, character and experience.



- It will create a distinct destination for employment generation and economic activation as part of a broader revitalisation of the western waterfront edge of the CBD.
- The additional retail floor space will support a variety of retail offerings that will stimulate the local economy, increase visitation of the general public to this unique city landmark and capitalise upon movement of commuters and visitors through to Barangaroo Station.
- The provision of community uses within the RE1 Zone (including a maximum of up to 18,000sqm allocated to the Cutaway) will activate the public realm and reinforce the destination aspiration of Central Barangaroo as the 'civic heart' of the Barangaroo precinct. This allocation will also support uses that encourage visitors, residents and employees to visit and remain in Central Barangaroo through to the evening and night-time, facilitating the late-night economy along the western harbour foreshore.
- The appropriateness of the resultant built form has been carefully considered, having regard to potential impact of the floorspace such as heritage, overshadowing, traffic generation, amenity impact and demand on existing/future infrastructure. As demonstrated in the VVIA, the amendments to the Approved Concept Plan Envelope would not have significant adverse visual or amenity impacts. The resulting development is of an acceptable overall design and would not have adverse amenity impacts in terms of visual, solar or wind impacts. The proposal is unlikely to cause traffic impacts and has excellent access to existing and planned public transport including the new Barangaroo Station.
- The proposed modification will not give rise to excessive bulk or scale and will facilitate design excellence. The bulk and scale will be commensurate with surrounding development within the Barangaroo site, as well as development adjacent to the site.
- The proposal appropriately balances the social, economic and environmental outcomes on the site.
- The additional GFA can suitably be accommodated within an appropriate building envelope that is contextually responsive, enhances the amenity through the provision of increased publicly accessible spaces and delivers a more considered ground plane and public domain layout.

The proposed increase in overall density within the Barangaroo precinct from 602,354sqm to 667,686 sqm is therefore justified.



3 Response to DPHI Key Issues

On 15 March 2024, DPHI provided an RtS Issues Letter. The Applicant's response to the key issues raised are provided below.

3.1 Comparative assessment

*1. To enable a full assessment of the proposed increase in gross floor area (GFA) and address Item 1 of the Department's previous issues letter, you are requested to **provide indicative massing plans representing the approved GFA**. These plans should also consider:*

- *The envelopes/massing shown in previous representations (e.g., the **original concept plan, MODs, 2, 3 and 4**)*
- *The block layout changes from previous MODs (MODs 3 and 8)*
- *The **current concept plan controls** (including the envelope amendments for Block 5 and the Design Principles, Design Requirements, and Development Controls).*

*All relevant reports, including the Visual and View Impact Assessment (**VVIA**), Heritage Impact Statement (**HIS**), and **overshadowing analysis** must be updated accordingly. Additionally, the updated VVIA should include a **view-sharing analysis** that is consistent with the NSWLEC Planning Principle (including the steps in *Tenacity Consulting v Warringah [2004] NSWLEC 140*) and the updated overshadowing analysis should clearly show the approved vs proposed impacts of the proposal.*

(emphasis added).

Applicant's Response

Comparative analysis for assessment purposes included in MOD 9 RTS

The appropriate comparative analysis for assessment purposes is a comparison of the approved and proposed Concept Plan envelopes. This comparison is included in the MOD 9 RtS and reflects worst-case impacts.

Reference Scheme for Central Barangaroo

There is no reference scheme that reflects the current Concept Plan approval. While MOD 8 included an illustrative scheme for Central Barangaroo, it represented approximately 120,000sqm of GFA.

The 'Block Controls' of the original Concept Plan approval were deleted at MOD 2 and the Urban Design Principles that replaced them were replaced with principles specifically relating to only Barangaroo South at MOD 5.

Consultation with DPHI in relation to this item

The Applicant has engaged closely with DPHI to discuss the matters raised in the RtS Key Issues letter, including several in-person meetings.

During these meetings, DPHI clarified that it was not seeking the Applicant to produce exhaustive visual analysis of all 42 locations considered in the RtS VVIA, comparing every previous MOD to the MOD 9 RtS. It was agreed that a more targeted approach to key view locations should be considered.

However, DPHI did request that the Applicant consider how the approved GFA could indicatively be arranged on the site, accepting there is no reference scheme reflective of the current approved GFA for Central Barangaroo.

The additional analysis has concentrated on an indicative massing reflecting approximately 47,000sqm, as requested. The supplementary VVIA focuses on four locations identified in relevant planning frameworks including Observatory Hill, High Street, Gas Lane and Illoura Reserve.

Indicative massing of approved GFA within the Approved Concept Plan Envelopes

To provide DPHI with additional information to help facilitate its assessment, and in the absence of any illustrative scheme being available, the Applicant has prepared indicative massing within the approved Concept Plan block envelopes that reflects the approved GFA (**Figure 1**).

This indicative massing is consistent with the established concept plan principles and key planning documents (e.g. the Apartment Design Guide – **ADG**). The indicative massing including a list of assumptions is provided at **Appendix 1**.

As approval is not sought for this indicative massing, it is provided only in response to DPHI's request. We re-affirm the appropriate comparative analysis for assessment purposes is a comparison of the approved and proposed Concept Plan envelopes.

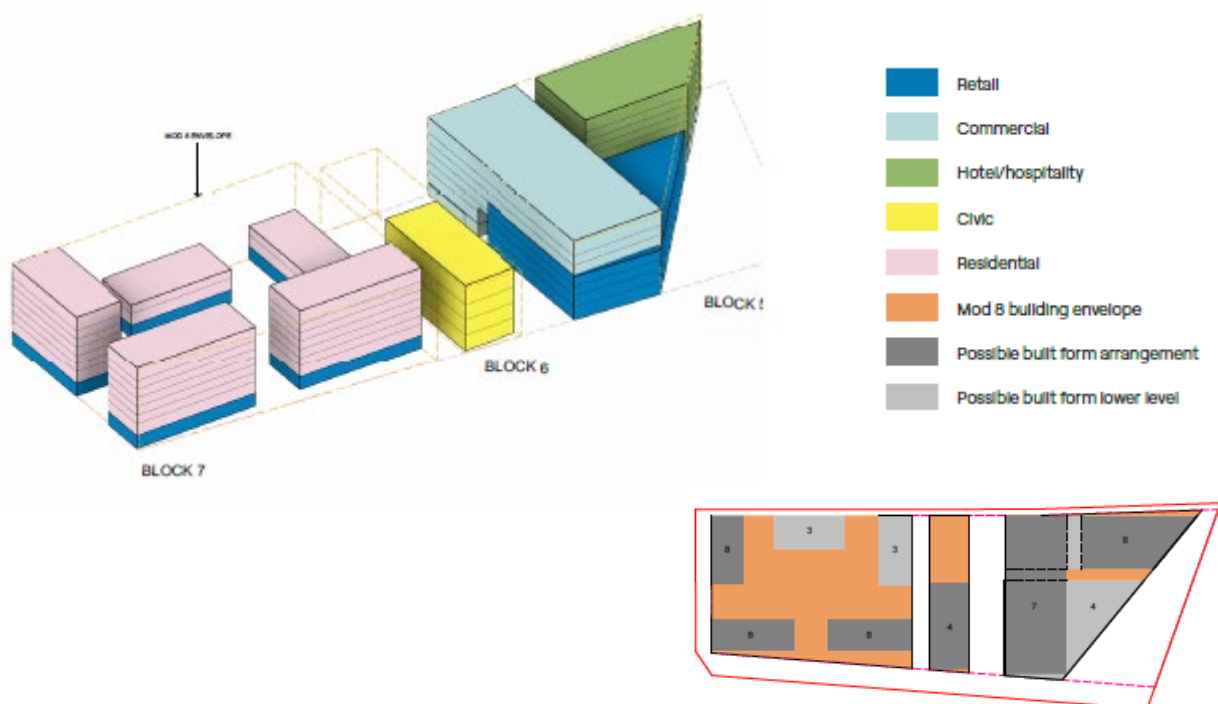


Figure 2 – Indicative Massing under existing Concept Plan approval



Supplementary View and Visual Impact Assessment

A supplementary View and Visual Impact Assessment (**VVIA**) prepared by AECOM is included at **Appendix 4**, which provides a targeted visual comparison of:

- Approved Concept Plan Envelope,
- Approved Concept Plan Envelope with Indicative Massing,
- Proposed MOD 9 RtS Concept Plan Envelope, and
- Proposed MOD 9 RtS Concept Plan Envelope with RtS Reference Scheme.

An extract of the supplementary VVIA is provided in **Figure 3**.



Approved Concept Plan Envelope



Approved Concept Plan Envelope with Indicative Massing



Proposed MOD 9 RtS Concept Plan Envelope



Proposed MOD 9 RtS Concept Plan Envelope with Indicative Massing

Figure 3 – VVIA assessment of Balmain East – Illoura Reserve

The supplementary VVIA assessment has been undertaken in a manner that is consistent with the assessment methodology undertaken for MOD 8 at Barangaroo South which included an illustrative design (see **Figure 4**).

In the Secretary's Environmental Assessment Report for MOD 8, the DPHI specifically considered the methodology undertaken for the VVIA and concluded that:

"Each of the identified public domain views have been prepared (taken at pedestrian level) using the same approach, rationale and methodology in the analysis undertaken for the previous concept plan amendments (MOD 4 and MOD 6). The Department considers this to be a sound and appropriate approach to enable a full assessment of the visual impact of the modification application."

A similar approach to that adopted by DPHI in the assessment of MOD 8 should be adopted for the assessment of MOD 9.



Approved Concept Plan Envelope (Mod 7)



Proposed Concept Plan Envelope (Mod 8)



Approved Concept Plan Envelope (Mod 7) with indicative design



Proposed Concept Plan Envelope (Mod 8) with indicative design

Figure 4 – Extract of Barangaroo South MOD 8 View and Visual Impact Assessment



Envelope to Envelope Comparison

A key assessment principle in previous Barangaroo VVIAs and Concept Plan modifications was that the assessments considered the worst case impacts created by the full extent of the Concept Plan envelopes and the illustrative design was only an indication of a potential future building form that would have an equal or less impact. This is a typical approach for visual impact at a strategic planning stage when the final built form outcome is not known and allows for further design resolution and design excellence at the detailed design stage.

This is the same approach undertaken in the MOD 9 RtS VVIA. As a result, the Supplementary VVIA at **Appendix 1** concludes the findings of the exhibited VVIA for the RtS remain valid as it considers the worst case impacts (i.e. envelope to envelope).

Tenacity View Sharing Analysis

The Mod 9 RtS VVIA includes a tenacity assessment of the Approved Concept Plan envelope.

Additionally, the four-step assessment set out in *Tenacity Consulting v Warringah Council* [2004] NSWLEC 140 (**Tenacity**) generally requires:

- Assessment of views to be affected,
- Consideration of from what part of the property the views are obtained,
- Assessment of the extent of the impact upon those views, and
- Assessment of the reasonableness of the proposal that is causing the impact (see *Tenacity* at [25]-[29]).

With particular regard to the fourth step, the reasonableness of the proposal, *Tenacity* states:

*A development that complies with all **planning controls** would be considered more reasonable than one that breaches them. Where an impact on views arises as a result of non-compliance with one or more planning controls, even a moderate impact may be considered unreasonable.*

*With a complying proposal, the question should be asked **whether a more skilful design** could provide the applicant with the same development potential and amenity and reduce the impact on the views of neighbours. If the answer to that question is no, then the view impact of a complying development would probably be considered acceptable and the view sharing reasonable.*

(emphasis added)

The fourth test of *Tenacity* (identified above) calls up compliance with existing planning controls as the benchmark against which the reasonableness of the view impact of any proposal is measured. As the Approved Concept Plan Envelope is constructed by the existing SEPP heights and block layouts, the only relevant comparison is between the existing controls and the proposed controls (i.e. the Approved Concept Plan Envelope and the proposed Concept Plan Envelope).

While a reference scheme included in the MOD 9 RtS envelope has been provided, no approval is sought for this reference scheme. The only approval sought is for amendments to the Approved Concept Plan Envelope. The question of the skilfulness of the design in reducing the impact on the views of neighbours therefore becomes a matter for consideration in the subsequent design excellence and SSDA processes, when approval will be sought for a specific design.



Supplementary Heritage Impact Statement

The supplementary Heritage Impact Statement (**HIS**) letter at **Appendix 5** clarifies that any development at Central Barangaroo will have potential heritage impacts to views through the site, to and from Millers Point/Observatory Hill and the harbour.

It clarifies that when compared with no development on the site, the approved Concept Plan and MOD 9 RTS would give rise to varying degrees of heritage impact. However, the heritage impacts of the MOD 9 RTS are generally consistent with the impacts previously approved under the Concept Plan and therefore considered acceptable.

Overshadowing Analysis

Overshadowing impacts of the MOD 9 RtS envelope are addressed in Section 8.5.1 of the RtS. The assessment demonstrates that Harbour Park, Hickson Park, Barangaroo Avenue will receive acceptable levels of solar access. The removal of the tower form and deletion of the 3m cantilevered zone above ground from the original MOD 9 exhibition has resulted in improved solar access to public spaces.

As requested by the Department, additional overshadowing analysis has been prepared at **Appendix 6**, which compares overshadowing of the Indicative Massing (within the Approved Concept Plan Envelope) and the reference scheme (within the MOD 9 RtS Proposed Envelope). This overshadowing analysis concludes:

- Between 9am and 11am, there is no notable difference in overshadowing between the Indicative Massing (within the Approved Concept Plan Envelope) and the reference scheme (within the proposed MOD 9 RtS Envelope) to Harbour Park. The majority of Harbour Park which will receive unrestricted sunlight throughout all hours of the day, and
- Between 11am and 2pm, Hickson Park will continue to receive acceptable levels of sunlight.



3.2 Built Form Impacts

2. Having regard to the recommended mitigation measures outlined in your VVIA and HIS, and the issues raised in submissions (including the recommendations outlined by the Government Architect NSW), present refinements to the proposed envelopes, to further address the potential heritage impacts of the proposal and improve views through the site, to and from Millers Point/Observatory Hill and the harbour.

Applicant's Response

It is noted that the exhibited RtS HIA and VVIA include a suite of recommendations to mitigate impact of built form from surrounding heritage areas. The Statement of Commitments (**SoCs**) requires future applications to demonstrate conformance with these recommendations ensuring they will be explored at detailed SSDA stage and through the design excellence process.

The RtS has undergone significant refinement from the previously exhibited MOD 9 in response to submissions made during the exhibition period. These refinements include:

- Scale – removal of the tower element at Block 7 and reduction in height from RL 73.7 to RL 35, which is consistent with the Approved Concept Plan Envelope. Additional reductions have also been made to Block 5 with a variable height from RL 21.5 to RL 42.45 and Block 6 at RL 35.
- Views – reduced visual impacts as a result of the reduction and distribution of heights across all blocks, with the only notable component siting above the Approved Concept Plan Envelope positioned in the south-east corner of the site where it has no visual impact from Observatory Hill and the surrounding Millers Point view lines.
- Heritage – reduced height improves views to and from Millers Point and Observatory Hill from immediate and wider visual catchments, while the additional public domain and pedestrian links create a more compatible scale to the surrounding heritage context.
- Solar – reduced southern edge of the Block 5 envelope improves the interface and solar access to Hickson Park and Harbour Park.
- Public Domain – introduction of two large plazas and a series of laneways increasing porosity and views through the site and contributing to an increase in public domain.

The proposed RtS Envelopes will:

- Support the principles of the approved Concept Plan under MOD 2,
- Retain visual and physical east-west connections through the site,
- Facilitate north-south pedestrian connections through the site from Hickson Park to Nawi Cove,
- Reinforce the Hickson Road as a boulevard with a defined street edge,
- Provide an integrated address to Harbour Park, and
- Enable increased height and floorspace appropriate to its context with excellent public transport connectivity (benefitting from the proposed Metro).

Additionally, the proposed MOD 9 RtS Envelope breaks down the blocks into more regularly proportioned elements, allowing future building designs to achieve the recommendations of the HIS and VVIA to respect views and heritage impacts.



DPHI's original key issues letter dated 6 October 2022 stated the following in relation to the prescriptiveness of the originally exhibited building envelopes:

The proposed building envelopes are overly prescriptive and reduce opportunities for future flexibility. The design guidelines should be simplified to allow an appropriately sized envelope which allows for flexibility and provide clear parameters relating to envelope fill, street widths, projections, floorplate sizes etc to guide future detailed design.

It is appropriate to retain flexibility in the envelopes to allow for the future detailed building designs to deliver exceptional outcomes befitting of the Barangaroo precinct. The refined MOD 9 RtS Envelope provides more flexibility and will allow the detailed built form design to explore a multitude of building outcomes in developing the design excellence response.

Future detailed building designs will consider the design guidelines, established Concept Plan principles and recommendations contained in supporting reports such as the VVIA and HIS. These detailed designs will also undergo design review with the Central Barangaroo Design Review Panel, once constituted.

This approach is common-practice and follows the identical process to Barangaroo South, where loose-fit envelopes were approved and refined building designs considered against built form controls, Concept Plan principles, and a design-review process. The detailed State Significant Development Applications are the appropriate process to review detailed assessment matters, such as view sharing and specific heritage sensitivities, amongst other matters such as amenity, etc. As such, no further refinement of the envelopes is proposed. .

Furthermore, the supplementary HIS letter at **Appendix 5** clarifies that the Approved Concept Plan and MOD 9 RtS would give rise to varying degrees of heritage impact, and heritage impacts of the MOD 9 RtS are generally consistent with the impacts previously approved under the Concept Plan.

Clause 19(2) of PEHC SEPP – Design Excellence

There remains full commitment to achieving design excellence within the Central Barangaroo precinct, to deliver the highest standard of architectural, urban and landscape design and continue the exemplar urban design response along the western Sydney Harbour foreshore. The external appearance, architectural design, materials and detailing of the proposed modified building envelopes will be assessed within a subsequent SSDAs.

It is noted that Clause 19 of the PEHC SEPP is only a consideration when granting consent to the erection of a new building or external alterations to an existing building and therefore does not apply to this modification. Whilst consent may be granted, we have considered whether the envelopes as modified will exhibit design excellence in the context of those matters set out in Clause 19(2) of Appendix 5 of the PEHC SEPP.

As set out in the original Environmental Assessment Report (**EAR**), the modified building envelopes were deemed to represent a much more modulated built form and massing of an appropriate height and scale to the surrounding urban context. The amendments to the modified building envelopes proposed in the RtS further improve the massing within the surrounding urban context, particularly with the removal of the tower form within Block 7. The proposed amended building envelopes exhibit design excellence, having regard to the provisions of Clause 19(2) of Appendix 5 the PEHC SEPP of relevance to this concept stage as follows.



- a) *whether a high standard of architectural **design, materials and detailing** appropriate to the building type and location will be achieved.*

Comment:

The RtS proposes changes to building envelope, GFA, land use, public domain and vehicular access for Central Barangaroo. It does not propose architectural design, materials or detailing. These will be determined as part of subsequent detailed SSDAs through the design excellence process in accordance with the Design Guidelines.

A Design Excellence Strategy has been updated at **Appendix 3** of the SRtS which outlines how design excellence will be achieved in the subsequent detailed SSDAs. It establishes the framework, principles and procedures to facilitate design excellence for mixed-use development featuring residential, retail, commercial and community land uses at Central Barangaroo. However, the exact building type of individual buildings may change over time and suitable flexibility to accommodate such change needs to be retained.

- (b) *whether the form and **external appearance** of the building will improve the quality and amenity of the **public domain**.*

Comment:

While the external façade is to be determined through the design excellence process, the RtS modifications to the Approved Concept Plan Envelope will improve the external appearance of the buildings, as viewed from the public domain, by increasing the number and size of breaks between the approved building masses and more evenly spacing the breaks to reduce to size of the larger approved built forms. This includes a revised block length of 65 metres for Block 7 (previously 111 metres).

Further amendments proposed in the RtS include the creation of additional and enlarged public domain spaces extending through the precinct.

The provisions of the PEHC SEPP, the consent conditions and the SoCs, all require that future SSDAs are prepared in accordance with the Urban Design Report (in particular the Design Guidelines). These detailed provisions will ensure that the form and external appearance of the buildings improve the quality and amenity of the public domain and activate and integrate with the public domain in accordance with Clause 19(2)(b).

- (c) *whether the building will meet sustainable design principles in terms of sunlight, natural ventilation, wind, reflectivity, visual and acoustic privacy, safety and security and resource, energy and water efficiency.*

Comment:

The RtS and supporting documentation establishes a robust consideration of a range of amenity standards for future developments to achieve sustainable design principles. These will be captured in the Instrument of Approval and SoCs, specifically the Urban Design Report and supporting Design Guidelines.



The RtS addresses sustainable design in a number of key areas:

- **Sunlight** – as detailed at Section 8.5 of the RtS Report, the reference scheme demonstrates compliance with ADG solar requirements (Appendix C of RtS),
- **Ventilation** – will be addressed at detailed SSDA stage.
- **Wind** – as detailed at Section 9.4 of the RtS Report, the reference scheme demonstrates suitable pedestrian safety and comfort subject to consideration of recommendations including awnings and corner articulation (Appendix C and Appendix F of RtS),
- **Reflectivity** – will be addressed at detailed SSDA stage.
- **Visual and acoustic privacy** – the Urban Design Report demonstrates compliance with ADG building separation requirements and Section 9.6 of the RtS Report demonstrates compliance with *Noise Policy for Industry Guideline (NPfI)* (Appendix C and Appendix P of RtS),
- **Safety and security** – CPTED principles are to be addressed through the design excellence process to address surveillance, territorial reinforcement, activity/space management and access, and
- **Resource, energy and water** – SoCs 79-81 detail required performance in terms of water, Greenhouse Gases and Greenstar rating.

Specifically:

- The articulation of the modified building envelope through a series of east-west and north south connections provides a fine grain permeable network at ground level that will capture daylight penetration to the public domain and occupants of future development.
- The proposed breaks in the modified building envelope (compared to the solid mass of the approved Concept Plan envelopes) will also enable natural ventilation throughout Central Barangaroo, and a suitable pedestrian wind environment for the intended use of each area as discussed in the Pedestrian Wind Assessment at Appendix F of the RtS.
- The massing of the modified building envelope has been developed with regard to the principles of the ADG and will facilitate adequate building separation and visual privacy for future residents. In addition, the articulation of the form and distribution of noise-generating uses (ie. retail uses and dining areas at ground level) will ensure acoustic privacy and amenity is maintained.
- The incorporation of varying heights in Block 5, with the highest point in the south-east corner adjacent to Barangaroo South, and consistently low scale heights across the site, creates a human scale for Hickson Park and the future Harbour Park and will improve the amenity, safety and security of the public areas.
- The built form, mass and scale of MOD 9 will be visually subservient to the development within Barangaroo South. The modulated forms provide visual interest and allow for potential views to be maintained during the detailed design phase. The removal of the tower form in Block 7 removes the impact of views arising from a tower form in this location. The remaining envelopes, without any tower forms, will retain a consistent visual connection between Sydney Observatory and Observatory Hill Park and the horizon, as set out in the supplementary VVIA at **Appendix 4**.



- The proposed RtS Envelope results in no notable overshadowing to Harbour Park when compared to the Approved Concept Plan Envelope after 10am in mid-winter, and will not overshadow Nawi Cove at any time.
- Between 12pm and 2pm mid-winter, the Approved Concept Envelope overshadows 33.6% of the Hickson Park (or 3,836sqm), while the proposed MOD 9 RtS Envelope overshadows 26.1% (or 2,561sqm). This results in improved solar access to Hickson Park by 1,275sqm.
- The Urban Design Report at Appendix C of the RtS was developed through ongoing collaboration and includes a further analysis of the delivery of design excellence in the modified building envelopes and the public domain. This includes the Design Guidelines and the public domain design elements which have influenced the final massing of the envelopes.

(d) if a competitive design process is required to be held in relation to the building, as referred to in subsection (3), the results of the process.

Comment:

The Design Excellence Strategy at **Appendix 3**, prepared in consultation with the Government Architect, includes further details in relation to the Design review process to guide future SSDAs.

As outlined above, the consent authority is able to be satisfied that MOD 9 RtS is capable of exhibiting design excellence through the proposed Design Guidelines, and environmental and design commitments accommodated in the SoCs associated with MOD 9 RtS. Further, the frameworks established by MOD 9 RtS, the PEHC SEPP, Urban Design Report and Design Excellence Strategy will ensure that all future applications to which Clause 19 applies are well placed to exhibit design excellence.

3.3 Updated Reference Design

3. Provide an updated reference scheme/s to demonstrate how future buildings could be articulated and further broken down to address heritage impacts and improve key views. The updated reference scheme/s should also inform additional built form controls to mitigate these impacts. The updated reference scheme/s should also incorporate smaller apartment types, as requested by the GANSW, to test the proposed GFA and compliance with the Apartment Design Guide.

Applicants Response

It is noted that the exhibited RtS HIA and VVIA include a suite of recommendations to mitigate impact of built form from surrounding heritage areas. The SoCs requires future applications to demonstrate conformance with these recommendations ensuring they will be explored at detailed SSDA stage and through the design excellence process.

The refined MOD 9 RtS building envelopes break down the blocks into more regularly proportioned elements, allowing future building designs to achieve the recommendations of the HIA and VVIA to respect views and heritage impacts. These changes include a redistribution of Block 7, reducing its bulk and scale from the currently approved 111 metres.



The RtS reference scheme has been assessed against the ADG and has demonstrated consistency with the relevant design criteria. To assist in demonstrating flexibility of the reference scheme and compliance with the ADG, a comparison of smaller apartment typologies is included at **Appendix 2, Page 5**. The plans clarify that the reference scheme with smaller apartments can achieve (among other things) solar and natural cross ventilation requirements in accordance with the ADG.

We note future built form designs and SSDAs will be required to undergo design excellence and assessment against the Design Guidelines.

3.4 Public domain

4. Update the indicative public domain/landscape concept for Hickson Park to show how it will integrate with the landscape design approved under SSD-7944, the future Harbour Park and the established public domain / landscaped areas within Barangaroo.

Applicant's Response

An updated indicative public domain/landscape concept has been provided, which depicts the public domain and its integration with SSD-7944 and the future Harbour Park (see **Appendix 2, Page 6**). This includes the potential layout of tree planting areas, open lawns, water features and hardscape.

We note the landscape concept is indicative only and is not subject to approval in MOD 9. However, public domain within the site and its integration with adjoining uses, such as Harbour Park, are included in the Design Guidelines. The design of the public domain will be proposed as part of future SSDAs.

3.5 Hickson Park

5. Provide further justification for the changes to Hickson Park, having regard to the comments outlined in the Government Architect's advice. Further, confirm the specific locations of the views shown on page 129 of the Urban Design Report and figures 59 and 60 in the RtS report and provide updated comparative views from the locations within Hickson Park considered in the assessment of MOD 8.

Applicant's Response

It is noted that substantial justification for the proposed refinements to Hickson Park are included in the RtS Report (Section 8.5.1 – pp. 145-154). The RtS addresses the improvements to Hickson Park and has considered design principles, solar access impacts, wind amenity, visual impacts and landscaping.

The changes proposed in the MOD 9 RtS will:

- Maintain a view corridor from Hickson Road to the foreshore,
- Maintain clear views to the water from within Hickson Park,
- Ensure an aperture of 32m is maintained between the Crown Casino podium and the south-western corner of Block 5,
- Lower the height of the southern building at Block 5 to RL 21.5 to provide a human-scale edge and prioritise daylight, and



- Establish Design Guidelines that facilitate a high quality urban interface to Hickson Park to accommodate outdoor dining zones and landscape elements that optimise amenity and improve wind comfort
- Reduce overshadowing of Hickson Park by the approved Concept Plan building envelope by 1,275m², in part by lowering the Block 5 southern building envelope to RL 21.5,
- Create a park with a distinct character and function to that of Harbour Park,
- Reduce wind impacts along the northern edge of the park by reducing the aperture of the southwest corner to 32m, and
- Allow for high quality planting, materials, lighting and furniture that will be of an intimate scale, encouraging visitors to linger and enjoy the park.

Additional analysis on Hickson Park has been provided in **Appendix 2** in direct response to comments raised by GANSW, which provides additional analysis as requested from a visual, solar, wind, landscape, deep soil and canopy perspective. Additional comparative views have been provided at **Appendix 2, Page 7**, which include additional views from Hickson Park to the foreshore.

3.6 Deep Soil

6. Confirm the extent of deep soil provision across the site on all plans and reports, noting that deep soil will have no impeding structure(s) below. Significant and connected soil depth above any basement must be provided to ensure the longevity of mature street tree planting.

Applicant's Response

The total provision of deep soil should be read in context across the entire Barangaroo Precinct. The wider precinct provides varying deep soil approaches to Headland Park, Harbour Park and Barangaroo South, all of which demonstrate capacity for mature planting and significant trees without the need for conventional deep soil (as defined by the ADG). Furthermore, over 50% of Barangaroo will be retained as public open space.

Updated deep soil plans are however, provided in **Appendix 2, Page 8**. Approximately 8.8% of the site is capable of providing deep soil zones, which are unimpeded by basements or structures. These are located predominantly within the refined Hickson Park alignment and where the east-west links adjoin Harbour Park. The site is also capable of providing planting over structures with generous 6m wide zones capable for mature vegetation between blocks.

While the site exceeds the 7% minimum requirement for sites under 1,500sqm, it is under the 15% target for sites over than 1,500sqm. That said, we note the ADG acknowledges that deep soil may not always be capable of being achieved in CBD locations or mixed-use zones with retail at ground. The proposed provision of deep soil within the context of the site's immediate proximity to Hickson Park and Harbour Park is considered suitable and forms a complementary open space offering to the surrounding area.

Furthermore, the ADG states:

Some design criteria may be best applied to the entire precinct area or to stages within the site, for example deep soil and communal open space may be consolidated and accessed by a number of buildings.



3.7 Pedestrian Bridge

7. The proposed bridge link over Hickson Road at the low point of High Street is supported, and it is recommended this element be included in the application. The link should land in the public domain.

Applicant's Response

Condition B10 requires that a lightweight bridge be part of further detailed (separate) applications. The MOD 9 RtS does not propose any change to this. The RtS confirms the provision of a pedestrian footbridge is part of the wider public benefit package, and approval will be sought in future application stages.

The proposed bridge is located in its historic location respecting its heritage and providing clearance to cars on Hickson Road beneath. Landing the bridge within the building provides an important vertical circulation function connecting pedestrians directly with the Barangaroo Metro Station, and the ground plane enabling access to the precinct and public realm.

Additional analysis in relation to this interface is provided at **Appendix 2, Page 24**.

3.8 Traffic and parking

8. Widen the shared zone on Barangaroo Avenue to accommodate two-way traffic, to improve accessibility and integrate better with Barangaroo Avenue to the south.

Applicants Response

The Applicant has worked through the preferred layout of Barangaroo Avenue in consultation with TfNSW and having regard for the requirements of Central Barangaroo. The above request is contrary to the outcomes of this agency engagement.

The MOD 9 RtS includes Barangaroo Avenue as a one-way street across the entire length of the site. This will ensure clear delineation for pedestrians, cyclists and vehicle movement within Central Barangaroo and prioritise safe pedestrian movement through the precinct, to Harbour Park and the waterfront. This arrangement also responds to the calmer and less intense land uses of Central Barangaroo, which does not include significant office floor space (as in Barangaroo South) or other uses such as the Crown casino.

Additional analysis of Barangaroo Avenue is provided in **Appendix 2, Page 21-23** including its integration with the future Harbour Park.

3.9 Car Parking

9. Consider reducing the car parking rates across Barangaroo Central to align with its inner-city location and access to public transport including the new metro station.



Applicants Response

The MOD 9 RtS is not seeking changes to amend the car parking rates that apply under the Concept Plan. Previous applications for Barangaroo South have adhered to the rates established under the approval.

The TMAP establishes objectives for the Travel Demand Management Plan (**TDMP**) to reduce unnecessary travel and promote sustainable means of transport. Similar to TDMPs produced for Barangaroo South, these plans outline measures that will encourage future tenants to support sustainable modes of travel and reduce car dependency.

The TMAP confirms the wider Barangaroo Precinct maintains a high level of pedestrian connectivity. The introduction of the metro station will enhance public transport for people travelling to and from the precinct by providing an accessible and high-capacity alternative to Wynyard Station. The metro will support implementation of the TDMP for occupants at Central Barangaroo.

The SoCs provide additional commitments to consider opportunities to promote public and active modes of transport across the wider Barangaroo precinct.

3.10 Other issues / Additional information

10. Clarify how the proposed allocation of between 6,000m² and 18,000m² of GFA to The Cutaway would be accommodated, noting the Department recently approved SSD-47498458 for 9,222m² of GFA within this space.

Applicants Response

A design for a new cultural facility within the Cutaway was recently approved with 9,222sqm of GFA, which is within the envisaged range of 6,000sqm to 18,000sqm but allowing for future modification and/or expansion within the envisaged GFA range. The upper limit of 18,000sqm reflects the amount of GFA that could be achieved within the landform of the approved space at Headland Park.

While the Concept Plan could be amended to exactly reflect the currently approved design, this would unnecessarily limit potential future expansion within the existing Cutaway structure.

3.11 Winter Gardens

11. The Department does not support the exclusion of winter gardens from GFA calculations. Please provide updated GFA calculations which include the wintergardens.

Applicants Response

The reference scheme does not propose any wintergardens as part of the design, and hence no additional GFA needs to be calculated. However, it is appropriate for the Concept Plan to make provision for winter gardens where detailed design identifies that the relevant wind criteria cannot be met on residential balconies. This approach ensures a high level of amenity can be achieved without impacting the overall GFA and is consistent with the approach supported by the Department for Barangaroo South which in Condition B4(4) excludes wintergardens from the calculation of GFA in



Blocks 4A 4B and Y as well as being consistent with the principle adopted by the City of Sydney for Central Sydney.

3.12 GFA per Block

12. Nominate a maximum GFA allocation for each block, similar to Barangaroo South.

Applicants Response

An indicative GFA distribution that aligns with the RtS reference scheme is provided in **Appendix 2, Page 9**. However, the MOD 9 RtS seeks concept plan approval only, and no consent is sought for any built form designs (whether reference design or otherwise) as part of this application.

It is noted that approval of a single maximum GFA across the site is proposed, to accommodate land use distribution and detailed design within each block which may require transfer between blocks due to different GFA efficiencies or building typologies. This also allows future forms to be flexible to ensure the delivery of design excellence across the site.

There is no direct benefit in restricting the amount of GFA in each block as the massing within each block is ultimately controlled by the Concept Plan envelopes in conjunction with the Design Guidelines.

3.13 Drawing Inclusions

13. Provide detailed building envelope plans for approval which include:

- *A measurable scale and include a scale in the legend*
- *Annotated dimensions including distance from roads and site boundaries, widths depths and heights and north point.*

Applicants Response

Building envelope plans with scale are provided at **Appendix 2, Page 10**.

3.14 Separate Drawings

14. Provide the following images in the Urban Design Report as separate plans with clear scale, revision numbers, north points, and titles, for assessment:

- *Public space analysis on p. 35*
- *Block dimensions and the north-south lane on p. 59*
- *Heights and deep soil on p. 61*
- *Articulation zones and Facades on p. 62.*

Applicants Response

Separate plans are provided at **Appendix 2, Page 11-16** for information purposes.



3.15 TMAP

15. Update the Transport Management and Accessibility Plan (**TMAP**) to:

- Clarify whether the intersections on Hickson Road into Central Barangaroo are vehicle intersections or pedestrian crossings, noting TfNSW's concern regarding the signalisation of the Hickson Road / Waterman's Quay intersection.
- Provide recent data for nearby intersections noting the data used predates the current impact of the Crown Casino and future occupation of R4A, R4B and R5.

Applicants Response

An amended TMAP was submitted with the exhibited RtS, which confirms the total volume of traffic generated by the entire precinct will be slightly reduced when compared with that of the original MOD 9.

All intersections on Hickson Road have been modelled as signalised intersections with pedestrian crossings to align with plans for Hickson Road (as available at the time of assessment). This is consistent with the previous MOD 9 TMAP and MOD 8.

The Hickson Road/Waterman's Quay intersection currently operates within capacity and with a good Level of Service (**LOS**) as noted in the modelling results in the RtS TMAP report.

No recent data is currently available for the Crown Casino and building R4A, R4B and R5. The data that was used in the RtS TMAP assessment is consistent with the data that was used for previous modifications including MOD 8 Appendix A. There has been no change to the potential impact of these buildings from when the planning application for Barangaroo South was approved.

3.16 Public Domain

16. Confirm the staging, delivery, and ownership/management of all future public domain areas including Hickson Park and internal streets/footpaths.

Applicants Response

An indicative ownership plan which shows the proposed management of spaces within the site is provided in **Appendix 2, Page 17**. This will be subject to review as design progresses.



4 Response to GANSW Key Issues

The Applicant's response to key issues raised by GANSW are provided below

4.1 Envelope

1. East-west 6m-wide laneway

The 6m wide east-west laneway within block 5 is shown dashed in some of the envelope drawings submitted, however it is not included in 3D envelope models and digital files.

Recommendation:

- *Ensure that this laneway is shown as a void in the proposed envelope.*
- *The western portion of this link should be 'open to the sky' in the proposed envelopes as demonstrated in the reference scheme. Eastern portion can be double height.*

Applicant's Response

GANSW expressed concern about Building 1B potentially becoming an exclusive, free-standing 'island' building and requested that it be integrated with the main massing of Block 5 (with Building 2B). As a result, the reference scheme was amended to include an arcade rather than an open to sky laneway. This strategy enables buildings 1B and 2B to be a singular mass if required.

Importantly the separation or isolation of the built forms will be explored during the detailed design phase architectural teams to better understand the proposed land uses and the suitability or not of joined or separated building forms.

The question of whether these buildings are connected or free-standing would best be resolved through the SDRP process.

2. East-west street between blocks 6 & 7

The east v west street to the north of the site reduces in width from 20 into 12m to the east.

Recommendation:

East-west streets should have a consistent width of 20m for their entire length from Barangaroo Ave to Hickson Rd and be open to the sky.

Applicant's Response

The current approval provides only a single 20 metre wide east west link, with a smaller 10 metre wide link a short distance to the north, resulting in a very large Block 7. To provide improved east-west connections and three more regularly proportioned and spaced blocks/links, the MOD 9 RtS has expanded the northern link to predominantly 20 metres and relocated it north.

While the eastern end of this link is 12 metres wide, it exceeds the 10 metre width referred to the current approval and opens out to 20 metres for most of its length at Harbour Park end. The current configuration as exhibited at RtS stage is therefore not proposed to change. Refer to **Figure 5**.

It is noted that Exchange Place within Barangaroo South is a 12 metre wide east west link that connects directly to Wynyard Walk and has some of the highest pedestrian usage within the Barangaroo site. During the assessment process the Department raised concern with the reduction in width of that east west link but ultimately supported 12 metres.

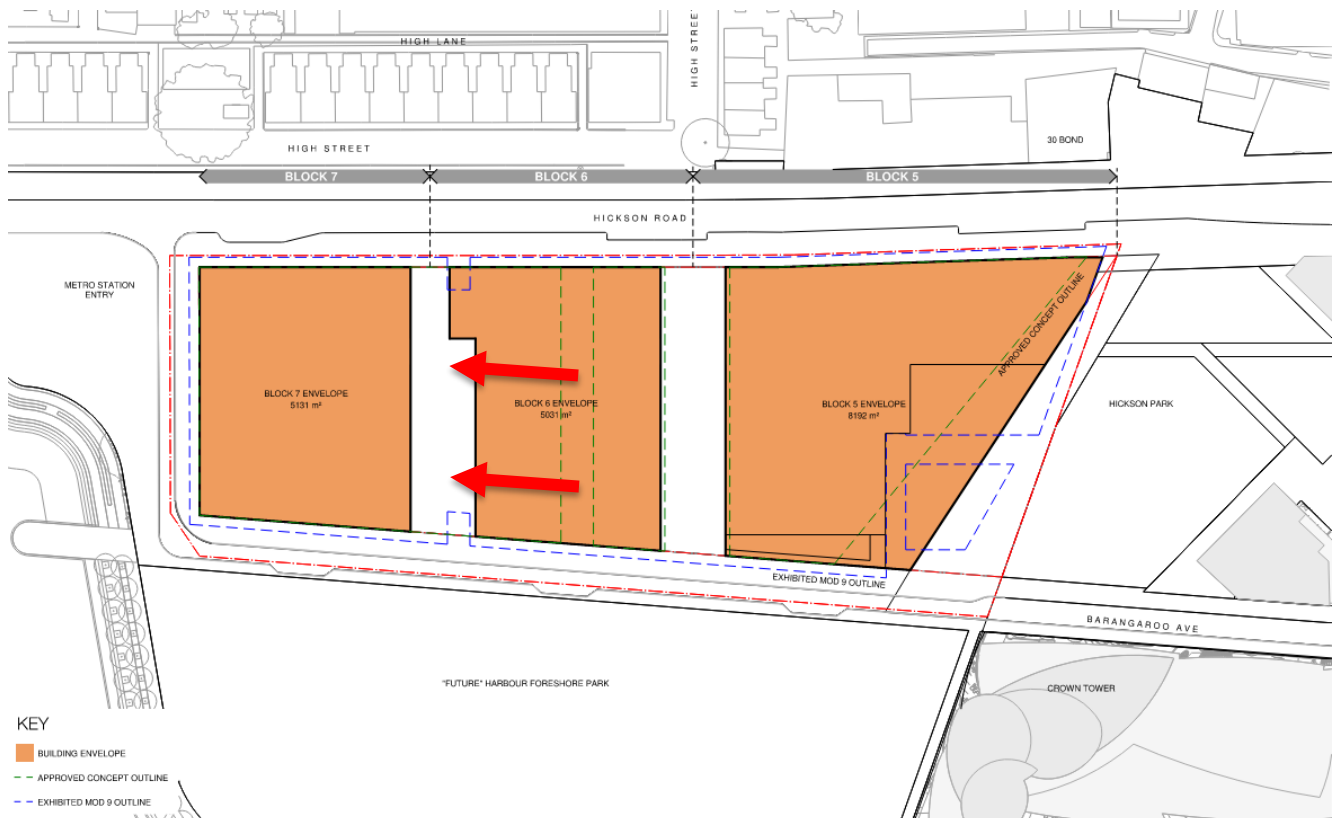


Figure 5 – Amended envelope and block layout

3. North-South Street

The north-south street is shown indicatively in some envelope drawings.

Recommendation:

Ensure that all streets are shown as a void in the proposed envelope.

Applicant's Response

The future north-south link will be open to the sky as confirmed in the Design Guidelines, supporting documentation, and additional separate drawings requested by DPHI and addressed in the report. The intention is to establish flexibility in the location of this link subject to resolution of detailed building design in future SSDAs and design excellence.



4. Overly complex Block 5 envelope

The rationale for the over-articulated western edge of block 5 is unclear.

Recommendation:

- *Simplify the envelope to display a simple more regular form as per the other envelope designs.*
- *Identify or explain the rationale for the complexity of this corner.*

Applicant's Response

The Block 5 envelope is a direct result of the Deed of Sight Line Resolution (**DOSLR**) that forms part of a private legal agreement as between INSW, Crown and Lendlease. That is, it reflects an existing constraint, imposed by the land owner and Applicant and is not a final building design.

As demonstrated in the reference scheme, the final building design is not required to follow this form, and will follow the Design Guidelines and the design excellence process.

5. Design Guide provisions:

Revised provisions do not reflect many of the recommendations of other RTS supporting documents i.e. View and Visual Impact Assessment and Heritage Impact Assessment. In particular please note the following:

- *Provide guidance on the interface with Millers Point and Dawes Point heritage precinct (similar to the provisions for Hickson Park interface, Barangaroo Avenue, Harbour Park and Nawi Cove interface (p 76) and*
- *Provide clearer and more explicit guidance in relation to managing the impact of rooftop plant. Current guidelines focus on landscape treatments and even these are only discretionary.*
- *Provisions should not be discretionary (i.e. state what the outcome should be rather than using 'consider).*

Applicant's Response

Interface with Millers Point and Dawes Point heritage precinct

The mitigation measures recommended in the VVIA that relate to the Millers Point and Dawes Point heritage precinct are:

- *Consider creating **sufficient visual contrast** between Central Barangaroo built form and the heritage backdrop of the Millers Point Conservation Area, to provide clear delineation between the two, thereby highlighting the historic landscape and architectural qualities of the Conservation Area, e.g. as seen from Balmain East.*
- *Consider **fine grain modulation** in the Central Barangaroo stages to reflect the historic urban form of the adjacent Millers Point and Dawes Point Conservation Area.*
- *Consider **use of materials** which are visually recessive and sympathetic to the character of Millers Point so that the foreground built form does not visually compete with views to and from historic locations.*



These have been expressed at an appropriately broad scale and have been incorporated into the Design Guidelines. It is not appropriate to express these guidelines in the same detailed manner as the immediately adjoining public realm (such as Hickson Park, Barangaroo Avenue, Harbour Park and Nawi Cove).

The mitigation measures recommended in the HIS that relate to the Millers Point and Dawes Point heritage precinct are:

- ***Future development should be designed to reduce impacts to and from the Millers Point and Dawes Point Village Precinct, the heritage conservation area and heritage items in Millers Point, Observatory Hill and elsewhere. The proposed built form in key locations could be reduced to optimise historical visual connections, and views to and from the harbour from Millers Point and Observatory Hill.***
- ***Detailed design development should explore options to optimise the retention of views, respecting the heritage significance of the setting, heritage listed areas and listed heritage items.***
- ***Heritage impacts could be minimised/mitigated at the design development phase, through innovative design guided in consultation with heritage advice.***
- ***Future development should specify building forms, landscaping and materials that are visually recessive and sympathetic to the character of Millers Point so that the foreground built form does not visually compete with, and overwhelm views, to and from listed conservation areas and heritage items. The height of Blocks 5 and 6 exceed the approved concept plan by 8.45m and 6m respectively, and careful articulation of the height in these blocks to conserve visual connections could potentially be a mitigation measure from a heritage perspective.***

These recommendations have been appropriately drafted to guide 'future development' and 'design development'. They do not recommend any alteration of the proposed RtS envelopes or any other aspect of the Concept Plan as proposed to be modified.

The recommendations of both reports are contained in discrete sections of each report and are specifically called up as a matter for consideration in future SSDAs as noted in SoCs 117.

Rooftop plant

Updated Design Guidelines are attached at **Appendix 2, Page 19-20**, which provide additional guidance on rooftop plant and landscaping treatments.

Discretionary Provisions

Discretionary provisions allow for flexibility in the design process and will be specifically brought to the consideration of the CBD RP. To this end, prescribing a stated outcome would preclude innovative approaches and potentially constrain design excellence. The provision of higher order controls will allow for flexibility in the design excellence process.



4.2 Public domain

6. Shared zone (Barangaroo Ave)

The shared zone to Barangaroo Ave is supported in principle however it should be widened to accommodate two-way traffic rather than one way. This will:

- maintain the existing traffic pattern of Barangaroo Ave and better integrate the precinct with Barangaroo South.*
- improve accessibility to the foreshore park with more intuitive wayfinding from Hickson Road*

In addition, please note the following:

- Provide for kerbside parking to maximise opportunities for the general public to access the park.*
- Prioritise sheltered pedestrian access along the Barangaroo Ave frontages — current provisions indicate outdoor seating under awnings — with pedestrians in the open (p 77).*

Awning depths should be increased to ensure adequate shelter from angled sun and rain.

Applicant's Response

Two Way Traffic on Barangaroo Ave

As discussed earlier in this document, the Applicant has worked through the preferred one way layout of Barangaroo Avenue in consultation with TfNSW and having regard for the requirements of Central Barangaroo. The above request is contrary to the outcomes of this agency engagement.

The MOD 9 RtS includes Barangaroo Avenue as a one-way shared zone. This will ensure clear delineation for pedestrians and vehicle movement within Central Barangaroo and prioritise safe pedestrian movement through the precinct, to Harbour Park and the waterfront. This arrangement also responds to the calmer and less intense land uses of Central Barangaroo, which does not include significant office floor space (as in Barangaroo South) or other uses such as the Crown casino.

Additional analysis of Barangaroo Avenue is provided in **Appendix 2, Page 21-23** including its integration with the future Harbour Park.

Kerbside Parking

Additional studies have been prepared to demonstrate capacity for kerbside parking and pedestrian amenity in **Appendix 2, Page 21-23**. The proposed outcomes for Barangaroo Avenue have informed updated Design Guidelines at this location.

The specific design outcome of kerbside parking, and its integration with future buildings and the public domain, will be advanced in future detailed SSDAs. This includes potential for vehicular traffic, pedestrian movement, outdoor dining/retail activation and vehicle layby/planting.

Sheltered Access

While **Figure 6** (from **Appendix 2**) indicates dining under the awning, with pedestrian movement beyond. This is consistent with Barangaroo South where awnings are provided in certain locations, and pedestrian movement is provided beyond that. It is further noted that Crown Casino provides limited sheltered access.

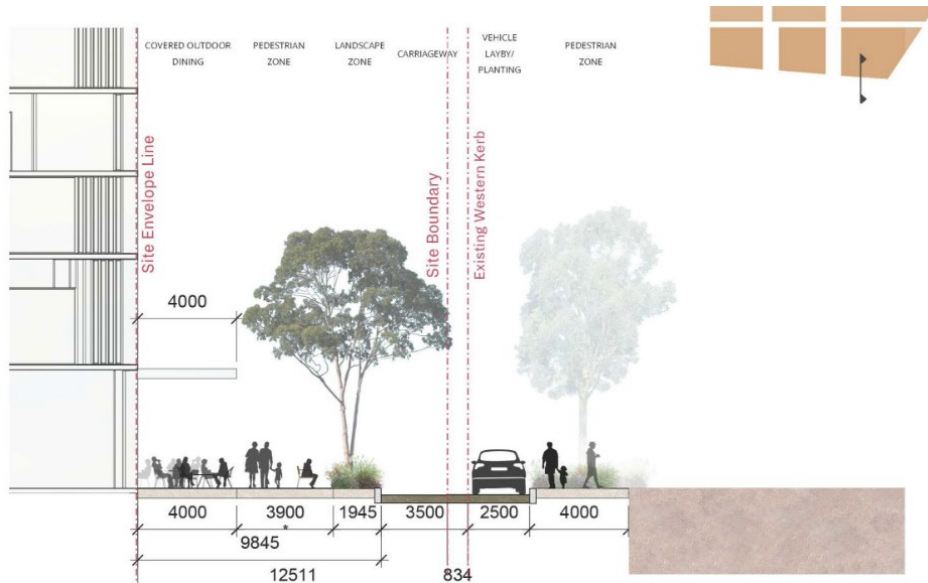


Figure 6 – Barangaroo Avenue section



Figure 7 – Precedents of awnings with outdoor dining on the outer edge of the public domain

7. Bridge link from High St

Reinstating this bridge link is strongly supported and should be a clear public connection that is fully accessible. Currently the Reference Design shows the bridge connecting directly into the upper levels of the block 5A envelope to access the metro station directly (p.56 UD report).

The bridge and its approaches should be fully visible and accessible from the public domain i.e. connecting directly from High Street to the Barangaroo Ave footpath / setback zone (Nawi Cove interface), with access to the metro station via the public domain.

Recommendation:

To accentuate its visibility and purpose as a public connection, the bridge and its approaches should be:

- *Visible and accessible from the public domain*
- *Connecting directly from High Street to the Barangaroo Ave footpath / setback zone (Nawi Cove interface), with access to the metro station via the public domain.*

Applicant's Response

A lightweight pedestrian bridge over Hickson Road is required under Condition B10 of the current Concept Plan approval. No modification is proposed in relation to this requirement.

The proposed bridge is located in its historic location respecting its heritage and providing clearance to cars on Hickson Road beneath. Landing the bridge within the building provides an important vertical circulation function connecting pedestrians directly with the Barangaroo Metro Station, and the ground plane enabling access to the precinct and public realm.

The RtS reference scheme indicates the intended integration of the bridge into Block 7. We note this is consistent with the original bridge structure which connected directly from High Street into the upper levels of the wharf building – see **Figure 8** below.

The bridge will be highly visible and accessible from Nawi Cove and Millers Point. It will be clearly signed from within the public domain as part of the precinct wayfinding, ensuring ease of pedestrian movement to and from Nawi Cove and the Barangaroo Metro station. Integrating the bridge with Block 7 ensures direct and integrated access to the Barangaroo Metro Station immediately below, providing direct and efficient access to residents from Millers Point to the station.

Additional analysis in relation to this interface is provided at **Appendix 2, Page 24**. The final design of the bridge will be subject to future design excellence and detailed SSDA processes.



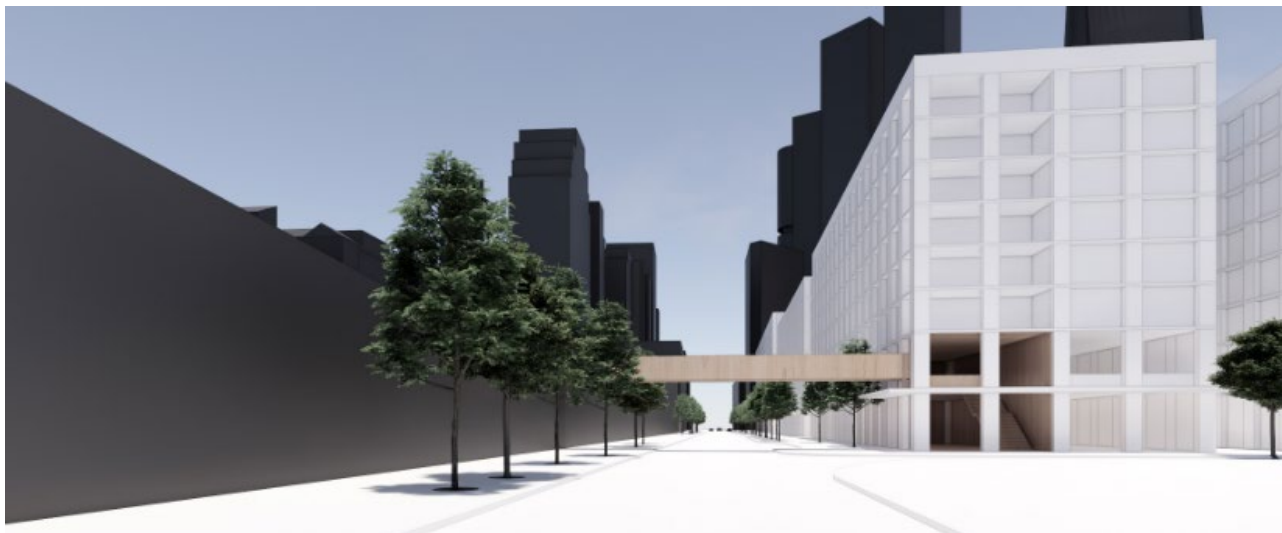


Figure 8 – Historic footbridge (above) and indicative footbridge (below)

8. Size of Hickson Park

The scale of Hickson Park and width of the opening to the harbour to the west have improved from the MOD 9 envelope, and the analysis has demonstrated that the scale is commensurate to other successful public spaces. However, the park remains smaller than the original approval through the built form encroachment into the space.

The reduced north-western aperture is demonstrated to improve the wind comfort when the wind is coming from a westerly direction. The proposed reduction in height of block 5 along Hickson Park's northern boundary demonstrates that there is a greater area of the park achieving solar access in mid-winter between the hours of 12-2pm, albeit the overall extents of sun beyond the 2-hour threshold appears to be reduced.

It is noted there is limited ability for soil depth to provide significant tree growth, and the northern boundary of the park supports deeper soil than other areas. The reduction of the park size along the northern boundary will reduce this zone.

Recommendation:

- To demonstrate the **public benefit of the reduced park size** beyond the original MOD 9 size, provide the following comparisons between the current proposal and the approved MOD 9 envelope:
- The **quantifiable difference in square metre area of solar access** between 11-3pm in mid-winter. This broader timeframe is commensurate with a recreational use, as opposed to the conventional commercial area lunchtime use of 12-2pm
- Details of **wind comfort** impacts from other orientations, beyond just the westerly wind condition. Provide details of the wind comfort standard that is achieved
- **Eye height view analysis** from various points within Hickson Park indicating building envelope heights of the proposal
- **Extent of tree canopy** that is able to be provided within the soil depths of Hickson Park.



Applicant's Response

Amount of Open Space

The reallocation of public spaces within Central Barangaroo (internal plazas and laneways) demonstrates a net increase of publicly accessible open space compared to the original Concept Plan. The proposal results in a net increase of 1,264sqm of publicly accessible open space.

This is attributed to the provision of additional public domain areas within the Central Barangaroo. This includes a new north-south pedestrian connection (8 metres wide) that will serve as a key pedestrian and visual connection from Hickson Park to Nawi Cove and the new Metro Station. Other new public spaces include Plaza North (12 metres -20 metres wide) and a new east-west arcade (6 metres wide).

Extensive urban design testing and supporting technical analysis has been undertaken that demonstrates the changes, when compared to the approved Concept Plan, results in improved solar access and pedestrian wind comfort, respecting visual links to Harbour Park and facilitating a high-quality public space.

Solar Analysis

Solar analysis of Hickson Park between the hours of 11am-3pm during winter solstice is provided at **Appendix 2, Page 25**.

The proposed RtS envelope delivers reduced overshadowing of Hickson Park when compared with the Approved Concept Envelope.

The Approved Concept Envelope overshadows 30.1% of the Hickson Park (or 3,436sqm), while the proposed RtS envelope overshadows 24.7% of the park (or 2,420sqm). This results in improved solar access to Hickson Park by 1,016sqm between 11am and 3pm mid-winter.

Wind Analysis

Further wind analysis has been provided at **Appendix 2, Page 26**, which compares the Approved Concept Envelope and proposed RtS Envelope on an annual wind comfort criteria basis.

This analysis confirms that both the Approved Concept Plan Envelope and proposed RtS envelope result in similar overall pedestrian comfort.

Importantly, the proposed RtS envelope improves passive pedestrian comfort along the southern edge of Block 5 adjacent Hickson Park, when compared to the Approved Concept Plan Envelope.

Eye height view analysis

An additional eye height view comparing the approved and proposed envelopes is provided at **Appendix 2, Page 27**.

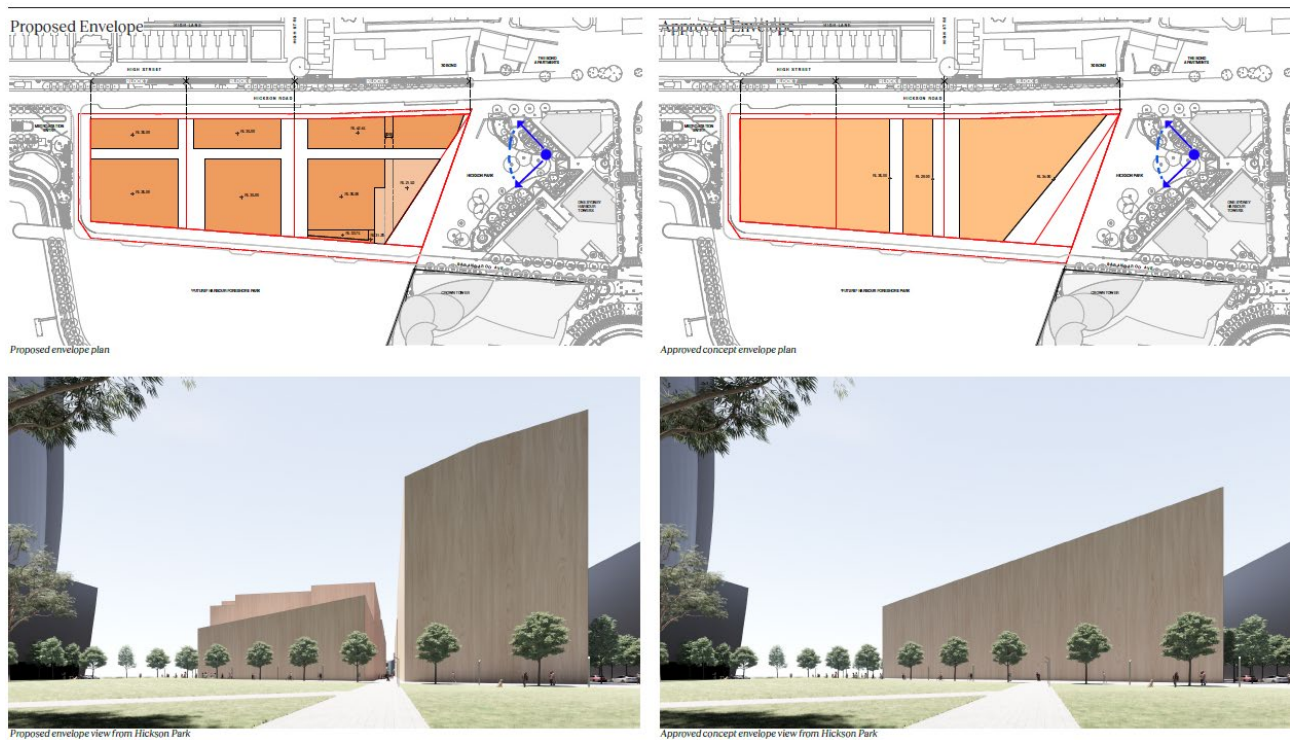


Figure 9 – Eye height view from Hickson Park

Figure 59 in the Rts report (and below) illustrate the ground level view of the Hickson Park looking towards the Sydney Harbour from the locations as specified on the plan above.

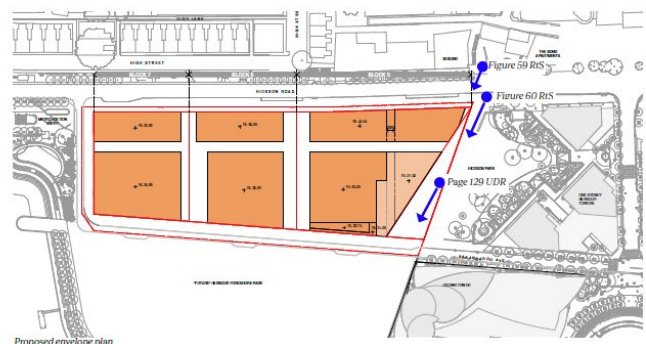


Figure 59 of the Rts report - Illustrative view from Hickson Park looking towards the Sydney Harbour

Figure 60 in the Rts report (and below) illustrate the ground level view of the Hickson Park looking towards the Sydney Harbour from the locations as specified on the plan above.



Figure 60 of the Rts report - Illustrative view from Hickson Park looking towards the Sydney Harbour



Proposed envelope plan

View on Page 129 of the Urban Design Report (and below) illustrate the ground level view of the Hickson Park looking towards the Sydney Harbour from the locations as specified on the plan above.



Page 129 view of the Urban Design Report - Built form massing, showing the threshold between the Crown building and Barangaroo Central.

Figure 10 – Additional views with location plan within and around Hickson Park

The view demonstrates a general reduction in scale and height of the blocks along Hickson Park, which represents a suitable transition of scale along the park edge and maintains views towards Harbour Park. By introducing the north-south link, additional visual links and connectivity are available to Nawi Cove and Headland Park.



Extent of Tree Canopy in Hickson Park

There are potential opportunities to accommodate a significant tree canopy within Hickson Park. As noted in the deep soil response in this report, some of this is accommodated within Central Barangaroo while further additional tree canopy opportunities could be explored by the responsible authority in control of Hickson Park. This potential is depicted in the Landscape plan at **Appendix 2, Page 6**.

9. Deep soil to Hickson Park

There is some discrepancy between what is labelled 'deep soil' to the south of the proposed envelope.

Recommendation:

- *Outline the extent of basements beneath Hickson Park*

Clarify the extents of unimpeded deep soil, if any. Note that deep soil is an area of natural ground with no obstructions above or below.

Applicant's Response

A deep soil plan is provided at **Appendix 2, Page 15**, which demonstrates the extent of unimpeded deep soil when considered with the basement included in the RtS reference scheme. Refer to **Figure 12**. This indicates the potential for over 8% deep soil, which can be delivered along Hickson Park and adjacent to Harbour Park. In addition, the plans demonstrate opportunities for landscaping within the site's links and plazas. The precise location of deep soil and landscaping will be subject of future SSDAs.

The total provision of deep soil should be read in context across the entire Barangaroo Precinct. The wider precinct provides varying deep soil approaches to Headland Park, Harbour Park and Barangaroo South, all of which demonstrate capacity for mature planting and significant trees without the need for conventional deep soil (as defined by the ADG). Furthermore, over 50% of Barangaroo will be retained as public open space.

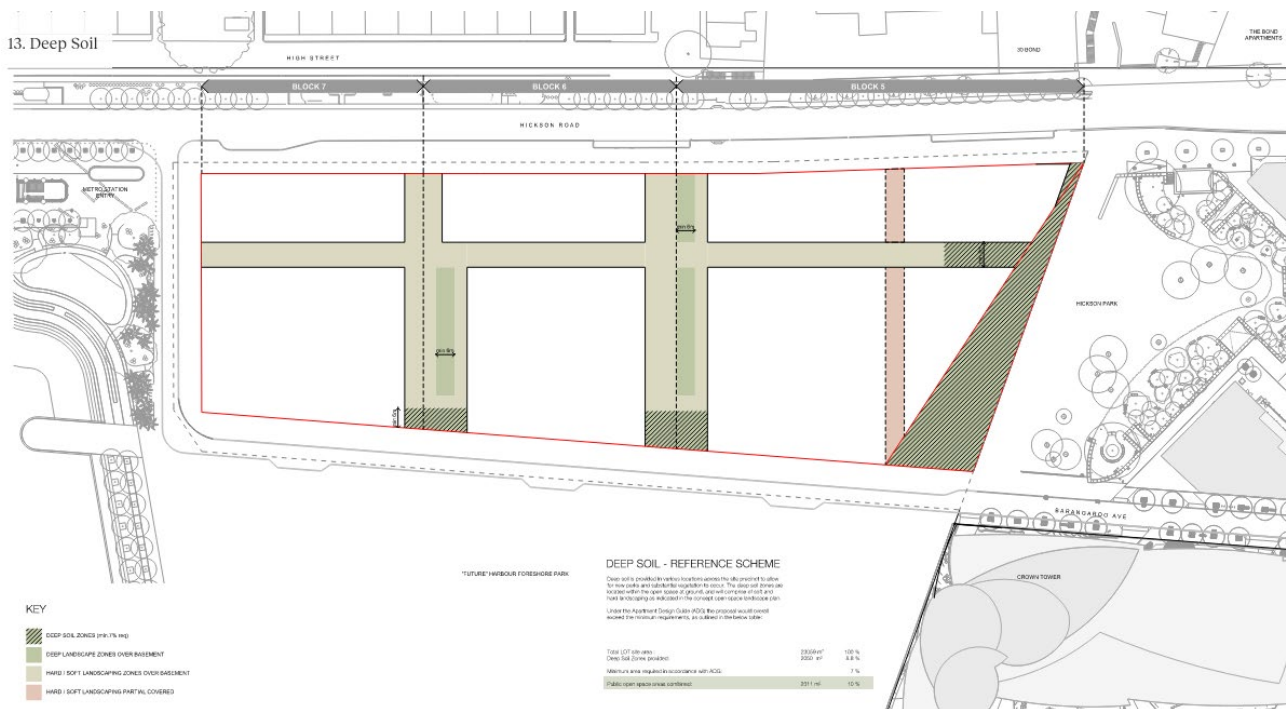


Figure 11 – Deep soil plan depicting locations of deep soil and landscape zones over basement

4.3 Design Excellence Strategy

10. Revise Design Excellence Strategy

As discussed with the proponent, a revised design excellence strategy will need to be submitted as part of a supplementary RTS.

It should reflect the advice provided by GANSW during discussions with the proponent and their architect and confirmed in follow up emails.

Applicant's Response

A Design Excellence Strategy is provided at **Appendix 3**. The Design Excellence Strategy establishes the framework, principles and procedures to facilitate design excellence for mixed-use development featuring residential, retail, commercial and community land uses at Central Barangaroo.

Condition C2(1)-(4) of the Concept Approval does not apply to a Concept Plan Modification. Condition C2(5) notes the Design Review Panel may also be "utilised for any significant changes to the Concept Plan, as determined by the Director General (Secretary)". For Modification 9 the Secretary has relied on the advice of the members of the Government Architect for the purposes of design excellence advice in relation to the Modification.



4.4 Reference Scheme

11. Alternative massing configurations

The reference scheme tests only one of the multiple configurations shown in Attachment C - Urban Design Report and Design Guidelines Part 06 - Potential built form configurations.

Recommendation:

- *Demonstrate how the requested GFA can be accommodated within the other configurations identified.*
- *Clearly demonstrate GFA calculation methodology for all proposed typologies that includes:*
 - *Floor by floor area of overall built form envelope,*
 - *Extent of balconies, voids and external spaces not included as GFA*
 - *Application of typical commercial/hotel/residential building efficiencies/core allowance to the total area*
 - *Floor to floor height assumptions for different typologies, along with assumptions for plant allocations (including roof)*
 - *Applying an allowance for building articulation to enable a high performing building with sufficient flexibility to support a high- quality design outcome.*
- *The above methodology should illustrate how GFA is allocated on a block-by-block basis.*

Remove ground floor external retail within the courtyards from GFA allowance.

Applicant's Response

The Applicant has submitted a reference scheme, which is standard practice for any concept application. The proposed reference scheme has been assessed against key criteria of the ADG, demonstrating that guidelines in relation to matters such as solar access, separation and natural ventilation can be achieved.

While it is acknowledged that more than one design response is possible within both the Approved Concept Plan Envelope and the proposed RtS envelope, consideration of other configurations is appropriately undertaken at the detailed design and SSDA stage.

The reference scheme is generally consistent with the floor heights and efficiencies noted in the Indicative Massing at **Appendix 1**. However, no consent is sought for any built form designs (whether reference design or otherwise) as part of this application.

An indicative GFA distribution that aligns with the RtS reference scheme is provided in **Appendix 2, Page 9**. It is noted that approval of a single maximum GFA across the site is proposed, to accommodate land use distribution and detailed design within each block which may require transfer between blocks due to different GFA efficiencies or building typologies. This also allows future forms to be flexible to ensure the delivery of design excellence across the site. There is no direct benefit in restricting the amount of GFA in each block as the massing within each block is ultimately controlled by the Concept Plan envelopes in conjunction with the Design Guidelines.

The final composition of uses may evolve through the delivery of the project and any GFA testing involves assumptions that cannot be confirmed at this point.



12. Residential capacity

The reference scheme indicates apartment sizes that range from 268m² to over 600m². This is considerably larger than the average apartment range in neighbouring luxury developments.

While this may form the allocation for a small to medium portion of the development, there is a concern that it is an unrealistic test of GFA allocation, has a disproportionately small private balcony provision and represents misleading ADG compliance, particularly in relation to solar access, cross ventilation and building separation (particularly between habitable rooms).

Recommendation

Test a broader range of apartment sizes more aligned with comparable residential developments to test alternate GFA allocations, reference scheme massing and residential amenity through ADG compliance.

Applicant's Response

A comparison with smaller apartment typologies is provided at **Appendix 2, Page 5**.

These plans compare the reference scheme with smaller apartments, demonstrating that these can also satisfy the achieve the ADG 70% solar and 60% cross ventilation requirements.

The RtS does not seek approval of the reference scheme (or any other built form design). Future detailed design of buildings will be required to demonstrate design excellence and undergo testing to ensure appropriate compliance with the planning controls.



5 Response to City of Sydney Key Issues

5.1 Height

There should be no exceedance in height (including rooftop terraces, equipment, lighting and lift overrun etc), and in key locations, public view corridors must be retained and opened up in these sensitive locations.

The proposed building heights create blocky building typologies, bulking out the proposed envelopes. Block 5 has been maximised based on a minimum solar access offering to Hickson Park and does not appear to be founded on a well-considered place based urban design where the design of public space comes first.

Applicant's Response

The proposed heights of the MOD 9 application have been carefully considered following the first public exhibition. Significant height refinements from the previously exhibited MOD 9 include:

- The proposed RtS envelope height for Block 7 has been reduced by 38m (from RL 73.7 to RL 35), removing the previous tower form, and now consistent with the Approved Concept Envelope.
- The proposed RtS envelope height for Block 6 has been reduced by 3.7m (from RL 38.7 to RL 35) and is defined by a new and generous 20m wide east-west pedestrian link to its north (referred to as Plaza North), and a further 20m east-west pedestrian link in the south (Plaza South). Both of these spaces will be fully open to the sky and facilitate views from Observatory Hill and Millers Point to the foreshore.
- The proposed RtS envelope heights for Block 5 have also been reduced in varying degrees (between 2m and 10m across the block). Minor modifications to the Approved Concept Envelope height are located in the south-eastern corner of the site thereby prioritising public and heritage views from key locations.

These refinements deliver a number of benefits across the site:

- Views – reduced visual impacts as a result of the reduction and distribution of heights across all blocks, with the only notable component siting above the Approved Concept Plan Envelope positioned in the south-east corner of the site where it has no visual impact from Observatory Hill and the surrounding Millers Point view lines.
- Heritage – reduced height improves views to and from Millers Point and Observatory Hill from immediate and wider visual catchments, while the additional public domain and pedestrian links create a more compatible scale to the surrounding heritage context.
- Solar – reduced southern edge of the Block 5 envelope to improve the interface and solar access to Hickson Park and Harbour Park.
- Public realm – introduction of two large plazas and a series of laneways increasing porosity, views through the site, and contributing to an increase in public domain.



The RtS does not seek approval of the reference scheme, or any other built form design. The final building heights will be a matter of design which will be brought forward as part of future SSDA's.

5.2 Size of apartments

The reference scheme indicates few, large apartments in comparison to the quantum of additional residential GFA proposed. It does not address the housing shortage with such large apartments indicated. The preliminary satisfaction of the objectives of the ADG is linked to the massive apartment sizes. The ADG should be retested with reduced apartment sizes.

Applicant's Response

The reference scheme is indicative only, and the RtS does not seek approval of the reference scheme (or any other built form design) as part of this application.

Notwithstanding, additional analysis has been undertaken by SJB at **Appendix 2 Page 5**, which compares the reference scheme with smaller apartment typologies, demonstrating these can also achieve the ADG 70% solar and 60% cross ventilation requirements.

Future detailed design of buildings will be required to demonstrate design excellence and undergo testing to ensure appropriate compliance with the ADG at that time.

5.3 Public Views

The application fails to adequately assess the potential impacts of the proposed building envelopes, particularly the public views and vistas from Observatory Hill and Millers Point.

Applicant's Response

The MOD 9 RtS was supported by a detailed View and Visual Impact Assessment (**VVIA**), which considers over 40 views from public areas including Observatory Hill, Millers Point and views from Balmain looking at the Millers Point Conservation Area.

A supplement to the VVIA is attached at **Appendix 4**. This supplement compares the Indicative Massing within the Approved Concept Plan Envelope with the proposed reference scheme within the proposed MOD 9 RTS envelope, from key views and vistas identified in *Sydney Development Control Plan 2012 (SDCP 2012)*, including Observatory Hill and Millers Point.

The supplementary VVIA confirms that there is no change in the findings of the RtS VVIA and that the changes introduced through the RtS will improve the visual amenity of the surrounding landscape. Refer to **Figure 12**.



Approved Concept Plan Envelope



Approved Concept Plan Envelope with Indicative Massing



Proposed RtS Concept Plan Envelope



Proposed RtS Concept Plan Envelope with Indicative Massing

Figure 12 – VVIA extract from Observatory Hill



5.4 Hickson Park

The development of Barangaroo Central is one of the last remaining components of the Barangaroo revitalisation and should complement the delivery of important public spaces. It interfaces with Barangaroo South at Hickson Park. The City opposes a reduction to the size of Hickson Park.

The proposed encroachment of the southern boundary of Block 5 of Barangaroo Central into the Hickson Park compromises the size, amenity, and connectivity of Hickson Park. The proposed boundary does not reinstate the approved boundary which was the result of significant consideration by the Planning Assessment Commission (PAC), the forerunner to the Independent Planning Commission (IPC), during the assessment of Modification 8. Any reduction in the park area by virtue of adjusting the northern boundary is not supported as there is no net public benefit, including considering the argument of minor wind mitigation.

Applicant's Response

The exhibited RtS provides detailed justification for the refinements to Hickson Park including maintaining appropriate levels of solar amenity, improved wind mitigation, maintained visual connectivity to the waterfront, provision of new internal public domain and maintained capacity for deep soil and a high quality landscape outcome.

The RtS increases the extent of public domain and open space across the site compared to the current approved Concept Plan for Blocks 5, 6 and 7, including 5,674sqm of open space and publicly accessible areas.

These additional spaces, combined with the adjustments to the Hickson Park boundary, results in a net public benefit in the form of 1,264sqm of additional open space across Central Barangaroo (6,939sqm total).

Furthermore, the interface of Block 5 to Hickson Park is designed to minimise overshadowing, achieved through reduced building envelope heights at the southern edge (RL 21.5 and RL 31.2).

Additional analysis has been provided in **Appendix 2** that provides additional justification of Hickson Park. The additional analysis reconfirms:

- The proposed RtS envelope results in reduced overshadowing of Hickson Park when compared with the Approved Concept Plan Envelope,
- The proposed RtS envelope delivers an increase (improvement) in passive pedestrian comfort along the southern edge of Block 5 adjacent Hickson Park, and
- There are potential opportunities to accommodate a significant tree canopy within Hickson Park.

5.5 Private Parking

The use of outdated parking rates, which are further sought to be applied to the considerable residential uplift, is inconsistent with the sustainability objectives for the development of Barangaroo and should be reduced to reflect the current transport planning policy and discourage private car dependency an immediate service by a new Metro station.



Applicant's Response

There are no changes proposed to the approved parking rates under the Concept Plan approval. Previous applications for Barangaroo South have adhered to the rates established under the approval.

The TMAP establishes objectives for the Travel Demand Management Plan (**TDMP**) to reduce unnecessary travel and promote sustainable means of transport. Similar to TDMPs produced for Barangaroo South, these plans outline measures that will encourage future tenants to support sustainable modes of travel and reduce car dependency.

The TMAP confirms the wider Barangaroo Precinct maintains a high level of pedestrian connectivity. The introduction of the metro station will enhance public transport for people travelling to and from the precinct by providing an accessible and high-capacity alternative to Wynyard Station. The metro will support implementation of the TDMP for occupants at Central Barangaroo.

The SoCs provide additional commitments to consider opportunities to promote public and active modes of transport across the wider Barangaroo precinct.

5.6 Public Benefit

The significant changes proposed in Barangaroo Central and development on public land are not accompanied by sufficient public benefit. The public benefit offering remains unchanged and does not reflect the significant uplift proposed under this modification. It needs to be pro rata the additional floor area. There must be a minimum provision for affordable housing on site to support the City's Strategic Planning Statement and the NSW Government's priorities.

Applicant's Response

Development in Central Barangaroo will deliver significant public benefits totalling \$226 million including:

- \$78 million to support cultural facilities and initiatives (financial contribution),
- \$61 million for public domain improvements (in kind),
- \$45 million for the embellishment of Harbour Park to world-class standard, including flexible event spaces to accommodate a range of cultural activities (financial contribution),
- \$8 million for Metro Station Southern entry,
- \$2 million for fit-out for arts and community facilities,
- \$11 million for urban arts contribution,
- \$11 million in development contributions, and
- \$10 million for provision of pedestrian footbridge.

These outcomes are in addition to the net increase of public open space of 1,264sqm across Central Barangaroo beyond the approved Concept Plan.

Consistent with the obligations of the approved Concept Plan, MOD 9 will also continue to ensure the broader public benefits are delivered, which include:

- Delivery of 50% of the overall 22-hectare precinct for open space and public recreation uses,



- Regeneration of a former container terminal and waterfront site not previously accessible to the public,
- Enhanced connectivity to Sydney's CBD and inner harbour through Barangaroo Ferry, Wynyard Walk and two pedestrian bridges over Hickson Road,
- Provision of an expansive open space network, interactive and high quality public domain treatments, community facilities, dining and retail activation, and
- Creation of a vibrant mixed-use precinct providing combination of residential, retail, community and commercial opportunities.



6 Response to Heritage NSW

6.1 Increase height and floor area

The proposed revisions, particularly the reduced height of Block 7, assist in mitigating heritage impacts. However, the concerns raised by the Heritage Council in their letter dated 19 August 2022 remain.

There will be an increase of roughly one to three-storeys in height. The information related to reduction in floor area is misleading as it does not indicate above-ground floor area reduction. It is noted that much of the reduction is below ground, with above-ground floor area still substantially more than previously approved. This increased floor area results in excessive bulk which has adverse heritage impacts on Millers Point and Observatory Hill in terms of setting, views and their historic relationship with the waterfront. The increase in height and bulk is, therefore, still not supported.

Applicant's Response

The supplementary HIS letter at **Appendix 5** clarifies that any development at Central Barangaroo will have potential heritage impacts to views through the site, to and from Millers Point/Observatory Hill and the harbour.

It clarifies that when compared with no development on the site, the approved Concept Plan and MOD 9 RTS would give rise to varying degrees of heritage impact. However, the heritage impacts of the MOD 9 RTS are generally consistent with the impacts previously approved under the Concept Plan and therefore considered acceptable.

The proposed MOD 9 envelopes are substantially lower than what was previously proposed. The application is supported by a HIA that provides appropriate recommendations to be considered at detailed SSDA stages to ensure the future form complements the existing heritage context.

The Millers Point Conservation area extends as far south as the southern side of High Street, such that the principal relevant relationship is to Block 7. While the proposed modifications break Block 7 down into smaller components, there is no change to the approved height of RL 35.0.

The principal increase in height is at the western side of Block 5, where the maximum height increase is from RL 34 to RL 42.45 (say three storeys). This occurs to the south of the Millers Point conservation area, between the modern 'The Bond' and 'The Highgate' buildings and the recently completed Crown Casino Building, thereby preserving public and heritage views from key locations.

A supplementary VVIA has been prepared that provides additional visual comparison of the Indicative Massing within the Approved Concept Plan Envelope and the reference scheme within the proposed MOD 9 RtS Envelope. The impact assessment remains unchanged. Additional analysis undertaken in the supplementary VVIA also confirms that the change in height will not generate any notable additional impact between the Approved Concept Plan Envelopes and those proposed by MOD 9 RtS Envelopes.



6.2 GML recommendations

It is also recommended that the recommendations under Section 5.2 of the updated Heritage Impact Statement by GML dated October 2023 are incorporated into the conditions of consent.

Applicant's Response

Noted. This will be considered at future SSDA stages.

The recommendations of the HIS are contained in the discrete Section 5.2 of the report. These recommendations are specifically called up, amongst those of various other reports, as a matter for consideration in future SSDAs in proposed SoCs 117.



7 Response to Department of Climate Change, Energy, the Environment and Water

We refer to comments raised by Department of Climate Change, Energy, the Environment and Water (Water Group) (**DCCEEW**) in relation exhibition of the MOD 9 RtS proposal, which states:

The DCCEEW Water Group has reviewed the Response to Submissions and has identified no further information has been provided to address DCCEEW's previous recommendations in OUT22/12590. It is understood the proponent intends on addressing the recommendations during construction phase. As the recommendations relate to assessing impacts of the project and how these can be managed and meet the water policy and regulatory framework DCCEW maintains the need for these to be addressed prior to approval of the project.

The comments provided by DCCEWW in OUT22/12590 relate to:

- Clarification of the proposed basement design to manage groundwater interactions, and
- To calculate the volumes of groundwater take during construction, and to demonstrate the requirements of the regulatory framework can be met, and
- Clarify triggers and mitigating measures to determine the need for additional waterproofing.

A response was provided by Warren Smith Consulting Engineers (**WSCE**) in Appendix I of the MOD 9 RtS package, which responded to OUT22/12590 and states:

At this stage it is envisaged that the NSW Aquifer Interference policy requirements will be applicable as management of ground water will be required during construction but not end state operation. A Water Access License will be required to facilitate the abstraction and discharge of groundwater. The rate of groundwater abstraction will be determined following a detailed groundwater investigation, monitoring and analysis assessment.

It should be noted as well that the management of the ground water during the construction phase of the project will form part of the contractor's construction management plan, DA requirements, and depending on the rate of ground water abstraction and discharge, the necessary permits will be obtained from the relevant authorities. Additionally, any ground water treatment prior to discharge will also be determined and the extent of treatment will largely depend on the receiving environment and adhering to the relevant authority requirements.

It is envisaged that the management of the ground water during construction will not require any additional waterproofing of the basements during construction as the basements have been designed as a membraned tanked basement.

It is acknowledged these matters are related to the detailed construction and design of basements, which is not the subject of MOD 9.



The application does not seek approval for any physical works or detailed construction of buildings however, notes broadly there will be no need for additional waterproofing during construction as the basements will be designed as a membraned tanked basement.

All mitigation measures and analysis associated with excavation and compliance with the regulatory framework will need to be assessed as part of separate applications.